

TEXT BOOK OF
KAUMARBHRITYA



Rutu Patel

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यद्यत् कर्म करोमि तदखिलं शंभो तवराधनम् ॥

(शिवमानस पूजा)

**Dedicated
to
my dear students**

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PART A

POINT 1

GENERAL INTRODUCTION OF KAUMARBHRITYA

Definition

- कौमारभृत्य - कौमार + भृत्य
- कौमारभृत्यं नाम कुमारभरणघात्रीक्षीरदोषसंशोधनार्थं दुष्टस्तन्यग्रहसमुत्थानां व्याधिनामुपशमनार्थं च ।
(Su.Su.1)
- कुमारस्य भरणमधिकृतं कौमारभृत्यम् । (Cha.Su.30/20)
- गर्भोपक्रमविज्ञान सूतिकोपक्रमस्तथा ।
बालानां रोगशमनी क्रिया बालचिकित्सितम् ॥ (Ha.Sam.Pratham 2/17)

Kaumarbhritya defined as the branch that deals with following aspects:

1. Kaumarbharanam – Management of child
 2. Dhatrikshiradoshasamshodhanartham – Purification of Dhatri Kshiradushti
 3. Dushtastanyagrahasamuthanam Vyadhinam Upashamanartham –
Management of the diseases developed due to Stanyadushti and Grahadushti.
Kaumarbhritya deals with management of the child, purification of the breast milk
and treatment of the child disorders.
- The branch that gives detail description about Kaumarbharanam (management of child) is called Kaumarbhritya. (Cha.Su.30/20)
 - Acharya Harita adds some more Upakrama (management) in the field of Kaumarbhritya. (Harita Sam. Pratham 2/17)
- गर्भोपक्रमविज्ञान — Antenatal care
सूतिकोपक्रम — Postnatal care
बालानां रोगशमनी — Management of the child diseases.
- Garbhopakrama Vigyana – knowledge about Garbhopakrama (management of Garbha) is necessary for coming child.
 - Sutikopakrama is also necessary because at this stage baby gets nourishment from the mother.

IMPORTANCE AND SCOPE OF KAUMARBHRITYA

1. कौमारभृत्यमष्टानां तन्त्राणामाद्यमुच्यते । (Ka.Sam.Vi.)

Kaumarbhritya is considered as Adhya Tantra (First) branch of Ayurveda among all eight branches according to Kashyap Samhita and it has been compared with Havyapa (Agnideva) among all other Devas, as the Agnideva is Pradhana among all Devas.

2. The **medicine** of the Child should be Hridya that can be palatable for child. The dose of the medicine (Pramanam) and Upakrama (Treatment protocol) in children is totally different.
3. According to Ashtang Hridya, Balachikitsa is kept just after Kayachikitsa.
4. Balyavastha is considered as the period of **Growth and Development**. The healthy person can achieve its complete growth and development during childhood period.
5. The **Diet** of the child is totally different. According to Kashyap Samhita the Phalaprashan Samskara should perform at the age of 6 month and Annaprashana Samskara should perform at the age of 10 month. The diet of the child is variable according to age.
6. The **Diseases** developed in the children are different according to their age and the development of the child. For e.g. Linagarbha, Mudhagarbha can be seen during intrauterine life. Dushta Stanyajanya Vikara can be seen during Kshirapa Avastha.
7. Most of the **Anuvamshika Vyadhi** (Inheritance diseases) can be seen during childhood period.
8. The **Diagnostic method** of the disease in children is different. Child cannot be saying the difficulties in their own language. Acharya Kashyap described Vedanadhyaya for the diagnosis of the disease.
9. The **Examination method** of the child is different. Acharya Kashyap defined Lakshanadhyaya for Parikshana.
10. The **Chikitsa Siddhanta** (Treatment protocol) is different in children. Selection of the medicine, Dose and treatment protocol is different in children.

11. Some **Samskaras** (to add some good or specific quality) performed during childhood period e.g. Namakaran, Nishkraman Samskara their detail description given in Kaumarbhritya.
12. **Care of the children** is described separately in Samhitas.
13. **Kridanaka** (Toys), **Kridabhumi** (Playground) and **Kumaragar** is described separately because they are important for the child's mental growth.
14. Acharya Kashyap described **Lehadhyaya** because the child's healthy and diseased, both conditions are depending upon Lehana. Different Lehana Dravyas described in this chapter. Lehana is important measure for children.

POINT 2

SCIENTIFIC CONTRIBUTION OF KASHYAP SAMHITA IN KAUMARBHRITYA

- Kashyap Samhita is considered specifically the book of Kaumarbhritya on the basis of subject matter of the book.
- Available Kashyap Samhita is incomplete.
- Kashyap Samhita includes 9 Sthana. As out of 9 sections, **Nidana Sthana** is presently **unavailable**.
- As out of total **200** chapters, only **78** are presently available, these too are incomplete in the **beginning, end or in-between**.
- In this chapter specific description of Kaumarbhritya Subject given in Kashyap Samhita. include

Sutra Sthana

- लेहाध्यायः

सुखं दुःखं हि बालानां दृश्यते लेहनाश्रयम् ॥

Healthy and diseased condition of the child is depending upon Lehana. This chapter deals with indications, contraindications of Lehana and different Lehana Aushadhi Yoga regarding different conditions of children.

Suvarnaprashana Vidhi and its benefits are described in this chapter. **Samvardhana Ghrita** – the Ghrita require for proper growth and development of the child is described in this chapter.

- क्षीरोत्पत्ति अध्यायः

Stanyadushti due to affection of the Graha is given in this chapter.

- दन्तजन्मिक अध्यायः

Detail description about Dantanishechana and Dantodbheda, along with Danta Sampat (Prakruta Danta), Danta Gati (Eruption method) and Danta Dosha is described in detail.

- स्वेदाध्यायः

Total eight types of Swedana are performed in children.

1. Hasta Sweda

5. Sankara Sweda (Pinda Sweda)

2. Pradeha

3. Nadi Sweda

4. Prastara Sweda

6. Upanaha Sweda

7. Avagaha Sweda

8. Parisheka Sweda

• वेदनाध्यायः

The chapter deals with different types of Lakshanas (symptoms) appear in the child at the age that the child cannot be able to speak or express its difficulty. About 40 different diseases are described in this chapter.

• लक्षणाध्यायः

The signs described in this chapter according to logetivity of the child.

Vimana Sthana

• कौमारभृत्यमष्टानां तन्त्राणामाद्यमुच्यते ॥

In all eight branches, Kaumarbhritya is the first branch of Ayurveda.

Sharira Sthana

• संवत्सरादूर्ध्वं प्रति तिष्ठति वाचं च विसृजति ॥

After achieving first year of age, the child can able to stand and also able to speak.

• असमानगोत्रीयशरीरः

Detail description about fetal development is described in this chapter.

Chikitsa Sthana

• फक्कचिकित्साध्यायः

बालाः हि संवत्सरापन्न पादाभ्यां यो न गच्छति ।

स फक्क इति विज्ञेय . . . ॥

When the child is suffering from Phakka, it cannot be able to walk within one year of age. Trichakra Ratha and Raja Taila described in the management of Phakka.

Siddhi Sthana

• राजपुत्रीयासिद्धिः

अधस्तनोऽन्नभोक्ता ॥

Basti Chikitsa should give to the child when the child will able to take solid food.

- **नस्तकर्मीयासिद्धिः**

नस्यकर्माणि बालानां स्तनपानां विशेषतः ।

कटुतैल प्रयुजीतं घृतं वा सैन्धवसाधितम् ॥

Nasya Karma is specifically indicated in breast feed children with Katu Taila or Saindhava Sadhita Ghrita.

Kalpa Sthana

- **धूपकल्पः**

Different types of 40 Dhupana are described according to healthy and diseased condition of the child.

Khila Sthana

- **भैषज्योपक्रमणीयध्यायः**

Aushadhi Matra, Aushadhi Kala and type of the Aushadhi along with selection of drug used during childhood period is described, Age classification in Balyavastha also described in this chapter.

- **बस्तिविशेषणीयध्यायः**

Chaturbhadra Kalpa for Basti described in this chapter.

Pratham – 4 Anuvasana (Sneha Basti)

Madhye – 4 Asthapanana (Kwath Basti)

Ante – 4 Anuvasana (Sneha Basti)

- **जातकर्मात्तराध्यायः**

Suryodaya Darshana and Chandra Darshana should perform at the age of first month.

Devatagar Pravesha should perform at the age of fourth month.

Phala Prashana should start at the age of sixth month.

Annaprashana should start at the age of tenth month.

- **Kukkunaka, Visarpa, Charmadala, Sarvang Shotha, Pratishyay and Krumi in children** have been described with detail Nidana, Lakshana and Chikitsa.

- **क्षीरगुणविशेषणीयविशेषणीयः** Kshira is Satmya (suitable) to the child and necessary for longevity; it also provides nourishment, growth and strength to the child.

POINT 3
VAYOBHEDA (CLASSIFICATION OF AGE)

Vaya Vibhajana

- According to **Kashyapa Samhita**,

गर्भबालकुमारेख्यमित्येतत्रिविधं वयः । (Ka.Sam.Khi.3)

गर्भ - Intrauterine phase

बाल - Up to 1 year after birth

कुमार - 1 year to 16 years

- According to **Sushruta Samhita** (Su.Su.35),

Balyavastha is described from birth to 16 years and further divided in three phases.

1. Kshirapa (Up to 1 year after birth): Exclusive milk feeding period.
2. Kshirannada (1 year to 2 years): Feeding period of both milk as well as solid food.
3. Annada (2 years to 16 years): Major portion of the food is in solid form.

- According to **Ashtanga Hridaya** (A.H.U.2/1),

Balyavastha is described from birth to 16 years and further divided in three phases.

1. Kshiravartana
2. Annavartana
3. Ubhayavartana

- According to **Charaka Samhita** (Cha.Vi.8),

Balyavastha is considered up to 30 years of age.

From birth to 16 years of period described as Aparipakva Dhatu.

From 16 years to 30 years of period described as Paripakva Dhatu.

AGE CLASSIFICATION ACCORDING TO MODERN

Periods of Growth

1. Prenatal
2. Perinatal

3. Postnatal
4. Preschool Age
5. School age
6. Adolescence
1. **Prenatal** further divided in three phases:
 - Ovum: 0 - 14 days
 - Embryo: 14 days - 9 weeks
 - Fetus: 9 weeks - birth
2. **Perinatal** period is described as 28 weeks of gestation to 7 days after birth.
3. **Postnatal**
 - Neonate: First four weeks (Early neonate: first 7 days after birth, late neonate: 7 - 28 days after birth)
4. **Preschool**
 - Infancy: First year
 - Toddler: 1 to 3 years
 - Preschool: 3 to 6 years
5. **School Age**: 6 - 10 years for girls and 6 - 12 years for boys
6. **Adolescence**: 10 - 19 years.

POINT 4

PRANA PRATYAGAMANAM (NEONATAL RESUSCITATION)

Prana Pratyagamanam is described as a first step of Navajata Shishu Paricharya.
प्राणप्रत्यागमनम्

- अश्मनौ संघटनं कर्णयोमूलेन
- शीतोदकेनोष्णोदकेन वा मुखपरिषेक
- Striking the stones near the ears of the child develops Auditory stimulus.
- Spriking of the face with cold water (during summer) and warm water (during winter) develops Sensory Stimulus.

तथा च क्लेशविहितान् प्राणान् पुनर्लभेत्

By this two processes, the child is relief from trouble and regains life.
(Cha.Sha.8)

- If after this, there is no movement of the child, then the child should be fanned with a fan prepared with bamboo strips. (Cha.Sha.8)

Resuscitation

Methodology

- As soon as the baby delivered, assess for the five signs while the cord is being cut.
 1. Clearness of the meconium
 2. Breathing or crying
 3. Good muscle tone
 4. Pink color
 5. Term gestation

If the answer to all five questions are 'Yes' then the baby does not require any active resuscitation and routine care should be providing.

If the answer to any five questions is 'No' then the baby requires resuscitation.

Initial steps for Resuscitation

1. Position
2. Suctioning

3. Dry and stimulate
4. Free flow of oxygen
1. Position: The neonate should be placed on her back with the neck slightly extended.
2. Suctioning: If no meconium present, the mouth and nose should be suctioned. The mouth is suctioned first.
3. Dry and stimulate: After suctioning the baby should be dried to prevent heat loss. Stimulation is necessary to initiate respiration. Tactile stimulation in the form of flicking of the sole or rubbing of the back should be given.
4. Free flow of oxygen: If the baby continuous to be depressed then provides free flow of oxygen.

Evaluation

Evaluation for three signs: Respiration, heart rate and color.

If the baby has good breathing, HR > 100 and pink color, then should go for supportive care.

If the baby not breathing well or HR < 100, then beg and mask ventilation is needed.

Bag and Mask Ventilation

Indication	If the baby not breathing well or HR < 100 after giving initial steps.	
Technique	The appropriate face mask should be cover the mouth and the nose and compress the bag using the fingers. Observe an appropriate rising of the chest.	
Rate	40 – 60 breath / min.	
Evaluation	Heart Rate	Action
	Above 100	Discontinue ventilation gradually
	60 – 100	Continue ventilation
	Below 60	Continue to ventilate and begin chest compression

Chest Compression

Compression of the sternum that compress the heart against the spine.

Indication	If Heart Rate < 60 after giving bag and mask ventilation for 30 seconds	
Technique	<p>Two techniques:</p> <ol style="list-style-type: none"> 1. Thumb technique (preferably) 2. Two finger technique <p>Thumb technique: Two thumbs are used to depress the sternum and the hands encircling the torso and the fingers supporting the back. Pressure must be applied to lower third of the sternum.</p>	
Rate	<p>It is important to ventilate between chest compressions. A ventilate breathe should follow every third chest compression.</p> <p>In a minute 90 chest compressions and 30 breaths are administered. Compress chest 3 times and 1 time ventilate.</p>	
Evaluation	Heart Rate	Action
	Above 60/min	Discontinue chest compression and continue bag and mask ventilation until Heart Rate >100.
	Below 60/min	Continue to ventilate, chest compression and initiation of medications.

Medications

Indication	If Heart Rate < 60 after 30 seconds of beg and mask ventilation and chest compression.
Route	Umbilical vein is preferred route via catheter.

	Effect	Dose
Epinephrine	<p>Inotropic</p> <p>Chronotropic</p> <p>Peripheral vasoconstrictor</p>	<p>With dilution 0.5 ml in 5 ml</p> <p>Dose: 0.5 ml - 1.0 ml</p>
Volume expanders	Evidence of acute bleeding	10-30 ml
Sodium bicarbonate	Documented metabolic acidosis	4-12 ml

POINT 5

NAVAJAT SHISHU PARICHARYA (NEONATAL CARE)

Definitions

Newborn (From birth to 4 weeks of age)

Term neonate (Any neonate born between 37 and 41 weeks of pregnancy)

Preterm (A neonate born before 37 weeks of pregnancy)

Post term (A neonate born after 42 weeks or more age)

Normal Birth Weight: 2.5 – 3.5 kg

Low Birth Weight: < 2.5 kg

Very Low Birth Weight: < 1.5 kg

Extremely Low Birth Weight: < 1 kg

FULL TERM INFANT:

Heart Rate: 120-140/min

Respiratory Rate: 40/min

BP: 60/40 mmHg

Head Circumference: 34-35CM

Chest Circumference: < 3 cm of HC

Length: 48-50 cm

CARE OF THE FULL TERM BABY

1. First assess the **Apgar** score at 1 minute and 5 minute after birth.

	0	1	2
Appearance	Blue/Pale	Peripheral cyanosis	Pink
Pulse (Heart Rate)	Absent	< 100/min	> 100/min
Grimace (Reflex Response) Enter the catheter in nostril	Nil	Grimace	Cry
Activity (Muscle tone)	Flaccid	In between	Full
Respiratory Rate	Absent	Slow	Crying

Apgar Assessment: 8 – 10: Normal, 5 – 7: Mild asphyxia, 4 - 1: Moderate asphyxia.

Apgar score is essential to assess the Respiratory, Circulatory and CNS system of the newborn.

2. Cord Clamping

The cord should be clamped as soon as the baby delivered.

3. Quickly screened out for any congenital anomalies and birth injuries.

4. The eyes should be cleaned with sterile normal saline.

5. The skin should be dried and clean off any mucous or blood.

6. The cord should be tied with disposable cord clamp.

7. Vitamin K: 0.5 – 1.0 mg administered IM.

8. Stomach wash with normal saline is routinely done in following conditions:

- Caesarian Section
- Meconium stained liquor

9. The baby should be weighted.

10. The detailed examination is conducted routinely at birth, within 24 hrs or next day and at the time of discharge.

CARE OF THE PRETERM BABY

1. The delayed clamping of cord helps in improving the iron stores of the baby.

2. The baby should be dried, kept effectively covered and warm.

3. The baby should be transferred in NICU as soon as breathing is established.

4. Monitoring

- Vital signs
- Activity and behavior
- Color: Pink, pale, blue or yellow
- Fluid and electrolyte imbalance
- The baby should be watched for development of RDS (Respiratory distress syndrome), sepsis etc.

5. The thermal comfort: Incubator

6. Oxygen therapy

7. Phototherapy: Jaundice is common in preterm infant due to hepatic immaturity, hypoxia and infections.

8. Prevention, early diagnosis and prompt management of common diseases e.g. hypothermia, RDS etc.
9. Weight record should be done daily.
10. At the time of discharge,
Give the advice to mother about feeding and maintaining hygiene.

CARE OF THE POST TERM BABY

Clinical Features

- The fetus is at increased risk to suffer from hypoxia and birth asphyxia.
- Infant may appear long, thin and wasted.
- Skin, umbilical cord and nails may be stained yellow due to post maturity.
- The common clinical problems in post term baby include: Congenital malformations, Perinatal hypoxia, Meconium aspiration and Hypoglycemia etc.

Management

- The fetus should be watched for any signs of fetal distress.
- Early feeding and screening for blood glucose is recommended.
- Application of oil for prevention of skin dryness.

नवजात शिशु परिचर्या

1. प्राणप्रत्यागमनम्

- अश्मनौ संघटनं कर्णयोर्मूलेन
- शीतोदकेनोष्णोदकेन वा मुखपरिषेक
- Striking the stones near the ears of the child develops Auditory stimulus.
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By this two processes, the child is relieved from trouble and regains life.

(Cha.Sha.8)

- If after this, there is no movement of the child, then the child should be fanned with a fan prepared with bamboo strips. (Cha.Sha.8)

2. उल्बानिर्हरणम्

- ताल्वोष्ठकण्ठजिह्वाप्रमार्जनम् - Then after baby's palate, lips, throat and tongue should be cleaned with finger covered with cotton swab.
- शिरस्तालु पिचुधारणम् - Shira and Talu should be covered with cotton swab soaked in oil.
- सैन्धव सर्पिं प्रच्छर्दनम् - Child should be given to leak Saindhava and Ghrita for Chardana (emesis).

3. नाभिनालकर्तनम्

- The thread should be tied at a distance of eight angulas from the Nabhi. Then with the help of the Ardhadhara type of Shastra made with gold, silver or iron, the cord should be cut.
- The proximal end of the cord should be tied with the help of thread and the ends of the thread should be loosely tied to the neck of the baby . (Cha.Sha.8) (Su.Sha.10)
- According to Ashtang Hridaya, the thread should be tied at the distance of four angulas from the umbilicus and then cut the cord. (A.H.U.1)
- After the separation of the cord, the oil should be prepared with the paste of Lodhra, Manduka, Priyangu, Suradaru and Haridra should be applied.

4. जातकर्म

- Child should be given honey and Ghrita with Mantra prescribed for this purpose in the Vedas. (Cha.Sha.8)
- According to Sushruta Samhita, Child should be leaked with Madhu, Ghrita and Dhamaso Swarasa or Durva Swarasa or Brahmi Swarasa with the help of first finger in the Matra of One Gunja (Rati). (Su.Sha.10)
- According to Ashtang Hridaya, Jatakarma is performed as Prajapatyena Vidhi. (A.H.U.1)

5. अभ्यंग-स्नान

- The **Abhyanga** should be done with Bala Taila. (Su.Sha.10)

- **Snana:** According to Charaka Samhita, Snana should be performed after Prana Pratyagamanam and not described specific information for water that used in Snana.

According to Sushruta Samhita, The water that used for the Snana should be Koshna and it should be processed with Kshirivriksha Kashaya (Ashwattha, Vata, Udumber etc) or Sarvagandhodaka (Karpura, Kankola etc) or Kapittha Patra.

6. रक्षाकर्म (Cha.Sha.8)

Measures for the protection of the newborn.

- The home should be surrounded by branches of the Adani, Khadira, Karkandhu, Pilu and Parushaka.
- The seeds of mustard, linseed, rice and Kanakanika should be scattered all over the home.
- The oblation of offering of rice to the fire should be performed continuously twice a day till the naming rite performed.
- At the door after the threshold a wooden pestle should be kept obliquely.
- A cloth packet containing Vacha, Kushtha, Hingu, Mustard, linseed, garlic and other drugs repelling evil spirits well tied should be kept at the front door.
- The same should be wore by the child in the neck and also put in the water jars, cot and both panels of the door.
- There should be fire burning constantly with the fuel of Kanakanika and Tindula within the home.

POINT 6

NAVAJAT SHISHU PARIKSHANA (NEWBORN EXAMINATION)

A detail examination should be conducted at birth, within 24 hours or next day and at the time of discharge.

At Birth

- Apgar score at birth, 1 minute and 5 minute.
- Early diagnosis of life threatening of congenital anomalies e.g. Single umbilical artery, close anus, single palmer creases.
- Check the orifices and their patency e.g. close anus, cleft palate etc.
- Mid line anomalies of front and back: Spina bifida, Meningomyelocele, Pilonidal sinus etc.

Within 24 hours or next day

• Vitals

Respiratory Rate: 40 -60 breaths / min

Heart Rate: 140 +/- 20 beats / min

BP: 60/40 mmHg

Skin temperature of healthy baby: 98 F

• General Behavior

Look for Color, Respiration, Movement of limbs and posture – flexed.

• Measurements (Anthropometry)

Weight

Head Circumference (Occipito-frontal): Measure after 24 hrs after birth

Chest Circumference (at nipple): < 3 cm H.C.

Length (Infantometer): 47-50 cm

• Gestational Assessment

1. Physical Assessment

		Preterm	Full term
1	Hair	Fuzzy/Wooly	Silky
2	Ear Recoil	Absent	Present

3	Brest Nodule	< 5 mm	> 5 mm
4	Planter Creases	Superficial	Deep
5	Genitalia	Male: Testes undescended Female: Labia minora not covered by labia majora	Male: Testes descended Female: Labia minora covered by labia majora

2. Neurological

- 1) Posture: Observe with infant quite and supine position. In preterm baby arms and legs are extended. In full term baby legs flexed and abducted arms.
- 2) Arm recoil: The arm is extended and brought close to the trunk, when released, flexes in term infant.
- 3) Popliteal angle: Thigh is held in knee chest position and examiner tries to extend the knee with gentle pressure behind the ankle.
- 4) Scarf Sign: The baby lies supine and head is maintained in midline. Arm is held at wrist and pulled across the chest towards opposite shoulder. In preterm baby, elbow readily goes beyond the midline of the chest.
- 5) Square window: Hand is flexed on the forearm between thumb and index finger. In preterm infant, limits flexion of the wrist and palm cannot touch to the forearm. In full term infant, palm easily touches to the forearm.

• Head to toe examination

1. Skull

- Examine for Caput succedenum and Cephalhematoma.
- Anterior Fontanelle - Diamond shape, Size: 2.5 cm – 2.5 cm, closing time: 18 – 24 months.
- Posterior Fontanelle - Triangular shape, Size: 1.2 – 1.2 cm, closing time: 3 - 4 months.
- Large Fontanelle - Cretinism, IUGR, Rickets
- Small Fontanelle - Microcephaly
- Bulging Fontanelle - Increased intra cranial pressure (Meningitis, Hydrocephalus)
- Depressed Fontanelle - Diarrhoea, Dehydration

- Cranotabs (Abnormal softening of the skull bones) - Congenital Rickets
Microcephaly with fused sutures - Craniocynostosis (Early closing of the sutures)

2. Face:

Nose: Patency of nostrils

Eye: conjunctivitis, subconjunctival hemorrhage

3. Neck: Examine for any cyst, sinuses, webbing and range of movements
4. Skin: Examine for jaundice, cyanosis, rashes etc
5. Spine: Tuft of hair etc.
6. Extrimities: Look for anomalies of digits (oligodectyly, syndactyly, polydactyly), club foot etc.
7. Abdomen: Scaphoid shape – Diaphragmatic hernia, Liver edge is normally felt below 2 cm the costal margin.
8. Genitalia: Examined for any anatomical abnormalities, Undescended testes
9. Heart: Auscultation
10. Chest: Auscultation
11. Hip: A hip joints should be examined in the end for evidence of congenital dislocation in all babies. Breach presentation, premature babies etc.

• Primitive Reflexes

Develops due to improper development of myelin sheath.

1. Moro Reflex (Startle reflex)

The baby should be held supine over the arm and head supported over the palm, sudden extension of the flexed head by letting it drop by 30 degree



Abduction and extension of upper limbs followed by flexion and adduction, the infant may cry.

- Depressed / Absent: Cerebral depression
- Exaggerated: Cerebral irritability
- May incomplete - Gestational age < 35 weeks
- Asymmetrical Moro reflex – Brachial palsy, Fracture of clavicle

- Incomplete Moro reflex: Kernicterus (Sudden extension of arms is not followed by flexion but often accompanying by downward rolling of eyeballs (Setting sun sign).

2. Glabber Tap

- Tapping of glabella (nasion) is followed by closure of eyes.
- Gestational age > 30 weeks

3. Rooting Reflex

4. Sucking Reflex

- Stimulation of the angle of the mouth – Rooting (Open the mouth) reflex.
 - Stimulation of the angle of the lips – Sucking (Baby starts to suck) reflex.
- Above 34 weeks of gestation

5. Tonic neck Reflex

In supine infant, when the head turns to one side,



The extremities facing the head are extended while limbs on the opposite side are flexed.

If persistent - Cerebral palsy

6. Palmer and Planter Grasp

The finger is placed on the palmer surface

The finger is placed on the planter surface



Flexion of the digits (fingers)

Most primitive reflexes disappear between 3 to 4 months of age and their persistent is considered as an early sign of CP.

Examination at the time of discharge

- A detail examination of the baby at the time of discharge is essential to make sure that no anomalies and birth injuries have been missed.
- Initial lactation difficulties have been asked.
- The mother should be advised about feeding, vitamin and iron supplements, to maintain general hygiene of baby and follow Immunization schedule.

POINT 7

NAVAJAT SHISHU POSHANA (INFANT FEEDING)

Stanya Sampat (Properties of normal breast milk)

Stanya Sampat

स्तन्यसंपत्तु प्रकृतिवर्णगन्धरसस्पर्शम् उदपात्रे च दुह्यमानमुदकं व्येति प्रकृतित्वात् तत् पुष्टिकरमारोग्यकरं चेति ॥

(Cha.Sha.8)

The Stanya containing Prakrut (normal) color, smell, taste and touch and mixes completely when it kept in bowl of water, it defined as Prakruta Stanya. This type of Stanya is responsible for maintain growth and health of the child.

अव्याहतबलाङ्गायुरोगो वर्धते सुखम् ।

शिशोधात्र्योरनापत्ति शुद्धक्षीरस्य लक्षणम् ॥ (Ka.S.Su.)

Without any trouble to Dhatri and child, the child grows with proper strength, Ayu (longevity) and undiseased condition; it is considered that it is due to Shuddha Kshira (Pure Breast milk).

Properties of normal breast milk

- **Carbohydrates:** Lactose in a higher concentration (6-7gm/dL) that helps in absorption of calcium and enhance the lactobacilli in intestine.
- **Proteins:** Protein content is low (0.9-1.1gm/dL), as baby cannot effectively metabolized a higher protein load. Human milk contains aminoacids like cystine and taurine those are necessary for neuromodulations and neurotransmission.
- **Fats:** Polyunsaturated fatty acids – necessary for the myelination of the nervous system.
- **Vitamins and minerals:** The quantity is sufficient for the needs of the baby.
- **Water and electrolytes:** Water content – 88%, Osmolarity – low, low solute load to the kidney.
- **Immunoglobulin:** IgA, IgM, Macrophages, Lactoferrin, lymphocytes etc., also contain **PABA** (Para Amino Banzoic Acid) – protection against malaria.

Stanya Samgathana (Composition of breast milk)

Same as properties of normal breast milk described as above.

Importance of mother's milk

मातुरेव पिबेत् स्तन्यं तदबलं देहवृद्धये । (A.H.U.2)

Mother's milk is essential for increasing growth and strength of the child.

जीवनं बृहणं सात्म्यं स्नेहनं मानुषं पयः ।

नावनं रक्तपित्ते च तर्पणं चाक्षिशूलनुत् ॥ (Cha.Su.27)

Properties of the mother's milk:

- Jeevana: Gives longevity.
- Brimhana: Increase growth of the child.
- Satmya: Suitable for child's growth.
- Snehana: Give nourishment to the child.

Also use as Nasya in Raktapitta and as Tarpana in the condition of the painful eyes.

नार्यास्तु मधुरं स्तन्यं कषायानुरसं हिमम् ।

नस्याश्चोतनयोः पथ्यः जीवनं लघु दीपनम् ॥ (Su.Su.45)

The mother's milk is, Madhura in rasa, Kashaya in Anurasa and Sheeta in Guna.

Pathya: Not obstructs any Srotasa

Jeevana: Gives longevity

Laghu: Easy digestible

Deepana: Improve digestion

Composition of human milk and cow's milk

	Parameters	Human Milk	Cow's Milk
1	Anti Infective substance	Antibodies Lactoferrin Leucocytes	Not active
2	Protein Total Casein	1% 0.5 %	4% (too much) 3% (too much)
3	Aminoacids Cystine Taurine	Enough for growing brain Enough for brain, ratina and bile acid conjugation	Not enough Absent

4	Fat	4%	4%
5	Lactose	7% (enough)	3-4% (not enough)
6	Salts		
	Sodium	6.5 (correct amount)	25 (too much)
	Chloride	12 (correct amount)	29 (too much)
	Potassium	14 (correct amount)	35 (too much)
7	Iron	Small amount but well absorbed	Small amount but poorly absorbed
8	Vitamins	Enough	Extra needed

Stanyotpatti & Prasuti (Physiology of lactation)

Stanyotpatti

रसप्रसादो मधुरः पक्वाहारनिमित्तजः ।

कृत्सन्देहात् स्तनौप्राप्तं स्तन्यमित्यभिधीयते ॥ (Su.Sha.10)

After the complete digestion of food, the final product is called as Rasaprasada that is Madhura in Rasa and circulates in whole body. After circulation in whole body it is situated in Stana (breast), and known as Stanya.

STANYA PRASUTI

सिराणां हृदिस्थानानां विवृतत्वात् प्रसृतिः ।

तृतीयेऽहनि चतुर्थे वा स्त्रीणां स्तन्यं प्रवर्तते ॥ (A.H.U.1)

After delivery, the Siras of Hridaya are dilated and after three or four days of delivery the Stanya is came out of the Stana (breast).

Physiology of lactation

Milk is produced as a result of the interaction between hormones and reflexes.

Two hormones: Prolactin and oxytocin - come into play during lactation

- Prolactin Reflex (Milk secretion Reflex)

Prolactin produced by the anterior pituitary gland and is responsible for secretion.

When the baby sucks the nerve endings carry the message to the anterior pituitary gland in turn to release prolactin.

- Oxytocin Reflex (Milk ejection Reflex)

Oxytocin is the hormone produced by posterior pituitary gland responsible for contraction of myoepithelial cells around the alveoli that causes ejection of the milk from glands.

Prolactin Reflex enhancing factors

Sucking

Emptying of the breast

Oxytocin Reflex enhancing factors

Sound of the baby

Emotions

Stanya Parikshana (Examination of breast milk)

अथास्य स्तन्यमप्सु परीक्षेत्

शीतल - Shita

अमल - Free from impurities

तनु - Low in density

शङ्खावभास - Like color of conch shell

अप्सु न्यस्तमेकीभाव - When put in water, mixes completely

अफेनिल - Neither produce froth

अतन्तु - No streaks

न उत्पल्वते - Neither floats

न अवसिदति - Not settled down

कुमारस्य आरोग्यं शरीरोपचयो बलवृद्धिश्च इति । (Su.Sha.10)

Stanya Piyush (Colostrum)

- Colostrum is the milk secreted during first three days after delivery, by mammary glands.
- It is yellow and thick and contains more antibodies and high amounts of vitamins A, D, E and K.

Stanyapana Vidhi (Breast Feeding Method)

The baby should be put on breast as soon as the mother has recovered from labor preferably within half an hour after birth. Babies born by caesarian section can be put on breast within 4 hours after birth.

No pre lactal feeds should be offered. Interval between two feeding 2 to 3 hours.

Position

The mother should sit comfortably. The baby's head and neck are comfortably placed on the hollow of the elbow while back and buttock of the baby are supported by the forearm and hand of the mother.

Attachment

After the proper positioning, the baby's cheek is touched and the baby will open the mouth (Rooting reflex). The baby is then quickly brought on the breast, so that the nipple and most part of the areola is within the baby's mouth.

Most babies take 15 - 20 min. to take adequate milk (feed).

Alternate breast should be offered first at the next feed.

During first 6 months exclusive breast feeding is advocated.

Breaking the wind (Burping):

All the babies swallow varied amount of air during sucking. To break up the wind, the baby should be held upright against the chest and the back is gently petted till the baby belches the air (to prevent hiccough and abdominal colic).

Stanyakshaya

- Decrease in quantity and absence of milk secretion are clinical features.

Management:

- Use of articles those are increasing Shleshma in the body cures Stanya Kshaya.

Stanyanasha

क्रोधशोकावात्सल्यादिभिश्च क्रियाः स्तन्यनाशो भवन्ति । (Su.Sha.10)

- Anger, grief and absence of affection of the child are the causes of the Stanya Nasha.

Management

- Advice the medicines those increases Rasa Dhatu.
- Increase intake of milk.
- Take good rest.
- Increase Yava and Godhuma in diet.

Stanyabhava Pathya Vyavastha

क्षीरसात्म्यतया क्षीरमाजं गव्यमथापि च । (Su.Sha.10)

स्तन्याभावे पयच्छागं गव्यं वा तदगुणं पिबेत् ।

ह्रस्वेन पञ्चमूलेन स्थिरा या वा सितायुतम् ॥ (A.H.U.10)

In the absence of mother's milk, cow's milk or goat's milk should be given to the child. The milk should make similar to the mother's milk, after medicating it either with the decoction of Laghu Panchmula or both types of Sthira and then it mixes with sugar.

Dhatri Parikshana (Cha.Sha.8/52)

Dhatri defined as a lady that taking care of the child.

Some qualities should present in the wet mother according to Acharya Charaka described as below.

- **Samana Varna:** The same cast
- **Yauvanavastha:** In youthful age
- **Nibhruta:** Compliant
- **Anatura:** Free from intolerance
- **Avyanga:** Free from any deformity
- **Avyasana:** Free from any addictions
- **Avirupa:** Unugliness
- **Ajugupsita:** Pleasantness
- **Deshajatiya:** Born in the same place
- **Akshudra:** Not mean minded
- **Akshudrakarmini:** Not indulges in mean acts
- **Kula jata:** Born in a good family
- **Vatsala:** Having affection towards the children
- **Aroga:** Free from any diseases
- **Jivadwatsa:** Having living children
- **Pumvatsa:** Having male children
- **Dogdhrim:** Having profuse lactation
- **Apramatta:** Free from carelessness

- **Anuchharshayini:** Not speaking loudly
- **Kushalopachara:** Skillful in management
- **Shuchi:** Cleanliness
- **Ashuchimdweshini:** Having dislike of uncleanliness
- **Stanya Sampada:** Having good quality of breast milk

Various other milk feeding methods

- Bottle feeding.
- Feeding with the cup.
- Feeding with the spoon.

Specific feeding schedule as per Ayurvedic text and modern concept

- During first 6 months exclusive breast feeding is advocated.
- Phalaprashana should start after the age of 6 month.
- Annaprashana should start after the age of 10 month.
- As the dentition will start gradually stop the breast feeding and the baby should be nourishing with milk, Laghu and Brimhana Anna.
- Prinana Modaka, Deepana Modaka and Samgrahi Modaka are advised at the time of weaning.

POINT 8

STANYA DOSHA (VITIATION OF BREST MILK)

Stanya Dushti Nidana

अजीर्ण - Indigestion

असात्म्य - Unfavourable

विषम विरुद्ध - Unusual

अतिभोजन - Excessive

मनःशरीरसंताप - Diseases related to mind and body

अस्वप्नानिशि - Awakening at the night

चिन्तनात् - Over thinking

परमान्न - A dish made with rice, sugar and milk.

दधि - Curd

अनायास - No exercises

अभिघात - Trauma



दूषितदोष - Vitiation of Dosha



क्षीरवहासिरा - These vitiated Doshas moving through the Kshiravaha Shira and vitiating the milk



स्तन्यदुष्टि - Stanya Dushti

Stanya Dushti Prakara

अष्टौ क्षीरदोषा इति - वैवर्ण्यं वैगन्ध्यं वैरस्यं पैच्छिल्यं फेनसंघातो रौक्ष्यं गौरवमतिस्नेहश्चेति ॥ (Cha.Su.8)

वैवर्ण्यं	} पित्त	वैरस्यं	} वात	पैच्छिल्यं	} कफ
वैगन्ध्यं		फेनसंघातो		गौरव	
	रौक्ष्यं	अतिस्नेह			

वातिक स्तन्यदुष्टि

वर्ण - श्याव अरुण

रुक्ष

फेनिल

कषायनुरस

विशद

लघु

पैतिक स्तन्यदुष्टि

वर्ण - कृष्णनिलपीतताम्र

तिक्ताम्लकटुकानुरस

श्लैष्मिक स्तन्यदुष्टि

वर्ण - अत्यर्थशुक्ल अतिमाधुर्य लवणानुरस पिच्छिल तन्तु

ग्रहदुषित स्तन्यदुष्टि (का सू १९)

Milk vitiated by Shakuni Graha is Katu and Tikta in Rasa. If the milk has characteristics of vitiation of Tridosha, then it should be considered as afflicted by Skanda and Shashti Graha. Milk is vitiated by Putana is Madhura and Katu.

Stanya Shodhana

Samanya Chikitsa

तेषां तु त्रयाणामपि क्षीरदोषाणां प्रतिविशेषमभिसमीक्ष्य यथास्वं यथादोषं वमनविरेचनास्थापननुवासनानि विभज्यकृतानि प्रशमनाय भवन्ति ॥ (Cha.Sha.8)

While managing the vitiation of Kshira caused by Dosha, specific attention should be paid to be particularity of Dosha, situated in Koshta or Shakha, the intensity of vitiation and also suitability for use of Panchkarma. According to the amount of vitiation of Dosha specific Panchkarma therapy e.g. Vamana in Kapha, Virechana in Pitta and Basti in vitiation of Vata should be given.

कषायपानैर्वमनैर्विरेकैः पथ्यभोजनैः ।

वाजिकरणसिद्धैश्चस्नेहैः क्षीरं विशुद्ध्यति ॥ (Ka.Su.19)

The milk is purified by use of Kashaya (decoction), Vamana, Virechana, Pathya Bhojana and Ghrita medicated with Vajikarana Dravyas.

Stanya Shodhana Dravya (Cha.Su.4)

पाठामहौषधसुरदारुमुस्तमुर्वागुडूचीवत्सकफलकिराततिक्तकटुरोहिणीसारिवा इति दशेमानि स्तन्यशोधनानि भवन्ति ।

Stanya Janana Dravya (Cha.Su.4)

वीरणशालिशष्टिकेश्चुवालिकादर्भकुशकबशगुन्द्रेत्कटकतृणमूलानि इति दशेमानि स्तन्यजननानि भवन्ति ।

Stanya Vardhanopaya (Ka.Su.19)

लशूनसेवन पलान्दुसेवन शयनं सुखम्

POINT 9

GARBHA VRIDDHI VIKASA KRAMA

Garbha Vriddhi Vikasa Krama

(Brief month wise development of fetus)

	च शा ४	सु शा ३	अ ह्य शा २	का शा असमानगोत्रीय
प्रथम मास	अव्यक्त	कलल	कलल	
द्वितीय मास	घनः पिण्ड पेशी अर्बुद	घनः पिण्ड पेशी अर्बुद	घनः पिण्ड पेशी अर्बुद	
तृतीय मास	सर्वेन्द्रियाणि सर्वाङ्गावयव	हस्तपादशिरसां पश्च पिण्डिका सूक्ष्मो अङ्गप्रत्यङ्गविभाग	पश्चधा प्ररोहति सक्थिनि बाहु शिर	चेतना
चतुर्थ मास	स्थिरत्व	सर्वाङ्गप्रत्यङ्गविभागः प्रव्यक्त गर्भहृदयप्रव्यक्तिभावा	व्यक्ताङ्गानां	स्थिरता
पंचम मास	मांसशोणितोपचय	मनः प्रतिबुद्धतर	मनः प्रतिबुद्धतर मांसशोणितोपचय	मांसशोणित वृद्धि
षष्ठ मास	बलवर्णोपचय	बुद्धि	स्नायुशिरारोमबलव र्णनखत्वचाम्	बलवर्णोजसा वृद्धि
सप्तम मास	सर्वभावैराप्यायते	सर्वाङ्गप्रत्यङ्गविभागः प्रव्यक्तर	सर्वाङ्गसम्पूर्ण भावैः	सर्वधात्वङ्गसम्पूर्णो वातपित्तकफान्वित
अष्ट मास	ओजः परस्पर आददाते	अस्थिरिभवत्योजः	अस्थिरिभवत्योजः	अस्थिरिभवत्योज
नवम	-	-	-	-

Month wise development of fetus

Month	Size - Weight	Development
1 st month	0.6 cm	Primary brain vesicles develop. Blood vessel formation begins and blood forms in yolk sac and chorion. Chorionic villi develop and body systems begin to form.
2 nd month	3 cm 1 gm	Primary brain vesicles develop into secondary brain vesicles. Heart becomes four chambered. Ossification begins. External genitalia begin to differentiate.
3 rd month	7.5 cm 30 gm	Brain continues to enlarge. Ossification continues. Heartbeat can be detected. Urine secreted by fetus is added to amniotic fluid. Body systems continue to develop.
4 th month	18 cm 100 gm	Head is relatively smaller than the rest of the body. Lower limbs lengthen. Rapid development of body system occurs.
5 th month	25 – 30 cm 200 – 450 gm	Head is more proportionate to rest of the body. Eyebrows and head hair are visible. Vernix caseosa (fatty secretions of sebaceous gland dead epithelial cells) and lanugo (delicate fetal hair) cover fetus. Fetal movements are commonly felt by mother (quickening).
6 th month	27 – 35 cm 550 - 800 gm	Head becomes even more proportionate to rest of the body. Skin is pink and wrinkled. Type 2 alveolar cells begin to produce surfactant.
7 th month	32 – 42 cm 1110 – 1350 gm	Head and body are more proportionate. Eyes are open. Testes begin to descend toward scrotum at 28 – 32 weeks. Many fetuses born prematurely during this period survive if given intensive care because lungs are provide adequate ventilation and central nervous system is developed enough to control breathing and body temperature.
8 th month	41 – 45 cm 2 – 2.3 kg	Skin is pink and smooth. Fetus assumes upside down position. Body fat is 8% of total body mass.

9 th month	50 cm 3.2 – 3.4 kg	Skin is pink. Body fat is 16% of total body mass. Testes are usually in scrotum.
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Milestones of development during infancy and childhood

Growth: Increase in size or mass of tissues.

Development: Maturation of functions.

Development

1. Gross Motor

Age	Milestones
3 months	Neck holding
5 months	Sitting with support
8 months	Sitting without support
9 months	Standing with support
10 months	Walking with support
11 months	Crawling
12 months	Standing without support
13 months	Walking without support
18 months	Running
24 months	Walking upstairs
36 months	Riding tricycle

2. Fine motor

Age	
4 months	Grasp a ring when placed in hand
5 months	Reaches out an object and holds it with both hands
7 months	Holding objects with crude grasp from palm (Palmer grasp)
9 months	Holding small object, between index finger and thumb (Pincer Grasp)

3. Language

Age	
1 months	Turns head to sounds
3 months	Cooing
6 months	Monosyllables
9 months	Bisyllables
12 months	Two words with meaning
18 months	Ten words with meaning
24 months	Simple sentence
36 months	Telling a story

4. Personal social

Age	
2 months	Social smile
3 months	Recognizing mother
6 months	Smiles at mirror image
9 months	Waves bye – bye
12 months	Plays a simple ball game
36 months	Knows a gender

SAMSKARA

Total seven types of Samskara should perform during childhood period.

1. Jatakarma:

Time: At birth

Procedure:

- Prajapatyena Vidhi (A.H.U.1)
- Suvarna and Madhu given as Lehana.

Assessment: Rooting and Sucking reflex

2. Namakarana:

Time: 10th day after birth (Cha.Sha., Sus.Sha.), 12th day after birth (A.H.U.1)

Procedure:

- Snanavidhi of child
- Local application of Chandana on the body and then give the name to the child.

Assessment: Time for general examination.

3. Nishkramana:

Time: At 4th month

Procedure:

- Snanavidhi of child
- Taken out from home and bring the child to the temple.
- Take blessings from Devata and Brahmin.
- Then come back to the home (Ka.Khila.12/4)

Assessment: Reaction of the sound and Head control

4. Upaveshana:

Time: At 5th or 6th month

Procedure:

- Snanavidhi of child
- Wearing new clothes and jewellery.
- Keep the child in Purva Disha in sitting position with support for some time.
- Sitting of the child is depending upon the maturation of nervous system.
- स्तैमित्यं कटिदौर्बल्यं पृष्ठभङ्गश्रमो ज्वरः ।

विणमूत्रानिल संरोधाध्मानं चात्युपवेशनात् ॥

Initially long time sitting can develop Katishula, Katidaurbalya, Jwara and Mutra Shakruta and Anila Sanga

Assessment: Child can sit with support

5. Annaprashana:

Time: At 6th month (Sushruta, A.H.), At 10th month (Ka.Sam.)

Procedure:

- Solid food given on auspicious day after worshiping God with Yagna.

Assessment: Functioning of digestive system and proper time of weaning.

6. Karnavedhana:

Time: At 6th and 7th month.

रक्षाभूषणनिमित्तं बालस्य कर्णौ विध्येते ॥ (Su.Su.16)

Procedure:

- First piercing of right ear in male child and left ear in female child.
- Sthana: Devatagar Chidra in Karnapali Madhye
- Complications of Karnavedhana are due to improper piercing of the ear and due to rupture of Karnapali Shira.

1. Kalika Shira Vedhana: Jwara, Shotha, Daha, Vedana.

2. Marmarika: Jwara, Shula, Granthi

3. Lohitika: Manyasthambha, Apatanaka, Shirograha, Karnashula etc.

Management: Local application of Yashtimadhu, Erandamuḷa, Manjishtha, Yava and Tila mix with Madhu and Ghrita

7. Chudakarma Samskara:

Time: At 1 year of age

Procedure:

- Cutting of hair for first time

Assessment: Examination of Anterior fontanelle

8. Vedarambha:

Time: At 5th year

Procedure:

- Child is initiated for learning

Assessment: Intelligency

POINT 10
POSHANA (NUTRITION)

Normal requirements of nutrients and common food sources

1. Macronutrients
2. Micronutrients
1. Macronutrients: Carbohydrate, Fat and Proteins – Chief energy nutrients
2. Micronutrients: Minerals and Vitamins – non energy nutrients but most essential for cell functions

1. Macronutrients

	Requirements	Common Food Sources	C/F of Deficiency
Carbohydrates	55-60% of total energy intake	Grains are the richest source of carbohydrates. Others are Legumes (beans and peas) and tubers (potato, cassava etc)	Ketosis, loss of energy, depression and break down of body proteins
Proteins	1.5 – 2.5 grams/kg	Vegetable origin – Rice, Potato, Legumes Animal origin – Egg, Milk, Fish	PEM
Lipids	Total fat intake should provide no more than 30 % of daily energy intake	Animal foods like eggs, cheese and ghee	-

2. Micronutrients:

	Requirements	Common Food Sources	C/F of Deficiency
Calcium	500-800 mg/day	Milk, Milk products and millet like ragi	Tetany, Rickets
Magnesium	200-300 mg/day	Plant foods and meat	PEM, malabsorption, diarrhea
Iron	15-20 mg/day	Animal source – Meat, egg Plant foods – Green vegetables and fruits	Iron deficiency anemia
Iodine	90-120 microgm/day	Sea foods and vegetables grown on iodine rich soil	Hypothyroidism
Zinc	10 mg/day	Animal food, cheese, milk, whole wheat, nuts, legumes	Growth retardation, anorexia, alopecia
Folic Acid	100 microgm/day	Green leafy vegetables, nuts, eggs, cheese, fruits, beans	Diarrhea, megaloblastic anemia
Vitamin A	400-600 microgm/day	Codliver oil, sharkliver oil, butter, ghee, egg Carotinoids: Carrots, green leafy vegetables, yellow red vegetables, Ripe mangoes	Xerophthalmia
Vitamin B₁ Thiamine	0.4 mg/1000 kcal	Dried yeast, whole grain cereals, pulses, oil seeds, ground nut	Beriberi (Irritability, Fatigue, headache, polynuritis)
Vitamin B₂ Riboflavin	0.6 mg/1000 kcal	Eggs, meat and green leafy vegetables	Glossitis, cheilosis (Cracking at the angle of the mouth)
Vitamin B₅	6.6 mg/1000	Groundnut, whole grain	Pellagra (diarrhea,

Niacin	kcal	cereals, pulses, meat and fish	loss of appetite, nausea, vomiting)
Vitamin B₆ Pyridoxine	0.5-1.0 mg/day	Whole grain cereals and legumes	Malabsorption and diarrhea
Vitamin B₁₂ Pyridoxine	0.2-1.0 microgm/day	Meat, eggs and milk	Malabsorption and diarrhea
Vitamin C	40 mg/day	Citrus food and vegetables including tomatoes, leafy greens	Scurvy (Petechie, gum bleeds, conjunctival hemorrhage)
Vitamin D	10 microgram/day	Fish, oil, egg, butter	Rickets
Vitamin E	8-10 mg/day	Nuts whole grains, seeds	Anemia, malabsorption

POINT 11

DANTOTPATTI AVAM DANTARAKSHA VIDHI (DENTITION AND DENTAL CARE)

Danta Sampat

(Characteristics of healthy teeth)

- अष्टमेमासि.
- पूर्णता समता घनता शुक्लता स्निग्धता श्लक्ष्णता निर्मलता निरामयता किंश्चिदुत्तरोन्नता, दन्तबन्धनानां च समता रक्तता स्निग्धता बृहद्धनस्थिरमूलता चेति दन्तसंपदुच्यते ॥ (Ka.S.Sutra Sthana Dantajanmika Adhyay)
- पूर्णता: Complete teething
- समता: Evenness
- घनता: Compactness
- शुक्लता: Whiteness
- स्निग्धता: Lusteriness
- श्लक्ष्णता: Softness
- निर्मलता: Cleanliness
- निरामयता: Diseased free condition
- किंश्चिदुत्तरोन्नता: Slightly elevation of teeth

दन्तबन्धनानां

- समता: Evenness
- रक्तता: Redness
- स्निग्धता: Lusteriness
- बृहद्धनस्थिरमूलता: Compactness

Danta Nisheka Evam Dantodbheda (Eruption of teeth)

दन्ताः

सकृज्जाताः(8) द्विजाः (24)

यावत्स्वेव च मासेषु दन्ता निषिच्यन्ते तावत्स्वहः सूद्भिद्यन्ते । यावत्स्वेव च मासेषु जातस्य सत उद्भिद्यन्ते तावत्स्वेव च वर्षेषु पतिताः पुनरुद्भिद्यन्ते ॥ (Ka.S. Sutra Sthana Dantajanmika Adhyay)
In what – so – ever months the teeth are inseminated, in same number of days they appear.

In what – so – ever months the teeth are appear, fall and reappear in the same year.

दन्तजन्म

कुमारी

आशुतर (Comes early)

अल्पबाधाकर (less trouble)

सुशिरत्व (Porousness of teeth)

मृदुत्व (Softness of the gum)

दन्तोद्भेद depends upon,

जातिविशेषात् – Racial Specifications

निषेकात् – Period of Insemination

स्वभाव – Nature of teeth

मातापित्रोनुकरणात् - Imitations of parents

स्वकर्मविशेषात् – Own deeds

कुमार

प्रकृष्टकाल (Takes much time)

बाधाबहुल (Causes so many troubles)

घनत्व (Compactness)

स्थिरस्वभावाश्च (Stableness of gum)

Types of Eruption of Teeth

चतुर्विधः - १ सामुद्र - क्षयि

२ संवृत - मलिष्ठ

३ विवृत - नित्यलालास्राव

४ दन्तसम्पत्

Dantodbhedajanya Vikara (Dentition Disorders)

दन्तोद्भेदश्च सर्वरीगायतनम् । विशेषेण तु तन्मूला ज्वरशिरोभितापतृष्णाभ्रमाभिष्यन्द कुकूणकपोथकीवमथुकास

श्वसातिसारविसर्पाः ॥ (A.S.U.2/19)

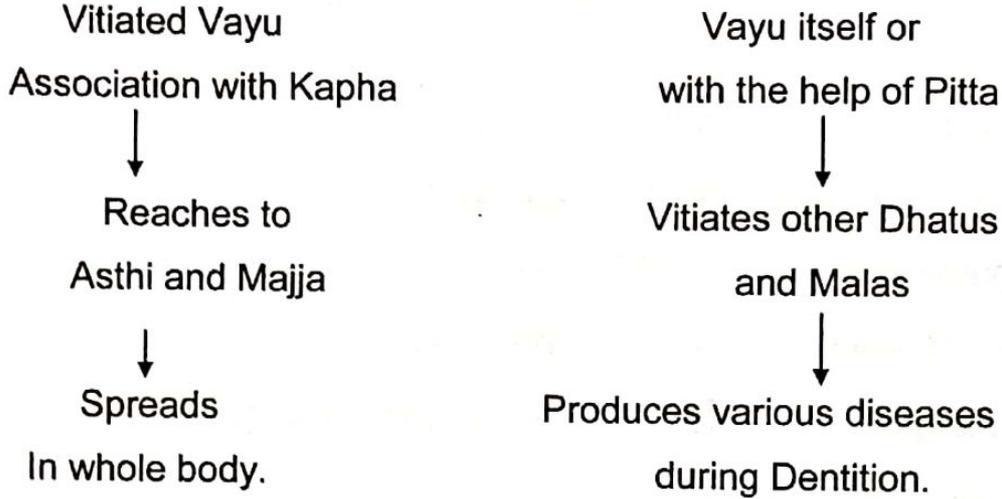
पृष्ठभङ्गे बिडलानां बर्हिणां च शिखोद्गमे ।

दन्तोद्भेदे च बालानां न हि किञ्चिन्न दूयते ॥ (A.S.U.2/28)

Nothing is more painful than bending of the back of cats, growth of crown in the peacock and eruption of teeth in children.

During the phase of dentition, there would be changes in the metabolic activities of the child leading to some ailments.

Pathogenesis (A.H.U.2/62)



During Dentition child may suffer from various disorder like:

Fever, Headache, Thirst, Vertigo, Disease of eyes like Kukunaka and Pothaki, Vomiting, Cough, Respiratory troubles, Diarrhea, Skin disorders like, Visarpa.

Further, he has compared vitiating Doshas (at the time of dentition) with the example of cat and peacocks, and compared with children, at the time of dentition all Doshas, Dhatus and even Malas are vitiating like vitiating occurring in cats after breaking of their vertebral column (Prishta Bhanga) or during growth of feathers in Peacock.

All the disease, which occurs at the time of dentition, is temporary functional upset of the body and do not make the child suffer for a longer period. They subside spontaneously after the dentition phase is over, hence the child should not be treated with heavy medicine. The disorders associated with dentition should be mild, but a proper treatment is necessary for moderate or severe symptoms.

General Treatment

यथादोषं यथारोगं यथोद्रेकं यथाबलम् ।

विभज्य देशकालादीस्तत्र योज्यं भिषग्जितम् ॥ (A.S.U.2/72)

दन्तोद्भवेषु रोगेषु न बालमति यन्त्रयेत् ।

स्वयमप्युपशाम्यन्ति जातदन्तस्य यद्गदाः ॥ (A.H.U.2/43)

1. External Application.

2. Internal Medication.

1. External Application

- The paste of Pippali Churna with honey or Dhataki-pushpa and Amalki with honey for external application is indicated.
- Churna of the dry meat of Lava or Titira bird is also indicated for external application.
- Roots of the Dugdhalika, Shankhapushpi, Tumbi, Yavasa should be tied in the neck of the child.

2. Internal Medication:

- Ghrita mediated with the decoction of Mangishta, Dhatakipushpa, Lodhra, Kutannat, Bala, Atibala, Mahasaha (Salparni), Kshudrasaha (Masaparni), Mudagparni, Bilva (unripened), fruits of Karpasa, relieves all general complaints of dentition.
- Vachadi Ghrita (A.H.), Samangadi and Kumar Kalyanak Ghrita (Vangasena) is indicated during dentition.
- Symptomatic treatment for the disease like fever, diarrhea etc.

POINT 12 VYDHIKSHAMATVA

General concept of Bala

व्याधिक्षमत्वं व्याधिबलविरोधित्वं व्याध्युत्पादप्रतिबंधकत्वमिति यावत् । (Cha. Su. 7/28, Chakrapani)
When etiological factors come into contact with the body, they try to produce the disease. As the same time body tries to resist it. The power of the body, which prevents the development of a disease, is called Vyadhikshamatva.

तत्र रसादीनां शुक्रान्तानां धातूनां यत्परं तेज तत्खलु ओजः तदेव बलमित्युच्यते ॥ (Su.Su.15)
Bala is considered as Auja and it is illuminated product of Dhatus from Rasa to Shukra.

बलाधिष्ठानमारोग्यम् । (Cha.Chi.3/142)

Maintenance of the health depends upon Bala.

त्रिविधं बलमिति सहजं कालजं युक्तिकृतं च ।

Sahaja: Normal body constitution.

Kalaja: Bala achieved with the help of Kala (season) and increasing age.

Yuktikrutaja: Bala achieved with combination of Aahara and Vihara.

Bala Vriddhikar Upaya (Methods of Balavridhhi)

1. Jatakarma (Navajat Shishu Paricharya)
2. Suvarnaprashana.
3. Lehana.
4. Rasayana Chikitsa.

According to modern

Immization

Infectious diseases can be prevented through immunization.

Introduction of immunity

2 types of Immunization

1. Active immunization: Stimulating an active immunological defense mechanism through administration of antigens. Also called Vaccines.
2. Passive immunization: Supplying antibodies to suppress the disease.

Types of Vaccine

1. Live – attenuated
 2. Killed or Inactivated
 3. Toxoid
 4. Other antigens
1. Live – attenuated
 - BCG, OPV, Measles
 - Single dose is sufficient for immunization, whereas killed vaccines required multiple doses.
 2. Killed
 - IPV, Rabies – viral & Salmonella typhi, bordetella pertussis – bacterial
 3. Toxoid
 - Diptheria, Tetanus
 4. Other antigens
 - Polysaccharides (Hib, meningococcal, pneumococcal)
 - Viral subunits (HbsAg)
 - Bacterial subunits (Acellular pertussis)

National Immunization Schedule

For Infants				
BCG	At birth or as early as possible till one year of age	0.1 ml (0.05 ml till 1 month age)	Intra-dermal	Left Upper Arm
Hepatitis B	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral aspect of thigh
OPV 0	At birth or as early as possible within first 15 days	2 drops	Oral	Oral
OPV 1,2,3	At 6 weeks, 10 weeks and 14 weeks	2 drops	Oral	Oral

DPT 1,2,3	At 6 weeks, 10 weeks and 14 weeks	0.5 ml	Intra-muscular	Antero-lateral aspect of thigh
Hepatitis B 1,2,3	At 6 weeks, 10 weeks and 14 weeks	0.5 ml	Intra-muscular	Antero-lateral aspect of thigh
Measles	9 completed months to 12 months	0.5 ml	Sub-cutaneous	Antero-lateral aspect of thigh
Vitamin A (1st Dose)	At 9 months with measles	1 ml (1 lakh IU)	Oral	Oral

For Children

DPT Booster	16-24 months	0.5 ml	Intra-muscular	Antero-lateral aspect of thigh
Measles (2nd Dose)	16-24 months	0.5 ml	Sub-cutaneous	Antero-lateral aspect of thigh
OPV Booster	16-24 months	2 drops	Oral	Oral
DPT Booster	5 - 6 years	0.5 ml	Intra-muscular	Upper Arm
TT	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm

PRASHANA AND LEHANA

Indications (Ka.S.Su.Lehadhyay)

सुखं दुःखं हि बालानां दृश्यते लेहनाश्रयम् ।

Healthy and diseased condition of the child depends upon Lehana.

Indications of Lehana in children are divided in to two categories:

1. Unhealthy condition of the mother
 2. Condition of the child
1. Unhealthy condition of the mother
 - अक्षीरा जननी – The mother having deficiency of breast milk.
 - अल्पक्षीरा – Insufficient production of breast milk.
 - दुष्टक्षीरा – Vitiating of breast milk.
 - दुष्प्रजाता – Having passed with difficult labor.
 - व्याधिपीडिता – Severely ill mother.
 2. Condition of the child
 - वातिका पैतिका ये च ये स्युः कफवर्जिता । - The children have predominance of Vata and Pitta with decrease amount of Kapha.
 - स्तन्ये न ये न तृप्यन्ति- The children do not get satisfied with breast milk.
 - पीत्वा पीत्वा रुदन्ति च – Crying during of repeatedly sucking.
 - अनिद्रा निशि – The children do not sleep during night.
 - महाशना – Eating too much food.
 - अल्पमूत्रपुरीषा – Passes scanty urine and stool.
 - दीप्ताग्नय – The children have good digestion power.
 - निरामयाश्चतनवोमृदङ्गायेचकर्षिता – The children those are free from diseased condition but not gain weight and have delicate body parts.
 - वर्चःकर्मनकुर्वन्तिवालायेत्रयहात्परम् । - Do not passed stool even for three days
- According to Kashyapa Samhita these types of children should be prescribed for Lehana.

CONTRAINDICATIONS (Ka.S.Su.Lehadhyay)

- मन्दाग्नि - Impaired digestion power.
- निद्रालु – Taking excessive sleep.
- बहुविणमूत्र – Excessive passing of urine and stool.
- कल्याणमातृका – Child's mother is not alive.
- अजीर्ण – Have indigestion.
- गुरुस्तन्योपसेविता – Receiving Guru (heavy) breast milk.
- आम – In Aama Roga.
- ज्वर – In fever.
- अतिसार – In diarrhea.

- | | | | |
|----------|--------|-------|------------------|
| • कामला | आनाह | छर्दि | ग्रह |
| • शोथ | विसर्प | अरोचक | हृद्रोग |
| • पाण्डु | श्वास | कास | गुदबस्तियुदरामये |
- न लेहयेदलसके नाहन्यनि नाशितम् ।

न दुर्दिन पुरोवाते नासात्म्यं नातिमात्रया ॥

The Lehana should neither be given during Aalajak (Aama) nor be given daily, nor after taking foods, not given during Durdin (disturbed atmosphere) or on the day with strong wind and not given in excessive amount.

Different drugs used as Lehana (Ka.S.Su.Lehadhyay)

Brahmi, Mandukaparni, Triphala, Chitraka, Vacha, Shatapushpa, Shatavari, Trivritta, Nagabala - any of one drug can use with honey and Ghrita for improvement of Medha as Lehana.

Aushadhi Yoga

1. Kalyanaka Ghrita
2. Panchgavya Ghrita
3. Brahmi Ghrita
4. Samvardhana Ghrita (Khadira, Prishniparni, Saindhava, Bala etc.)
5. Abhaya Ghrita (Brahmi, Vacha, Kushtha, Sariva etc)

Suvarnaprashana (Ka.S.Su.Lehadhyay)

विघृष्य घौते वृषदि प्राङ्गमुखी लघुनाम्बुना ।

आमथ्य मधुसर्पिभ्यां लेहयेद् कनकं शिशुम् ॥

Gold should be rubbed on a washed stone with a little quantity of water then churned with honey and Ghrita, and given to the child for Lehana.

Effect of Suvarnaprashana

1. Increase intellectual, digestion power and strength.
2. Responsible for Aayushya, Varna (complexion) and elimination of Graha.
3. By taking Suvarnaprashana for one month the child becomes extremely intelligent and is not affected by the diseases.
4. By using for six month, the child becomes able to remember that he hears.

POINT 14

KNOWLEDGE OF NATIONAL PROGRAMS RELATED TO CHILD HEALTH CARE

Reproductive and Child Health (RCH)

The National Family Welfare program has been named in 1997, as the Reproductive and Child Health (RCH) Program.

Goal of the program

- Prevention and management of unwanted pregnancy.
- Services to promote safe motherhood.
- Provision of services to promote child survival.
- Provide nutritional supplement.
- Reproductive health survey for adolescents.
- Information and counseling for health.

The additional services to be provided by revamped program.

- Necessitate retraining of staff.
- Make available equipment and supplies.
- Supervision and support.
- Adequate financing to make the implementation of the program.

RCH 2 has been launched in 2004 with improved strategies based on the experience gained in implementation of RCH 1.

- Contraception
- Safe delivery services.
- Postpartum services.
- Child survival services.
- Nutritional supplement for pregnant and lactating women.
- Assessment and treatment of sick child.

COMMUNITY CHILD HEALTH PROGRAMS

Study of pediatrics is not just art and science of the diagnosis and treatment of diseases, but also the science for the prevention of diseases and promotion of child's health.

In the last few decades its scope has expanded to include not only health problems of an individual child, but of all those in the community too. Thus, the concept of community pediatrics has evolved.

Community pediatrics includes mother and child care. It must be remembered that mother and child's health are interdependent on each other.

National Programs Related to Mother and Child Care

1. Maternal and Child Health Program (MCH)
2. Integrated child development service scheme (ICDS)
3. Child Survival and Safe Motherhood Program (CSSM)
4. RCH
5. Integrated Management of Neonatal and Childhood Illness (IMNCI)

Nutritional Programs

Malnutrition is a multifaceted problem. Pregnant and lactating women and children are at a higher risk for under nutrition.

The problem of protein energy malnutrition is being managed with the help of following programs which provide supplementary calories and proteins.

1. Special nutrition program.
2. Wheat – based supplementary nutrition program.
3. Tamilnadu integrated nutrition project (TINP)
4. World Food Program (WFP)
5. Midday meal Program (MDM)

National Immunization Program

Universal coverage of all infants under 5 year children, children at 10 and 16 as also pregnant women with the recommended antigens as per the national immunization schedule was the aim of this program.

Objectives

- To increase immunization coverage.
- To improve the quality of service.
- To achieve self – sufficiency in vaccine production.
- To train health workers.

- To supply cold chain equipment and establish a good surveillance network.

OTHER PROGRAMS INCORPORATED BY GOVT. OF INDIA DAY TO DAY

1. National Rural Health Mission

2. National Programs Related to Mother and Child Care

- Maternal and Child Health Program (MCH)
- Integrated child development service scheme (ICDS)
- Child Survival and Safe Motherhood Program (CSSM)
- RCH
- Integrated Management of Neonatal and Childhood Illness (IMNCI)

3. National Programs Related to Control of Communicable Diseases

- National Program of immunization
- Acute respiratory infection control program
- Diarrheal disease control program
- Revised National Tuberculosis control program (RNTCP)
- Leprosy eradication program
- National vector borne disease control program (NVBDCP)
- National AIDS control program

4. National Programs Related to Control of Nutritional Deficiencies and Disorders

- Midday meal Program (MDM)
- Anemia prophylaxis program
- Vitamin A deficiency control program
- National iodine deficiency disorders control program

5. National Programs Related to Control of Non communicable Diseases

- National school health program
- National cancer control program
- National mental health program
- National diabetes control program
- National program for control of blindness

PART B

POINT 1

BALA PARIKSHAVIDHI EVAM SHISHU VEDANA PARIGYANA (EXAMINATION OF SICK CHILD AND DIAGNOSTIC METHOD - AYURVEDA AND MODERN)

• BALA PARIKSHA VIDHI EVAM SHISHU VEDANA PARIGYANA . ACCORDING TO AYURVEDA.

In Kashyap Samhita, Acharya described detail description about diagnostic method of different diseases in Sutra Sthana Vedanadhyay.

• बालकानामवचसां विविधा देहवेदना ।

प्रादुर्भूताः कथं वैद्यो जानीयात्क्षणार्थतः ॥ (Ka.Su.25/4)

Various difficulties those cannot describe by children, how a physician should know only on the basis of the clinical features.

• पीडयमानस्य रूपाणि ज्वरच्छर्द्यातिसारिषु ।

वैद्यो दृष्टवैव जानीयात् कृच्छं सर्वं न सिध्यति ॥ (Ka.Su.25/50)

Looking the features of fever, vomiting, diarrhea, the physician should know the curability. In the presence of all above symptoms, the child is not cured.

• Descriptions of different symptoms with related diseases are as follow:

1. शिरः शूल

भृशं शिरः स्पन्दयति - Rolls the head too much.

निमीलयति चक्षुषी - Closes the eyes.

अवकुजन - Gripping.

अरति - Becomes dull.

अस्वप्न - Insomnia.

2. कणवेदना

कर्णौ स्पृशति हस्ताभ्यां - The child touches the ears with both hands.

शिरो भ्रमयते भृशम् - Rolls the head too much.

अरति - Becomes dull.

अरोचक - Anorexia.

अस्वप्न - Insomnia.

3. मुखरोग

लालास्रावणमत्यर्थ- Excessive salivation.

स्तनद्वेष - Refusal to feed.

अरति - Becomes dull.

नासाश्वास - Breathing from nose.

पीतमुद्गिरति क्षीरं - Expel the ingested feed.

4. कण्ठवेदना

पीतमुद्गिरति स्तन्य - Expel the ingested feed.

विष्टम्भि श्लेष्मसेविनाम् - Congestion.

ज्वर - Fever.

अरुचि - Becomes dull.

ग्लानि - Uneasiness.

5. अधिजिह्विका

लालास्राव - Excessive salivation.

अरुचि - Becomes dull.

ग्लानि - Uneasiness.

कपोले श्वयथु - Swelling on the scalp.

मुखस्य विवृतत्व - Opening of the mouth continuously.

6. गलग्रह

लालास्राव - Excessive salivation.

अरुचि - Becomes dull.

ज्वर - Fever.

7. कण्ठशोथ

अरुचि - Becomes dull.

शिरः शूल - Headache.

ज्वर - Fever.

8. ज्वर

मुहुर्नमयतेङ्गानि - Flexes the body parts repeatedly.

धात्रीमालियतेऽकस्मात् - Suddenly clings to the mother.

स्तनं नात्यभिनन्दति - Refusal to feed.

उष्णत्व - Feeling high temperature of the body.

वैवर्ण्य - Discoloration.

कास - Coughing.

ललाटस्यातितप्तता - Excessive warmth of the forehead.

अरुचि - Becomes dull.

पादयो शैत्यं - Coldness of the feet.

9. अतिसार

देहवैवर्ण्यं - Discoloration.

अरति - Becomes dull.

मुखग्लानि - Uneasiness.

अनिद्रा - Insomnia.

वातकर्मनिवृत्ति - Vitiating of Vata Dosha.

10. उदरशूल

स्तनं व्युदरस्ते - Reject the feeding.

रौति - Excessive crying.

उत्तानश्चावभज्यते - Sleeps in a supine position.

उदरस्तब्धता - Tightness of abdomen.

शैत्यं - Feeling of coldness.

मुखस्वेद - Perspiration on mouth.

11. छर्दि

अनिमित्तमभीक्षणं च यस्योद्गार प्रवर्तते - Repeated eructation.

निद्रा - Excessive sleep.

जृम्भा - Yawning.

12. श्वास

निष्टनत्युरसाऽत्युष्णं - The breath from the chest is hot in nature.

13. हिक्का

अकस्मान्मारुतोद्गार - Sudden airy eructation.

14. आनाह

विशालस्तब्ध नयन - Wide open eyes due to pain due to pain in abdomen.

पवभेद - Pain in fingers.

अरति - Becomes dull.

क्लमी - Exhaustion.

संरुद्धमूत्रानिलविद् - Retention of urine, flatus and feces.

15. अपस्मार

अकस्माद्दृहसन - Sudden loud laughing.

16. उन्माद

प्रलाप - Unrelated speech.

अरति - Becomes dull.

वैचित्य - Instability of mind.

17. मूत्रकृच्छ

रोमहर्ष - Quivering.

अङ्गहर्ष - Shivering of the body parts.

मूत्रकाले च वेदना - Pain during urination.

ओष्ठदशन - Biting of the lips.

बस्ति स्पृशति पाणिना - Touches the bladder with the hand.

18. प्रमेह

गौरव - Heaviness.

जाड्य - Dullness.

अकस्मान्मूत्रनिर्गम - Sudden excretion of urine.

मक्षिकाक्रान्तं मूत्रं श्वेतं घनं तथा - Flies cover the urine and urine is in white and concentrated.

19. अर्श

बद्धपक्कपुरीषत्वं सरक्तं - Well formed solid stool and stool passing with blood.

कृशात्मन - The emaciated child.

गुदनिष्पीडन - Pain in anal region.

कण्डू - Itching.

तोद - Pricking pain.

20. अश्मरी

सशर्करातिमूत्रत्वं - Voiding the too much urine with sugar.

मूत्रकाले च वेदना - Dysuria.

प्रततं रोदन - Crying continuously.

क्षाम - Weakness.

21. विसर्प

रक्तमंडलकोत्पत्ति - Appearance of red patches.

तृष्णा - Thirst.

दाह- Burning sensation.

ज्वर - Fever.

अरति - Becomes dull.

स्वादुशीतोपशायित्वं - Palliation from sweet and cold articles.

22. विसूचिका

दह्यतेङ्गानि - Burning sensation in the body parts.

सूच्यन्ते - Being pricked with needles.

भज्यन्ते - Being broken.

हृदि शूलं च वर्धते - Increase the pain in cardiac region.

23. अलसक

शिरो न धारयति - Unable to hold the head.

भिद्यते - Twisting of the body.

जृम्भा - Yawning.

स्तनं पिबति नात्यर्थ - Refusal of feed.

ग्रथितं छर्दयत्यपि - Vomits knotty material.

विषाद - Uneasiness.

आघ्मान - Tympanitis.

24. चक्षुरोग

दृष्टिव्याकुलता - Difficulty in vision.

तोद - Pricking pain.

शोथ - Inflammation.

शूल - Pain.

अश्रु - Lacrimation.

रक्तता - Redness.

सुप्तस्य चोपलिप्यन्ते चक्षुषी - Eyes get smeared during sleep.

25. शुष्ककण्डू

घर्षत्यङ्गानि शयने - Itching.

रोदिति - Crying.

मर्दनम् - Rubbing.

26. आद्रकण्डू

सुखायते मृद्यमानं मृद्यमानं च शूयते - Get pleasure in rubbing, but rubbing causes swelling.

शूनं स्रवति - Discharge from the rubbed area.

शूलदाहवत् - With pain and burning sensation.

27. आमदोष

स्तैमित्य - Stiffness.

अरुचि - Anorexia.

निद्रा - Excessive sleep.

गात्रपाण्डुता - Paleness of the body parts.

रमणाशनशय्यादीन् धात्रीं च द्वेषि नित्यशः - Continuous hated from play, food, sleep and mother.

अस्नातः स्नातरुपश्च स्नातस्त्रश्चास्नातदर्शनः - Has appearance of bathed when unbathed and unbathed when bathed.

28. पाण्डुरोग

नाभ्यां समन्ततः शोथः - Swelling around the umbilicus.

श्वेताक्षिनखवक्रता - Whiteness of eyes and deformity of nails.

अग्निसाद - Loss of appetite.

श्वयथुश्चाक्षिकूटयो - Swelling in both eye pits.

29. कामला

पीतचक्षुर्नखमुखविणमूत्र - Yellowness of eyes, nails, face, feces and urine.

निरुत्साह - Lethargic.

नष्टाग्निरुधिरस्पृह - Diminished digestion and Desires for blood.

30. पीनस

मुहुर्मुखेनोच्छ्वसिति पीत्वा पीत्वा स्तनं तु यः - During sucking of breast, the child takes mouth breathing repeatedly.

स्रवतो नासिके - Running nose.

ललाटं चाभितप्ते - Warmth forehead.

स्रोतांस्यस्त्रभीक्षणं स्पृशति - Repeated touches the orifices.

क्षौति - Sneezing.

कासति - Coughing

30. जन्तुदंश

स्वस्थवृतपरो बालो न शेते तु यदा निशि - The healthy child does not sleep well at night.

रक्तविन्दुचिताङ्गश्च - Has appearance of red spots over the body.

31. ग्रहरोग

भस्माङ्गारतुषादीनामधिरोहणसेवनम् - The child uses and sits over the heap of ember of chaff etc.

रोदित्यकस्मात्त्रसति - Cries suddenly and gets frightened.

छायाशीलविपर्यय - Changing in the luster of the body.

अल्पाशितो - Takes less diet.

अतिविणमूत्रस्त्वविणमूत्रो विपर्यये - Gets alternate diarrhea and constipation.

न यः शिरो धारयति - Does not able to hold the head.

- Examination of sick child and diagnostic methods - According to modern science.

History Taking in Pediatrics

Name:

OPD:

Age:

IPD:

Sex:

DOA:

Religion:

DOD:

Residence:

Chief complaints (C/O) with duration:

ODP – HOPI

Treatment History: Medical and Surgical

Family History: F/H

Birth History: B/H: Antenatal – NAD

Natal – Term / Type / Place FTLSCS, FTND, PTLSCS

Postnatal – Birth weight, H/O convulsion, neonatal jaundice, incubation etc.

Immunization History: Proper according to age

Development History:

Gross motor

Fine motor

Personal Social

Language

Dietary History: Breast feeding

Weaning

Diet

Socio – economic History:

- Education background of the parents
- Monthly income of the family
- Numbers of persons in the family
- Housing condition etc

Vitals:

Heart Rate

Respiratory Rate

Temperature

Blood Pressure

Anthropometry:

Weight

Height

Head Circumference

Chest Circumference

MUAC

Examination:

- General

- Systemic

1. General Examination:

Vitals

Anthropometry – Growth measurement

Examination of Head, Neck and face

Skin, Hair, Nails

Bones, Joints, Spine

Genitalia

Development Assessment

2. Systemic Examination:

Respiratory : Auscultation

CVS: Auscultation

P/A: Palpation

CNS: Tone, DTR

Investigations with Date:

Advice Investigations:

Ayurvedic point of view:

Nidana Panchaka

Dosha

Dushya

Samata

Srotodushti

Srotodushti Lakshana

Marg

Avastha: Jeerna / Navin

Sadhyasadhyata

Chikitsa Sutra

Chikitsa

Pathyapathya

Samanya Chikitsa Siddhanta

(General principles of treatment in children)

- Chikitsa Siddhanta in Balyavastha related on

1. Upakrama.
2. Nature of the Aushadhi (Selection of the drug).
3. Aushadhi Matra.

1. Upakrama

- बालस्य हृद्यमौषधमन्यत् प्रमाणमन्य उपक्रमोऽन्ये च विशेषाः ॥ (Ka.Vi.1)

The nature of the medicine should be palatable to the child. Does of the medicine and management protocol are different from the adults.

- न त्वेव बालस्य विशेषण हितं नैवातिसंशोधनरक्तमोक्षणे ।

स्निग्धैः सुशीतैर्मधुरैरदाहिभिस्तत्रोपचारोऽधनलेपसेचनैः ॥ (Ka.Su.27/66)

The emaciated medications, excessive purifying measures and bloodletting is not beneficial in the Balyavastha. They should be treated with oral medications, local applications and irrigation with the drugs those are Snigdha, Shita, Madhura and not producing burning sensation.

- उनद्वादशवर्षाणां नैकान्तेनावचारयेत् ।

अवचारितमेकान्तेनाहन्यहनि चौषधम् ॥ (Ka.Khi.3/58)

In children of less than twelve year of age, continuous use of medicine should avoid.

- यथादोषं यथारोगं यथोद्रेकं यथाशयम् ।

विभज्य देशकालादीस्तत्र योज्यं भिषग्जितम् ॥

त एव दोषा दूष्याश्च ज्वराद्या व्याधयश्च यत् ।

अतस्तदेव भैषज्य मात्रा त्वस्य कनीयसी ॥ (A.H.U.2/29,30)

Treatment of disease should be done with appropriate Dosha (increased), Roga and Udreka (prominent Dosha), after determining the nature of the habitat, Kala etc.

The Dosha, Dushya and Roga such as fever etc and methods of treatment are same in both adults and children, where as the dose is in minimum quantity for the children.

• बस्ति साध्ये विरेकेण मर्शेन प्रतिमर्शनम् ॥ (A.H.U.2/33)

Basti should be given for children in diseases which require Virechana therapy for their cure. Pratimarsha should be given in the diseases which require Marsha Nasya therapy.

• युज्याद्विरेचनादींस्तु धत्र्या एव यथोदितान् । (A.H.U.2/34)

Virechana and other therapies indicated in diseases should be administered only to the mother.

• निवृत्तिवमनादीनां मृदुत्वं परतन्त्रताम् ॥

वाक्चेष्टयोरसाम्थर्यं वीक्ष्य बालेषु शास्त्रवित् ।

भेषजं चाल्पमात्रं तु यथाव्याधि प्रयोजयेत् ॥ (Cha.Chi.30/283,284,285)

Vamana etc are avoided in children looking to their delicacy, dependency and incapability in respect of speech. The physician should administer the drug in smaller quantity according to the disease.

2. Nature of Aushadhi (Selection Of Drug)

• मधुराणि कषायाणि क्षीरवन्ति मृदुनि च ।

प्रयोजयेद्विषग्बाले मतिमानप्रमादतः ॥ (Cha.Chi.30/285)

The nature of the medicine should sweet, astringent, with milk and in Mrudu Guna.

• अत्यर्थं स्निग्धरुक्षोष्णमम्लं कटुविपाकि च ।

गुरु चौषधपानान्मेतद्बालेषु गर्हितम् ॥ (Cha.Chi.30/286)

Excessive unctuous, dry, hot, sour, pungent in Vipaka and heavy food and drugs are contraindicated for children.

3. Aushadhi Matra

- मात्रामूलं चिकित्सतम् । (Ka.Khi.3/101)

The management is depending upon Matra (quantity) of the medicine.

- मात्रा हि देहाग्निवयः प्रघानाः ॥ (Ka.Khi.3/118)

The dose of the medicine depends upon the body constitution, digestive power and age of the child.

- विलङ्घफलमात्रं तु जातमात्रस्य देहिनः ।

भेषजं मधुसर्पिर्भ्यां मतिमानुपकल्पयेत् ॥

वर्धमानस्य तु शिशोर्मासे मासे विवधयेत् ।

अथामलकमात्रं तु परं विद्वान्न वधयेत् ॥ (Ka.Su.Lehadhyay)

To the newborn child, the drug should be prescribed in the quantity equal to a fruit of Vidanga with Madhu and Ghrita. To the growing child, it should be increased every month gradually. The Vaidhya should not increase it more than the quantity of an Aamalaka fruit.

- Kashyapa has mentioned the rule of dosage as described below.

Age	Aushadha Matra	Type of medium
Jata Matra till Masana (since newborn period to 1month age)	Vidanga Phalamatra (amount simila to embelia seed)	Honey and Ghrita
Further on going months	Incease 1 Vidanga per month	Honey and Ghrita

But the increase by Physician should not exceed than the fruit of Amalaka.

- In Kashyapa Samhita specific dose of **Ghrita** is also mentioned for the children. (Ka.Khi.3/78-86)

Age	Ghrita Matra
Jata Matra	Kolasthi Sammita
5-10 days	Little increase in the previous dose

20 days	Kolardha Sammita
30 days	Kola Matra
2 month	Little increase in the previous dose
3 month	Dwikola Matra (2 kola)
4 month	Suskamalaka Matra
5-6 month	Adraamalaka Matra
7-8 month	Little increase in the previous dose

Here dose of medicine is told to be taken as $\frac{1}{4}$ of the Sneha Matra which should be given after mixed with Ghrita. After completion of 8 month, child is given medicine mixed with water (after dissolving in the water).

- Dosage according to the **type of medicine**: (Ka.Khi.3/89-90)

Type of medicine	Matra
Deepaniya Churna	Agraparvanguligrahya Matra (upto one phalanges of finger)
Jeevaniya Churna	Double of Deepaniya Churna
Samsamaniya Churna	Double of Deepaniya Churna
Vamana-Virechana	Half of Deepaniya Churna

- In Kashyapa Samhita specific dose of **Kashaaya** is also mentioned for the children.

(Ka.Khi.3/91-92)

Vatapittakaphaharam	2 Prasuta
Jivaniya, Sanshamaniya	4 Prasuta
Vamana, Virechana	3 Prasuta

- In Kashyapa Samhita specific dose of **Kalka** is also mentioned for the children.

(Ka.Khi.3/91-92)

Deepaniya	1 Aksha
Jivaniya, Sanshamaniya	2 Aksha

Vamana, Virechana

 $\frac{1}{2}$ Aksha

- **Dosage schedule by Acharya Susruta (Su.Sha.10/38)**

Age	Aushadha matra	Type of Aushadha
Ksheerada	Parvadayagrahana Sammita (Amount which comes between two finger/one pinch)	
Ksheeranna da	Kolasthi Sammita (Amount similar to seed of Kola fruit)	For Kalka (paste)
Annada	Kola Sammita (Amount similar to Kola fruit)	

- **Dosage schedule by Acharya Sarangdhara (Sha.Sa.Pratham Khanda 6/14-17)**

For Churna, Kalka, Avleha

Age	Aushadha matra	Type of aushadha
1 month	1 Ratti (125mg)	Lehana with medium of Honey, Milk, Ghrita, Sarkara
Till 1 year of age	Increase 1 Ratti per month	Lehana with medium of Honey, Milk, Ghrita, Sarkara
After 1 year up to 16 year	Increase 5 Ratti per year	

- Young's formula

$$\text{Child dose} = \frac{\text{Adult dose} \times \text{age}}{\text{Age} + 12}$$

$$\text{Age} + 12$$

- Dilling's formula

$$\text{Child dose} = \frac{\text{Adult dose} \times \text{age}}{20}$$

$$20$$

POINT 2

GENERAL AUSHADHI MATRA NIRDHARANA

(DRUG DOSES ACCORDING TO AGE, WEIGHT AND DRUG CONTENTS)
(AYURVEDA AND MODERN POINT OF VIEW)

According to Ayurvedic point of view

Same as Point 1

According to modern point of view

Drug doses according to age, weight and drug contents

Factors influencing drug selection and dosage regimen

Physiologic immaturity of organ system in infancy	Pharmacologic Reference
1. Variations in gastric pH, reduced gastric emptying time and reduced intestinal motility.	Affects drug absorption.
2. Low G.I. enzyme activity.	Reduces absorption of fat soluble vitamins and dietary fats.
3. Diminished extracellular fluid volume compared to adults.	Drugs that are distributed in ECF have less concentration at receptor sites.
4. Low plasma albumin levels in neonates and children with malnutrition.	Increase free drug concentration in plasma e.g. ibuprofen and phenytoin.
5. G.I. malabsorption	Causes unreliable absorption of oral antibiotics.
6. Hepatic immaturity	Need lowering dosage of drugs cleared via hepatic route.
7. Renal immaturity	Need lowering dose and frequency adjustment for drugs excreted by kidney.

8. Bone marrow is more sensitive to certain drugs causing bone marrow damage	Choloromphenicol causing bronze baby syndrome, cephalosporines can cause thrombocytopenia.
9. Certain drugs compete for protein binding with bilirubin leading to hyperbilirubinemia.	Salfa group of drugs and cefritraxone cause neonatal hyperbilirubinemia.
10. Palatopharyngeal inco-ordination	It is difficult to swallow solid oral medication till the age of five years.

Drug Doses and Frequency

For toxic drugs or new drugs always refer to standard reference or manufacturer's insert.	It is a single, convenient, acceptable method of dosing.
As per body surface area - Pediatric chemotherapeutic agents, anti-retroviral drug dosages are based on body surface area.	Especially for drugs with narrow therapeutic index.
In the absence of explicit pediatric dose, recommendations on approximation from adult dose can be done based on age or weight.	$\text{Dose} = \text{adult dose} * \text{age (years)} / \text{Age} + 12.$ $\text{Dose} = \text{Adult dose} * \text{weight (kgs)} / 70.$
Frequency of administration is inversely related to elimination half-life of drug.	When no relation between plasma concentration and its effect is known, the drug is given once or twice daily. When the steady drug plasma concentration is not achieved easily, a loading dose is advised. e.g. phenobabitone.

Common drugs used in pediatric practice

Sr. No	Drug Content	Daily Dose Frequency	Maximum Dose	Remarks
Antipyretics and Analgesics				
1	Paracetamol. Oral	10-20 mg/kg/dose q 4-6 hrly.	< 3 months: 60 mg/kg/day. 3 mths - 12 yrs: 90 mg/kg/day.	Use with caution in renal and hepatic failure. Avoid over dosage.
2	Ibuprofen. Oral	7.5-10 mg/kg/dose q 4-6 hrly.	20 mg/kg/day upto 2.4 gms per day.	Take with food or after milk. Causes G.I. upset.
3	Mefenamic acid. Oral	3 mg/kg/dose q 8 hrly.	25 mg/kg/day as analgesic.	Take with food. Not more than seven days. Avoid in seizure disorder.
4	Aspirin. Oral	Antipyretic - 10 mg/kg/day q 6 hrly. Acute rheumatic fever - 25-30 mg/kg/day q 6 hrly. Anti platelet - 10 mg/kg/day OD	120 mg/kg.	Used in collagen disease. Avoid in viral infections due to risk of Reyes syndrome.
5	Indomethacin. Oral	1-3 mg/kg/day q 12 hrly.	50 mg.	Used in rheumatic and musculoskeletal disorders. Causes G.I.

				discomfort.
6	Naproxone. Oral	5-10 mg/kg/day q 12 hrly.	1 gm/day.	Used for inflammatory arthritis. Caution in renal impairment.
7	Piroxicam Oral	< 15 kg: 5 mg 16-25 kg: 10 mg 26-45 kg: 15 mg >45 kg: 20 mg q 24 hrs.	20 mg	Take with or after food. G.I> disturbance

Antihistaminics (Anti-Allergic)

1	Cetirizine Non sedative Oral	2-6 years: 5 mg >6 years: 10 mg Once daily	Not more than 2 doses per day.	Avoid below 2 years.
2	Chlorpheniramine Sedative Oral	<2 years: 1 mg 2-5 years: 1-2 mg 6-12 years: 2-4 mg 2-4 times a day.	2 mg 6 mg 12 mg	Use with caution in seizure disorder and hepatic disorder. Not to use during lactation.
3	Diphenhydramine Sedative Oral	1 mg/kg/dose 6-8 hrly.	300 mg/day.	Do not use in prophyria.
4	Pheniramine	0.5 mg/kg/day	2 mg/kg/day	Sedative effect.
5	Hydroxizine -O hydrochloride Oral	2 mg/kg/day q 6 hrly	6 months - 6 years: 50 mg/day 7-12 yrs: 50- 100 mg/day	Do not use in renal or hepatic dysfunction.

Anti-Tussives

1	Codeine Oral	0.2 mg/kg/dose 4 hrly	30 mg/day below 5 years 60 mg/day below 12 years	Not to be used below 2 years. Constipation, bradycardia, respiratory dipression.
2	Dextromethorphan Oral	< 3 months: 1 mg/dose 1 year: 2 mg/dose 2-6 years: 5 mg/dose	Less than 6 years: 30 mg/day. 6-12 years: 60 mg/day	Drowsiness. Nausea.

Sedatives

1	Diazepam Oral	0.1-0.2 mg/kg	2 mg/kg per dose	Long acting.
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Antiemetics

1	Metoclopramide Oral	100 microgm/kg 8-12 hrly upto 12 years.	5 mg	Take before feeds. Use with caution in renal impairment. Extrapyramidal side effect.
2	Domperidone	200-400 microgm/kg 6-8 hrly.	5 mg	Take before feeds.
3	Ondansetron Oral	100 mg/kg 8 hrly	4 mg	-
4	Promethazine theoclate Oral	0.5 mg/kg 8-12 hrly	-	Use for motion sickness.

Antispasmodic

1	Dicyclomine hydrochloride	< 2 years: 5 mg 2-12 years: 10 mg >12 years: 15 mg 8 hrly	Not more than 3 doses in 24 hrs.	Take 15 mins before feed.
2	Dimethicone Oral	0.25 ml before food	max 6 doses in 24 hrs	For flatulence administer before food.

Bronchodilators

1	Salbutamol Oral	<2 yrs: 0.1-0.4 mg/kg/dose 8 hrly 2-6 years: 1 mg/dose 6-8 hrly	6 mg	Tachycardia, Palpitations, Insomnia, tremors.
2	Aminophylline Oral	< 1 year: 10 mg/kg/day 1-6 yrs: 15 mg/kg/day >6 yrs: 20 mg/kg/day 8 hrly	400 mg/day	Nausea, Vomiting, headache. Palpitation.

Mucolytic

1	Ambroxol Oral	<6 months: 3 mg/dose 6-12 months: 6 mg/dose <5 years: 12 mg/dose 5-12 yrs: 15		Increased risk of pulmonary hemorrhage in newborns.
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		mg/dose >12 yrs: 30 mg/dose Thrice a day.	
2	Bromhexine Oral	<5 years: 4 mg/dose 5-10 yrs: 6 mg/dose >10 yrs: 8 mg/dose Thrice a day.	Increased risk of pulmonary hemorrhage in newborns.

POINT 3

SPECIFIC THERAPEUTIC PANCHAKARMA PROCEDURES IN CHILDREN WITH SPECIAL EMPHASES ON SNEHANA, SWEDANA AND BASTI.

Snehana (Ka. Su. Snehadhyay)

1. For Ghritapana - Hrisva Sneha Matra (very small quantity) is advised in children.
बालेषु - च कनीयसी स्यात् ।
2. Ghrita is preferable Sneha during childhood period.
शिशु - घृतमेव काले ।
3. Kshirapa Avastha is contraindicated for Snehapana.
न क्षीरपं - न स्नेहयेत् ।

Swedana (Ka. Su. Swedadhyay)

1. बालानां कृशमध्यानां स्वेद आवस्थिको हितः ।

शीतव्याधिशरीराणां बालानां च विशेषतः ॥

Swedana therapy is beneficial to children according to their diseased condition.

2. जन्मप्रभृति बालानां स्वेदो आवस्थिको हितः ।

प्रयुञ्जीत यथाकालं रोगदेहव्यपेक्षया ॥

The physician should use eight types of Swedana to the children from birth onwards considering the Kala (season), Roga (state of disease) and strength of the body.

3. हस्तस्वेदः प्रदेहश्च नाडीप्रस्तरसंकराः ।

उपनाहोवगाहश्च परिषेकस्तथाष्टमः ॥

These eight are - Hasta Sweda, Pradeha, Nadi Sweda, Prastara Sweda, Sankara Sweda, Upanaha sweda, Avagaha Sweda and Parisheka.

4. जातस्य चतुरोमासान् हस्तस्वेदं प्रयोजयेत् ।

From birth to four months, Hasta Sweda should use for Swedana therapy.

Basti

1. शिशुनामशिशुनां च बस्तिकर्माभूतं यथा ।

भिषजामर्थयसी शिशोरायुः प्रजां पितुः ॥ (Ka.Si.1)

For the children and adults, Basti is considered as Amritam, it provides longevity to the children.

2. अघस्तनोऽन्नभोक्ता । (Ka.Si.1)

The child, who starts to walk without support and starts to eat cereals, is appropriate for Basti Karma.

3. दद्यादेकान्तरं । (Ka.Si.1)

Physician should give enema on alternate days.

4. बस्तिकर्म कृतं काले बालानाममृतोपमम् । (Ka.Si.1)

Bastikarma is considered as Amrita for children.

5. बस्तिदानात् परं नास्ति चिकित्साङ्गसुखावहा । (Ka.Khi.8)

There is no other treatment rather than Basti that gives healthy condition to the child.

6. चतुर्भद्र कल्प (Ka.Khi.8)

Four Sneha Basti in the beginning, and four at the end, four between Niruha (Kwath) Basti, this preparation is free from complications.

7. **Benefits of Basti:** (Ka.Khi.8)

Provides longevity, improve voice, complexion, strength and digestion power; expulsion of Vata, Pitta, Kapha and Mala; provides strength quickly and causes purification of all Indriyas - these are benefits of Basti Karma.

8. **Matra of Basti:** (Ka.Khi.8)

Matra Basti

Hrisva Matra - 1 Prakunch

Madhyama - 1 and 1/2 Prakunch

Uttama - 2 Pala

For children having given up breast feeding, the dose is ½ Pala.

For the age of

3 years - 3 Karsha

4 years - 1 Pala

6 years - 1 Prasruta

12 years - 2 Prasruta

16 years - 4 Prasruta

Nasya

1. शोधनं पूरणं चैव द्विविधं नस्यमुच्यते । (Ka.Si.4)

Nasya therapy is said to be of two types: Shodhana and Purana.

2. नस्यकर्माणि बालानां स्तन्यपानां विशेषतः ।

कटुतैलं प्रयुज्जीतं घृतं वा सैन्धवान्वितम् ॥ (Ka.Si.4)

Nasya Karma is specific indicated in the Stanyapayi Shishu with Katu Taila or Ghrita mixed with Saindhava.

3. Nasya Yoga:

Kumara Taila

Purana Ghrita

Vamana (Ka.Si.3)

1. The medicine for the Vamana and Virechana should give at the age of fourth or eighth month.

2. Matra: 1, 1 ½, 2 or 3 Pala.

3. Vega:

Avara: 2 – 3 Vega.

Madhyama: 4 -5 Vega.

Uttama: 6 – 7 Vega.

Virechana (Ka.Si.3)

1. Virechana should perform after 15 days of Vamana.

2. Audhadhi: Danti, Shyama, Kampillaka, Neeli or Vacha – Any one of the medicine should use for Virechana with dose of 1 or 2 Karsha and make decoction with Gomutra.

3. The Churna of medicine can also use with Navaneeta.

4. Vega:

Avara: 2 Vega.

Madhyama: 3 Vega.

Uttama: 4 Vega.

- In the condition with Phakka Roga the Virechana should perform with Trivritta Kshira.

POINT 4

PRASAVAKALINA ABHIGHATA JANVA VIKARA BIRTH INJURIES

SHWASAVRODHA (ASPHYXIA NEONATORUM)

Definition

A condition of impaired gas exchange, that leads if persistent, to fetal hypoxia and hypercarbia.

Etiology

- Drop in maternal blood pressure.
- Some other substantial interference with blood flow to the infant's brain during delivery.

Clinical Features

- When the infant is deprived of oxygen



Rapid breathing occurs

- If the **asphyxia continues**,
The **respiratory movements** cease,
The **heart rate** begins to fall,
Neuromuscular tone gradually decrease,
And the infant enters a period of **apnea**.
In the most instances, tactile stimulation and exposure to oxygen during this period will induce respiration.
- If the **asphyxia continues**,
The infant develops deep gasping **respiration**,
Heart rate continuous to fall,
Infant becomes nearly **flaccid**.
The respiration becomes weaker and weaker until the infant takes a last gasp and enters a period of **secondary apnea**.

The infant is now unresponsive to stimulation and will not spontaneously resume respiratory efforts unless resuscitation with associated ventilation.

- Hypoxic damage can occur to most infant's organ.
- In the most pronounced cases, an infant will survive, but with damage to the brain manifested as either mental such as developmental delay or physical such as spasticity – spastic diplegia or other forms of cerebral palsy.
- Apnea – cessation of breathing.

Management:

Neonatal Resuscitation

ULVAKA

Definition

गर्भाम्भिसामवमनाश्लेष्मणः कण्ठगस्य वा ।

सम्पर्काद्हृदये दुष्टो मार्गानावृणुते रसः ॥

बद्धमुष्टिस्ततो मुह्यनरोगैर्बालोभिभूयते । (A.S.U.2/137)

The child cannot vomit the phlegm of the throat, the Rasa Dhatu getting aggravated in the Hridaya and obstruct the channels.

Symptoms (A.S.U.2/138)

- Clenching of the fists
- Unconsciousness
- Convulsions
- Dyspnoea
- Cough
- Vomiting
- Fever

The disease is described as Sahaja Vyadhi.

Management (A.S.U.2/139)

- Srotovishodhana
- Aja Mutra Pana
- Bathing and Abhyanga should avoid to the child.

Definition

कपाले पवने दुष्टे गर्भस्थसयापि जायते ।

सवर्णो नीरुजः शोफस्तं विद्यादुपशीर्षकम् ॥ (A.H.U.23/21)

At the age of fetal period, vitiation of Vata develops swelling of the skin of the scalp without pain known as Upashirshaka.

Management

नवो जन्मोत्तरं जाते योजयेदुपशीर्षके ।

वातव्याधिक्रिया पक्के कर्म विद्रधिचोदितम् ॥ (A.H.U.24/19)

In the primary stage of Upashirshaka, treatment prescribed as Vatavyadhi Chikitsa and in later stage with purulent condition, the treatment prescribed as Vidradhi should be done.

Caput Succidenum

- Formation of the swelling of soft tissues of the scalp over the presenting part.
- The swelling is present at birth and its size and severity is related to the duration of labor.
- The swelling is pitting and not limited by sutures.
- Dissolves / Disappears spontaneously within 24 hours after birth.

Cephalhematoma

- It is subperiosteal collection of blood secondary to injury during delivery.
- Developed due to rupture of superficial veins between the skull and periosteum.
- The swelling appears after 2-3 days after birth.
- It is fluctuant swelling and does not cross the suture line.
- Depending upon its size, it resolves spontaneously after a few days or weeks.

FACIAL PARALYSIS

- It may occur with or without forceps application.
- Facial asymmetry, inability to close the eye and absent rooting reflex on the affected side suggest the diagnosis. The recovery is excellent and complete.
- Most peripheral nerve injuries in the newborn carry a good prognosis because of greater regenerative power and short length of nerves.

ERB'S PARALYSIS

- Injury to upper cervical roots (C5, C6).
- The arm hangs limply, adducted and internally rotated with elbow extended and pronated. Arm recoil is lost.

Management

- The arm should be kept in the position of abduction and external rotation at the shoulder and flexion of elbow.
- Massage and passive movements of the muscles would recovery that is generally complete but may take few weeks or months.

KLUMPKE'S PALSY

- Injury to lower cervical roots (C7, C8 and T1).
- Manifest as wrist drop and flaccid paralysis of hand with absent grasp response.

Management

- Cotton ball should be placed in the baby's hand to avoid contractures.
- Massage and passive movements of the muscles would recovery that is generally complete but may take few weeks or months.

BHAGNA (FRACTURES)

- **Skull:** The liner skull fractures may be associated in one fourth of infants with cephalhematoma and are of no therapeutic significance.

The depressed fractures may occur due to compression as a result of forceps or against the maternal symphysis pubis and sacral promontory. These also disappear spontaneously.

- **Clavicle:** Most common fracture and often follows breech extraction or shoulder impaction.

Immobilization of arm can be achieved. The prognosis is excellent.

- **Femur:** Fracture of femur is rare and caused by forcible manipulation of legs during breech extraction. Spontaneous healing may occur.

- **Humerus:** The forcible manipulations and pulling at baby's arm during delivery may result in fracture of humerus.

The diagnosis is suspected by pain and limitation of affected limb.

POINT 5
BRIEF DESCRIPTION OF SAHAJA VYADHI
(CONGENITAL DISORDERS)

SAHAJA HRIDAYA VIKARA
CONGENITAL HEART DISEASE

Congenital heart diseases occur in 8 per 1000 births.

Most cases of congenital heart diseases are multifactorial, some lesions associated with Chromosomal disorders, Single gene defect, Teratogens and Maternal metabolic diseases.

Congenital heart diseases can be divided into three broad pathophysiologic groups:

1. Left to right shunts.
2. Right to left shunts.
3. Obstructive stenotic lesions.

Left to Right Shunts

1. VSD (Ventricular Septal Defect)

- Most common congenital cardiac lesion.
- Shunting of oxygenated blood from left to right ventricle.

2. ASD (Atrial Septal Defect)

- Abnormal communication between two atrium.
- Leaking of oxygenated blood from left to right atrium.
- Two types: Osteum primum and osteum seondum.

3. PDA (Patent Ductus Arteriosus)

- Communication between pulmonary artery and aorta.
- The ductus arteriosus is present in fetal life; it closes functionally and anatomically soon after birth. Persistent of ductus arteriosus is called PDA.
- Left to right shunt from aorta to pulmonary artery.

Right to Left Shunts - Cyanotic heart diseases

1. Tetralogy of fallot

The four constituents of tetralogy as described originally by fallot.

Consist of,

- VSD.
- Pulmonary stenosis.
- Overriding aorta.
- Right ventricular hypertrophy.

On physical examination cyanosis and clubbing are present.

2. Tricuspid atresia

- Congenital absence of tricuspid valve.
- The right ventricle is underdeveloped.
- The inflow portion is absent.

3. Ebstein anomaly

- Abnormality of tricuspid valve.
- The tricuspid valve anomaly results in obstruction of forward flow of blood as well as regurgitation of blood from right ventricle to right atrium.

4. Transposition of great vessels

- Aorta arising from right ventricle and pulmonary artery from left ventricle.

Obstructive Stenotic Lesions

- 1. Aortic Stenosis** (Obstruction of blood flow across the aortic valve)
- 2. Pulmonary Stenosis** (Obstruction of the blood flow from the right ventricle of the heart to the pulmonary artery)
- 3. Coarctation of aorta** (aortic narrowing)

JALASHIRSHAKA (HYDROCEPHALUS)

Definition

Dilatation of ventricles leading to large head circumference caused by impaired circulation or absorption of CSF or increased production by choroid plexus.

The CSF secreted at the choroid plexus within the ventricles by ultra filtration and active secretion. It passes from the lateral ventricles to the third ventricle, fourth ventricle and then to the basal cisterns, and then reaches the cerebral and spinal subarachnoid spaces where it is absorbed via the arachnoid villi into the venous channels and sinuses.

Types

Communicating

There is no blockage from an imbalance between the ventricular system, the basal cisterns and the spinal subarachnoid space.

Non-communicating

The block is at any level in the ventricular system, commonly at the level of aqueduct or foramina of luschka and magendie.

Congenital

- Intrauterine infections (TORCH).
- Intracranial hemorrhage.
- Congenital malformations (Aqua ductal stenosis, Dandy Walker syndrome - posterior fossa cyst continues with fourth ventricle, Arnold chiari syndrome - portions of cerebellum and brain stem herniating into cervical spinal canal and blocking the flow of CSF to the posterior fossa).

Acquired

- Tuberculosis, chronic and pyogenic meningitis.
- Post intraventricular hemorrhage.
- Tumors.

Clinical Features

- Enlarging head size, delayed closure of fontanel and sutures.
- Forehead is prominent.
- Scalp veins become prominent and dilated.
- Sunset sign positive (Sclera above the cornea is visible).
- Macewen's / Cracked pot sign – positive.
- Increased tone of limbs may be detected due to compression of the white matter.
- Features of the increased ICP: Papilledema, Bradycardia, Vomiting, Headache, Irritability.

Diagnosis

- USG
- CT scan

D/D

- Megaencephaly.
- Rickets.
- Hemolytic anemia.
- Familial.

Management

- Acetazolamide – 50 mg/kg/day (for decrease ICP).
- Ventriculoperitoneal Shunt.
- Venticuloatrial Shunt.

Ayurvedic Management

1. Rasayana Churna (Guduchi, Gokshura Aamalaki) with Honey.
2. Punarnavadi Kwath or Punarnavashtaka Kwath.
3. In the condition of spasticity, Abhyanga with Narayana Taila and Sankara Sweda in the form of Shashtishali Pinda Sweda should apply.

KHANDA AUSHTHA (Cleft Lip) KHANDA TALU (Cleft Palate)

Definition

A Cleft is a fissure or opening – a gap. It is non fusion of the body's natural structures that form before birth.

Cleft lip and palate is due to hypoplasia of mesenchymal tissues with subsequent failure of fusion.

Etiology

- Environmental factors: Drugs (phenytoin, valporic acid), Maternal alcohol and tobacco use, Contact of Herbicides.
- Strong genetic component.
- Cleft lip is due to failure of fusion of maxillary and median nasal processes.
- Cleft palate is due to the failure of fusion of the lateral palatine processes, the nasal septum and median palatine processes.

Clinical Features

- Cleft lip can be associated with cleft palate.
- Defects of the alveolar ridge and dentition.

- Speech and swallow difficulty.

Management

- Feeding is a significant problem. Manage with squeeze bottle feeding and special nipples.
- Surgical closure of the cleft lip is usually done by 3 months of age. Closure of the palate follows, usually before 1 year of the age.

According to Ayurveda

Khanda Aushtha

तत्र खण्डौष्ठ इत्युक्तो वातेनौष्ठो द्विधाकृतः । (A.S.U.25/4)

Dosha: Vata that restricts normal development of the lip.

Management

Surgery

IMPERFORATED ANUS

Definition

An imperforate anus or anorectal malformation is birth defect in which the rectum is malformed.

Etiology

- Unknown.
- In 8 % of the patients have genetic factor clearly associated.

Clinical Features

- A Low lesion: Colon remains close to the skin.
- A High lesion: Colon remains higher up to the pelvis.

Investigations: USG.

Treatment: Surgery.

TALIPES EQUANOVARUS

Definition

Congenital deformity involving one or both foot. The affected foot appears to have been rotated internally at the ankle.

- Talipes – talus (ankle) + pes (foot).
- Equino indicates – the heel elevated and

- Varus indicates – turn inward.

It occurs commonly in males and bilateral in 50% cases.

A deformity is involving the malleolus of the calcaneotalar – navicular complex. It is a hind foot deformity; there are plantar flexion (cavus) and adduction of the fore foot / mid foot on the hind foot. The hind foot is in varus and equinus.

Clinical Features

- Fore foot cavus and adducts.
- Hind foot varus and equines.

Diagnosis

- Anterior posterior and lateral radiographs are recommended.

Management

- Strapping.
- Manipulation.
- Surgery.

SPINA BIFIDA (MENINGOCELE and MENINGOMYELOCELE)

Definition

Spina bifida is a congenital defect of the vertebral column in which lamina of L5 and / or S1 fails to develop normally and unite the midline.

Types

1. Spina bifida occulta

- Least serious form
- No symptoms
- E/o its presence is a small dimple with tuft of hair in the overlying the skin.

2. Spina bifida cystica

- Meningocele
- Meningomyelocele

Spina bifida cystica

Several types of spina bifida involve protrusion of the meninges and / or spinal cord through the laminae and are collectively termed Spina bifida cystica because of the presence of a cyst like sac protruding from the back bone.

- If the sac contains the meninges from the spinal cord and cerebrospinal fluid, the condition is called Spina bifida with **meningocele**.
- If the sac contains spinal cord and / or its nerve roots, the condition is called Spina bifida with **meningomyelocele**.

Clinical Features

- The larger the cyst and the number of the neural structures contain the more serious neurological problems.
- In several cases, there may be partial or complete paralysis, partial or complete loss of urinary bladder and bowel control and the absence of the reflexes.
- An increased risk of spina bifida is associated with **low level of a B12 vitamin** called **folic acid** during pregnancy.

Spina bifida may be diagnosed **prenatally** by a test of the mother's blood for a substance produced by the fetus called alphafetoprotein, by sonography or by amniocentesis.

Management

- Surgery

POINT 6

BRIEF KNOWLEDGE OF GENETIC DISORDERS

DOWN SYNDROME

Definition

An extra copy of chromosome 21 (Trisomy 21) is present in Down syndrome. The origin of the extra chromosome is being either maternal or paternal. In most cases the extra chromosome is from the mother.

Etiology

- In offspring of mothers conceiving at older age (more than 35 years).
- After the birth of one baby with chromosomal anomalies.

Clinical Features

- Physical and mental retardation

Mongolian faces	Small head
	Depressed nasal bridge
	Inner epicanthus fold
	Protruding tongue
	Small ears
Ocular system	Hypertelorism
	Congenital cataract
Ear	Small low set ears
Hands and feet	Simian crease
	Short broad hands
CNS	Mental retardation
	Hypotonia
Genitalia	Small penis
	Bulber vulva
Dentition	Delayed dentition

Prenatal Diagnosis

- Chorionic villi sampling at 10-12 weeks of gestation or amniocentesis around 16 weeks of pregnancy to determine the chromosomal status of the fetus.
- Maternal serum alpha fetoprotein (AFP), Human chorionic gonadotropin (hCG) and estriol assays. AFP and estriol are low, where as HCG is high in Down syndrome pregnancies.
- Fetal ultrasonography may reveal increased nuchal fold thickness.

Diagnosis

- Baised on the characteristic clinical features.

Management

- Counseling - The parents should be told about the associated problems and the importance of the early stimulation should be highlighted.
- Ayurvedic management cannot changes is anatomical features of Down syndrome but gives improvement in development of physical and mental retardation.
- Ayurvedic Management includes,
Abhyanga with Bala Taila / Kshira Bala Taila / Lakshadi Taila.
Swedana (Shashti Shali Pinda sweda)
Basti (Matra Basti) with narayana Taila / Bala Taila
Nasya (Brahmi Ghrita)
Brahmi Churna, Shankhapushpi Churna, Vacha Churna and Brahma Rasayana etc. should use as internal medications.

TURNER'S SYNDROME

Definition

Turner's syndrome having 45 X chromosome constitution, has an incident about 1:3000 newborns and parental age has no effect in incidence.

Clinical Features

- Lymphedema of the dorsum of the hands and feet in newborn.
- Short stature.
- Short webbed neck.

- Low posterior hairline.
- Ears are anomalous and prominent.
- At puberty, sexual maturation fails to occur with primary amenorrhoea and failure of secondary sexual development.

Diagnosis

- Based on clinical features and chromosomal analysis.

Management

- Cyclic estrogen and progesterone therapy in phenotypic female at post pubertal age will improve physical development and induce regular menstrual cycle.
- Use of growth hormone, anabolic steroids and estrogens – to improve growth rate.

MUSCULAR DYSTROPHY

Definition

Muscular dystrophies are group of progressive genetically determined disorders predominantly affecting skeletal muscles resulting in wasting and weakness.

Genetic classification

- X-linked recessive.
 - Duchenne muscular dystrophy.
 - Becker muscular dystrophy.
 - Emery-DeRivuss.
- Autosomal recessive.
 - Limb-girdle muscular dystrophy.
- Congenital muscular dystrophies.

DMD and BMD:

- X linked recessive inheritance.
- BMD is milder form.

Pathology

It is due to spontaneous mutation in dystrophin gene located on chromosome Xp21. Dystrophin, a large cytoskeletal protein is intimately bound to sarcolemma and provides structural integrity to muscle membrane.

Clinical Features

- Most children appear normal at birth and achieve satisfactory milestones.
- Frequent falls are noted first manifestation at about 3 to 6 years of age along with clumsy walk.
- Difficulty in running, climbing stairs and getting up from floor.
- Proximal weakness is more than distal. Lower limbs are weaker and involved earlier.
- Wasting of muscles.
- Hypertrophy of calf muscles.
- Toe walking with increased lordosis.
- Sign:
Valley sign (visible behind shoulders).
Gower's sign (The child has difficulty in standing up from the recumbent position. He turns to side, lifts his trunk up by supporting his weight on his arms and then stands up as if climbing upon his body by supporting it with hand).

Diagnosis

- Genetic study.
- Serum creatine phosphokinase (CPK) is elevated 50 to 100 times normal but can drop in later stage.

Management

- Gene therapy.
- Stem cell therapy.

Ayurvedic Management

- Ayurvedic management can give good quality of life to the patients.
- Ayurvedic Management includes,
Abhyanga with Bala Taila / Kshira Bala Taila.
Swedana (Shashti Shali Pinda sweda)
Basti (Matra Basti)
Nasya (Brahmi Ghrita)

Balamula Kwath, Ashwagandha Churna, Brihata Vata Chintamani Rasa and Brahma Rasayana etc. should use as internal medications.

SICKLE CELL ANEMIA

Definition

Sickle cell disease is an inherited blood disorder characterized by defective hemoglobin.

It is a type of hemoglobinopathy due to presence of sickle hemoglobin (HbS) in RBC. RBCs develop in sickle shape when they lose their oxygen. It occurs as result of deletion of B globin gene on chromosome 11.

Sickle cells only live for about 10 to 20 days, while normal hemoglobin can live up to 120 days.

Pathology

When HbS gives up oxygen to the interstitial fluid, it forms long, stiff, rod like structures that bend the erythrocyte into sickle shape. The sickled cells rupture easily. Even though erythropoiesis is stimulated by the loss of cells, it cannot keep pace with hemolysis. Normal hemoglobin cells are smooth, round and flexible, they can move through the vessels in our bodies easily. Sickle cell hemoglobin cells are stiff and sticky, and form in the shape of a sickle, when they lose their oxygen. These sickle cells tend to cluster together and cannot easily move through the blood vessels. The cluster causes a blockage in small arteries or capillaries and stops the movement of healthy, normal oxygen carrying blood.

Types

1. Sickle cell disease.

A person has two HbS genes are inherited - one from mother and other from father.

2. Sickle cell trait.

A person has one HbS gene is healthy.

Clinical Features

- Anemia.
- Pain crisis.
- Chronic hyperbilirubinemia.

- Splenomegaly and hepatomegaly.
- Physical growth retardation.
- Clubbing of fingers due to chronic hypoxia.
- Cardiomegaly.
- Micro infarcts in joints.
- Recurrent infections.

Diagnosis

- Hemoglobinopathy testing.

Management

- Pain medications.
- Drinking plenty of water daily.
- Blood transfusions.
- Penicillin (to prevent infections).
- Hydroxyurea (A medicine found to help reduce the frequency of pain and acute chest syndrome; it may also help decrease the need for frequent blood transfusions).
- Bone marrow transplant.

Ayurvedic Management

- Bhumyamalaki Churna with Madhu.
- Rasayana Churna with Madhu.
- Phalatrikadi Kwath.
- Drakshavaleha.

THALASSEMIA

Definition

Thalassemia is defined as defect of globin chain synthesis of hemoglobin due to various mutations of genes. Autosomal recessive and heterogynous group of single gene disorder.

Blood disease characterized by decreased synthesis of one of the polypeptide chain (alpha or beta). In alpha thalassemia, alpha chain is affected and in beta thalassemia, beta chain is involved.

Pathology

Hb consists of two pairs of amino acid chains alpha and beta.



Imbalance in the production of these peptide chains of globin leads to abnormal hemoglobinopathies.



Excessive unpaired peptide chain in hemoglobin is precipitated on red cell membrane and damages it leading to premature destruction of RBC (Hemolysis) in bone marrow and in peripheral circulation particularly in reticulo-endothelial system of spleen. (Ineffective Erythropoiesis)



Gamma chain synthesis persists after fetal life.



Increased fetal hemoglobin with its high affinity for oxygen, leads to tissue hypoxia, which stimulates erythropoietin secretion, leading to both medullary and extramedullary erythropoiesis.



This resulting in expansion of bone marrow space with characteristic hemolytic faces with frontal, perinatal and occipital bossing, malar prominence and mal-occlusion of teeth, splenomegaly and hepatomegaly.

BETA THALASSEMIA

Classification

Homozygous states - Two types

- **Thalassemia Major** (Children are clinically severe type and are dependent on regular blood transfusion for their survival)
- **Thalassemia Intermedia** (Symptoms are milder and are not dependent on regular blood transfusion for their survival)

Heterozygous states - Two types

- **Thalassemia Minor** (Microcytic hypochromic red cells)

- Silent carriers (Asymptomatic and have no hematological findings and are diagnosed by chain synthesis)

Clinical Features

- Thalassemia major presents in early infancy (6-18 months) with pallor, failure to thrive, irritability and hepatosplenomegaly.
- Hemolytic faces including fronto-parietal bossing, depressed nasal bridge, malar prominence and malocclusion of teeth with protrusion of maxillary teeth.

Laboratory Investigations

- Complete blood count (CBC) with red cell indices and Peripheral Blood Film (PBF) examination and reticulocyte count.
- Serum Iron level increased depending upon iron overload.
- Total iron binding capacity (TIBC) decreased.
- S. Ferritin increased.

Management of Thalassemia Major

- Correction of anemia - Packed red cell transfusions
- Removal of excess iron - Chelation therapy
- Management of complications
- Curative treatment - Stem cell transplantation (Bone marrow transplantation)

SAHAJA PRAMEHA (JUVENILE DIABETES)

Sahaja Prameha

द्वौ प्रमेहो भवतः सहजोऽपथ्यनिमित्तश्च ।

त्र सहजो मातृपितृबीजदोषकृतः ॥ (Su.Chi.11/2)

Lakshana

- Krisha (lean and thin).
- Alpashi (Impaired appetite).
- Pipasu (Excessive thirst).
- Parisaranashila (Hyperactive).

Management

- अन्नपानप्रतिसंस्कृताभिः क्रियाभिः ।

Sahaja Pramehi is treated by using different types of Annapana Kriya.

Diabetes Mellitus Type 1

Definition

Diabetes mellitus is a chronic disease characterized by hyperglycemia and glucosuria.

Epidemiology

It is uncommon in infants.

It has two define picks, one at about 5 years and the other about 10 to 12 years.

Pathogenesis

1. Environmental factors

- Infectious diseases (Mumps, Coxsackie virus and cytomegalovirus).
- Environmental toxins (Rodenticides and nitrosamines).
- Nutrients (Early introduction of cow's milk protein).

2. Autoimmunity

- Autoimmune destruction of beta cells.

3. Genetics

- A number of genetic alterations most of which are located on chromosome 6 within the major histocompatibility complex can initiate beta cell damage.

Clinical Features

Four phases

Initial phase (Development of clinical symptoms)

- Polyuria, nocturia, recent weight loss, polyphagia, fatigue and often flu like infection. The duration of these symptoms usually is over a month.

Second phase (phase of remission)

- Spontaneous decline of exogenous insulin requirement. The duration of insulin free period varies from 1 month to 2 years. This is due to improved beta cell synthesis and release of insulin after clinical stabilization.

Third phase (Relapse)

- An interval of progressive insulin requirement. This results from declining endogenous insulin secretory capacity and insulin resistant.

Final stage (total diabetes)

- Complete beta cell destruction with no capacity for endogenous insulin synthesis or release. This is irreversible.

Complications

- Acute: ketoacidosis, hypoglycemia (glucose level less than 60 mg/dl) - reversible.
- Intermediate: limited joint mobility, growth failure, and delay in sex maturation, impaired intellectual development.
- Chronic: retinopathy, nephropathy and neuropathy - usually manifest in adulthood.

Diagnosis

- Causal plasma glucose concentration > 200mg/dl.
- Fasting plasma glucose level >126 mg/dl.

Management

- Insulin administration.
- Dietary management.
- Physical exercises.
- Social support.

AYURVEDIC MANAGEMENT

- Sanshamani Vati.
- Laghu vasanta Malati.
- Rasayana Churna.
- Bala Churna.

POINT 7

PRASAVOTTARA VYADHI (NEONATAL DISORDERS)

NEONATAL JAUNDICE

Definition

Elevation of Serum bilirubin level during neonatal period suggests Neonatal Jaundice.

Neonatal Jaundice is divided in two categories:

1. Physiological
2. Pathological

Physiological Jaundice

- Jaundice appearing between 24 to 72 hours of age.
- Lasts for 5 days in term infant and 7 days in preterm infant.
- Rapid rising in S. bilirubin 12-15 mg/dl.
- Phase one lasts for 5 days in term infant and 7 days in preterm infant, when there is a rapid rise in serum bilirubin levels to 12 and 15 mg/dl, respectively, after this phase two, there is a decline to about 2 mg/dl, which lasts for two weeks. Phase two may last for more than a month in preterm infants.

Possible mechanism in physiological jaundice

1. Increase bilirubin load on liver cells.
2. Defective hepatic uptake of bilirubin from plasma.
3. Defective bilirubin plasma conjugation.
4. Defective bilirubin excretion.

Management

- Physiological jaundice does not require any treatment.

Breastfeeding Jaundice: Higher pick bilirubin level in the first few days of life in breast feed babies as compared to formula fed.

Breastmilk Jaundice

Jaundice develop in exclusive breast feed babies in the second week of life and continue well into the third month.

A bilirubin level of over 20 mg/dl may be attained. It is due to inhibitory substances (pregnanediol and free fatty acids) in the breastmilk that interfere with bilirubin conjugation.

Temporary interruption of breastmilk feeds will reduce the serum levels of bilirubin.

Pathological Jaundice

- Jaundice appearing in the first 24 hours.
- Total bilirubin > 15 mg/dl.
- Direct bilirubin > 2 mg/dl.

Etiology

- Rh incompatibility
- Sepsis
- G6PD deficiency
- Pyloric stenosis
- Crigler najjar syndrome
- Hypothyroidism
- Breastmilk jaundice

Complications

- Unconjugated bilirubin may penetrate brain cells and result in neurological dysfunction.
- Kernicterus (bilirubin toxicity within the brain)

Management

- Phototherapy (Converts bilirubin into photoisomers that can bypass the conjugating system of the liver and be excreted in the bile or urine without further metabolism.
- Exchange Transfusion
- Drugs (Phenobarbitone)

**NAVAJAT NETRABHISHYANDA
(NEONATAL CONJUNCTIVITIS)**

Ophthalmia Neonatorum

Most common eye disease of newborns

Etiology

Acquired during vaginal delivery and reflects the sexually transmitted infection.

Causative Organisms

Neisseria gonorrhoea, Staphylococcus aureus, pseudomonas aeruginosa are bacterial and herpes simplex virus is viral organism.

Clinical Manifestations

Redness and swelling of conjunctiva.

Edema of eyelids.

Discharge may be purulent.

Diagnosis

By gram stain and culture

Management

Topical Antibiotics

Navajat Netrabhishyanda

Not given specific description in Samhita.

Four types of Netrabhishyanda described in Sushruta Samhita

1. Vataja
2. Pittaja
3. Kaphaja
4. Raktaja

Clinical symptoms of Navajat Netrabhishyanda can be correlate with Raktabhishyanda.

NABHI ROGA

UMBILICAL DISORDERS

According to Ayurveda

NABHITUNDI (Su.Sha.10)

Clinical Feature

Painful inflammation of umbilicus due to vitiated Vata Dosha.

Management

- Snehana
- Swedana

- Upanaha
- Vatashamaka Chikitsa

According to modern Umbilical Granuloma

It is red lump of tissue after the umbilical cord falls off.

Clinical Feature

- There is some oozing and irritation from the site of granuloma.

Umbilical Hernia

An abdominal organ intestine or fat pushes through a weak part of abdominal muscle described as umbilical hernia.

Omphalitis

Inflammation of umbilicus due to infection

NEONATAL SEPTICEMIA

Definition

Presence of pathogenic bacteria in the blood

It can be divided into two main **subtypes**:

1. Early onset (Onset is during **first 72 hrs** of life)
2. Late onset (Onset **after 72 hrs** of life)

Early onset septicemia (EOS)

Caused by the organisms prevalent in the genital tract

Mostly caused by group B streptococcal and E. coli

Very low birth weight / preterm baby

Prolonged rupture of membrane

Prolonged labor

Birth asphyxia

Late onset septicemia (LOS)

As acquired infection after birth

In most cases symptoms appear by the end of first week.

Clinical Features

1. Early onset Septicemia (EOS)

Perinatal hypoxia

Resuscitation difficulty

Respiratory distress

2. Late onset Septicemia (LOS)

The baby becomes lethargic, inactive and refused to feed

Hypothermia

Diarrhea, vomiting and abdominal distension may be present.

Diagnosis

Leucopenia

ESR

CRP

Gram stains and culture studies

Management

Antibiotic therapy

Oxygen therapy with ventilation

NAVAJAT STANASHOTHA

(MASTITIS NEONATORUM)

Breast engorgement is common in newborn babies because of the transplacental passage of maternal hormones. Milk can be expressed. It occurs in both genders and resolves spontaneously within few days.



POINT 8

DUSHTASTANYAPANAJANYA VYADHI (DISORDERS DUE TO VITIATED MILK)

LACTOSE INTOLERANCE

Definition

It is inability to digest lactose in dairy products.

Dairy products can cause indigestion.

Onset: Recurrent

Clinical Features

- Lower abdominal pain
- Cramping
- Distension of abdomen
- Diarrhea

Management:

- To reduce the total lactose load in the diet by diluting the milk for 3 or 4 days.
- Substituting a part of milk feeds by formula based on lactose free milk protein (calcium casinate), sugar and oil, soya bean, meat or vegetable protein mixtures.

KSHIRALASAKA

(A.H.U.2/20)

Nidana

स्तन्ये त्रिदोषमलिने

When breastmilk vitiated by three Doshas and child consumes it, responsible for Kshiralasaka.

Lakshana

दुर्गन्ध्यामं जलोपमम् ।

विबद्धमच्छं विच्छिन्नं फेनिलं चोपवेश्यते ॥

शकृन्नानाव्यथावर्णं मूत्रं पीतं सितं घनम् ।

ज्वरारोचकतृदृच्छिर्दिशुष्कोद्गारविजृम्भिकाः ॥

अङ्गभङ्गोऽङ्गविक्षेपः कूजनं वेपथुभ्रमः ।

घ्राणाक्षिमुखपाकाद्या जायन्तेऽन्येऽपि तं गदम् ॥

क्षीरालसकमित्याहुरत्ययं चातिदारुणम् ।

- Eliminate faeces with bed smell and frothy.
- Urine is yellow and thick.
- Fever.
- Impaired appetite.
- Thirst.
- Vomiting.
- Twisting of the body parts.
- Ulceration of nose, eyes and mouth.
- It is very difficult to cure.

Management

- Both mother and child should be treated with Vamana immediately, suitable Sansarjana Krama processed with drugs of either Vachadi Gana or Nishadi Gana.
- Patha, Sunthi, Amruta, Kiratatikta, Devadaru, Sariva, Musta and Indrayava are excellent drugs for Stanya Dushti.

KUKUNAKA

(Ka.Khi.13)

Nidana

- When the mother of the child consumes sweet substances and also eats repeatedly fish, meat, milk, green vegetables, butter, curd and sleeps during daytime after repeatedly eating, her aggravated doshas vitiates the breast milk.
- जायते नयनव्याधि श्लेष्मलोहितसंभवः ॥
Develop eye disease with Kapha and Rakta Dushti.
- स्तन्यप्रकोपकफमारुतपित्तरक्तैर्बालाक्षिवर्त्मभव एव कुकुणकोऽन्यः ॥ (Su.U.19)
Acharya Sushruta added Rakta with Tridosha for development of Kukunaka.
- कुकुणक शिशोरेव दन्तोत्पत्तिनिमित्तजः ॥ (A.H.U.8)
Kukunaka is considered as Dantotpatti Nimittajanya Vikara by Acharya Vagbhatta.

Lakshana

- Difficult to sneeze.
- Irritability.
- Continuously rubbing on the forehead, eyes and nose.
- Excessive itching in the eyes.
- Photophobia.
- Both eyelids get inflamed.
- Lacrimation.

Management

- Mother should be treated with Vamana and Pachana.
- Clean the eye of the child and drain the blood from the affected eye.
- Netraprakshalana with the decoction of the Eranda, Rohish, Twakakshiri and Varuna.
- Tulasipatra, jati, Yashtimadhu or Shita Jala – Netraprakshalana.
- Lepa: Bhringaraja, Neeli, Tulasi and Haridra.
- Kokila Gutika (Nirgundi, Draksha, Rakta Punarnava) – for local application
- Lohitika Gutika (Swarna Gairika, Laksha, Saindhava, Maricha, Sharkara, Trikatu) – for local application.

AHIPUTANA

(A.H.U.2/69)

- मलोपलेपात्स्वेदाद्वा गुदे रक्तकफोद्भवः ।
ताम्रो व्रणोऽन्तः कण्डूमाञ् जायते भूर्युपद्रवः ॥

Nidana

- Stanya Dushti
- Improper hygiene

Synonyms

- Prushtaru
- Gudakutta
- Matraka Dosha
- Anamakam

- Ahiputana

Samprapti

Due to improper hygiene, there is a development of itching around anal opening, excessive itching converts into blisters and purulent discharge that develops wound around anus called Ahiputana.

Management

- Dhatri – Stanyashodhana – Shodhana with Kaphapitta Shamaka Aushadhi.
- The drinking water for mother should be boiled and kept in the clay pot.
- Local application performed with Madhu and Rasanjana.
- Prakshalana done with Triphala Kwath.
- If the erythema and itching of the wound is excessive then go for Jalauka Rakta Vistravana.

Nepkin Rashes

- It is an inflammatory disorder characterized by the development of the erythema, papules and sometimes vesiculation with scaling.
- More common with fed infants and those with poor perineal hygiene.
- It may involve convex surfaces such as buttocks or inner side of the thigh.
- Management:
Topical antibiotics, anti fungal and mild steroids are useful.
Maintain proper hygiene.

POINT 9
KUPOSHANAJANYA VYADHI
(NUTRITIONAL DISORDERS)

KARSHYA
(Su.Su.15)

Nidana

- Continuously taking diet responsible for aggravation of Vata and are affected with thirst, hunger and malnutrition etc.
- After Nidana Sevana, Rasa Dhatu is not produced in sufficient amount and does not circulate for nourishment of the body in appropriate amount.
- This causes excessive emaciation (Karshya).

Lakshana

- Excessive emaciation.
- Suffers mostly from Vatika disorders and low vitality in all activities.
- Consequently attacked by dyspnoea, cough, loss of appetite, Raktapitta etc.
- All these diseases become severe due to low vitality (Alpa Pranata).

Chikitsa

- Use of drugs like Payasya, Ashwagandha, Shalaparni, Bala, Atibala etc.
- Use of milk, curd, ghee, meat, Shali, Shashtika, Yava, Godhuma in diet.
- Abhyanga.
- Swedana.
- Matra Basti.

PHAKKA

(Ka. Chi. Phakka Chikitsa)

Definition

बालाः हि संवत्सरापन्नो पादाभ्यां यो न गच्छति ।

स फक्क इति विज्ञेय ॥

After gaining one year of age and the child does not able to walk on his feet, this is known as Phakka.

Etiology

- Mother having breast milk vitiated by Kapha.
- Women with Pitta Vata Prakriti.
- Having more siblings.

Types

क्षीरजं गर्भजं चैव तृतीयं व्याधिसंभवम् ।

फक्त्वं त्रिविधं प्रोक्तं ॥

1. Kshiraja Phakka:

A mother having breast milk vitiated by Kapha is known as having Phakka causing milk. The child consuming this milk suffers from so many diseases and due to Karshya (emaciation) attains the condition of Phakka.

2. Garbhaja Phakka:

The child whose mother has become pregnant, due to early cessation of breast milk, the child becomes weak or emaciated.

3. Vyadhisambhavaja Phakka:

It is reflection of Nija or Aagantu Vyadhi.

- Strength and luster decreases.
- Hips and arms became emaciated.
- Protuberant abdomen.
- Eyes become yellow and the body appears like a skeleton.
- Lower body parts are emaciated and weak.
- Passes daily too much feces and urine.
- Lower body becomes inactive and crawls with hand and knee.
- The child has less activity due to weakness and due to less activity is overpowered by flies, insects and worms.

Management

1. The child should drink Kalyanaka, Shatpala or Amruta Ghrita till seven days, then after Virechana should perform with Trivritta Kshira. After purification the child should treat with Brhmi Ghrita.
2. The milk medicated with Rasna, Madhuka or Punarnava, Eranda, Draksha and Trivritta should be used.

3. Soup or medicated milk should be taken with Shali rice and drink same daily.
4. Use of Ghrita, Taila, and milk medicated with Rasna, the child becomes free from all disease.
5. **Raja Taila** should use for Abhyanga.
6. By the help of three wheeled **Phakka Rhatha (Trichakra Ratha)**, the child should practice by gradual walking.
7. Basti, Snehapana, Swedana, Udvardana should use in children especially with Vata vitiated diseases.

BALASHOSHA

Nidana

अत्यहः स्वप्नशीताम्बु श्लैष्मिकस्तन्यसेविनः ।

द्विशो कफेन रुद्धेषु स्रोतसु रसवाहिषु ॥ (A.H.U.2)

A child that takes excessive sleep, excessive intake of cold water and consuming Kapha vitiated breast milk, Kapha Dosha is vitiated in his body, vitiated and aggravated Kapha obstructs Rasavahi Srotasa and due to obstruction the child cannot get nutrition from the Rasa Dhatu and becomes emaciated, this condition is called as Phakka.

Lakshana

अरोचकः प्रतिश्यायो ज्वरः कासश्च जायते ।

कुमारः शुष्यति ततः स्निग्ध शुक्ल मुखेक्षणः ॥ (A.H.U.2)

अरोचक - Do not like to eat anything

प्रतिश्याय - Sneezing

ज्वर - Fever

कास - Coughing

कुमारः शुष्यति - Wasting

स्निग्ध शुक्ल मुखेक्षण - Face and eyes appear muddy or white

Management (A.H.U.2)

1. Nidana Parivarjana.
2. Agnideepana Chikitsa.
3. Srotodushti Chikitsa - Shodhana.

4. Dhatupushti.
5. Kantakari, Ashwagandha, Pippali, Tulasi medicated Ghrita is indicated as best for Srotasa Shodhana.
6. Abhyanga should do with the oil medicated with Vacha, Aamalaki, Tagara, Haritaki and Aja Mutra.

PARIGARBHIKA

Nidana

मातुः कुमारो गर्भिण्याः स्तन्यं प्रायः पिबन्नपि । (A.S.U.2/97)

The child whose mother becomes pregnant again is suffering from many diseases, the condition is called Parigarbhika.

Lakshana

कासाग्निसाद वमथु तन्द्राकाश्यारुचि भ्रमैः ।

युज्यते कोष्ठ वृद्ध्या च तमाहुः पारिगर्भिकम् ॥ (A.S.U.2/97, 98)

- Cough
- Dyspepsia
- Vomiting
- Drowsiness
- Karshya (emaciation)
- Loss of appetite
- Enlargement of abdomen

Management

रोगं परिभवाख्यं च युज्यात्त्राग्निदीपनम् । (A.S.U.2/98)

परिभव - पर्याय

अग्निदीपन चिकित्सा

पिप्पली पिप्पलीमूल कटुकी देवदारु क्षार अजाजी बिल्व सिद्ध घृतपान

PROTEIN ENERGY MALNUTRITION

MARASMUS

Definition: Marasmus can develop in the first months of life, and will result if mother's milk supply is insufficient, as a result of which the mother feeds the baby with dilute buffalo's, cow's, goat's or even tin milk and very little or no food offered.

Usual age: 0 – 3 years.

Essential Features

1. Edema: None
2. Wasting: Gross loss of subcutaneous fat, all skin and bones.
3. Muscle wasting: Severe.
4. Growth retardation: Severe.
5. Mental changes: None.

Variable Features

1. Appetite: Usually good.
2. Diarrhea: Often (past or present).
3. Skin changes: Seldom.
4. Hair changes: Seldom.

Biochemistry

- S. albumin: Usually normal.
- Anemia: Uncommon.
- Liver biopsy: Normal or atrophic.

Management

1. Nutritional rehabilitation.
2. Treatment of complications.
3. Treatment of nutritional diet: Dietary therapy, Mode of feeding.

KWASHIORKOR

Definition

The word Kwashiorkor means 'The disease occurs when the child is displaced from the breast by another child.'

Usual age: 1 – 3 years.

Essential Features

1. Edema: Lower legs, sometimes on face or generalized.
2. Wasting: Gross loss of subcutaneous fat, all skin and bones.
3. Muscle wasting: Sometimes hidden.
4. Growth retardation: Sometimes hidden.
5. Mental changes: Irritability.

Variable Features

1. Appetite: Usually poor.
2. Diarrhea: Often (past or present).
3. Skin changes: Diffuse depigmentation and dry.
4. Hair changes: Often sparse, straight silky, dyspigmentation, gray - 'Flag sign'.

Biochemistry

- S. albumin: Low
- Anemia: Uncommon
- Liver biopsy: Fatty changes

Management

1. Nutritional rehabilitation.
2. Treatment of complications.
3. Treatment of nutritional diet: Dietary therapy, Mode of feeding.

VITAMIN AND MICRO-NUTRIENT DEFICIENCY DISORDERS

	Requirements	C/F of Deficiency
CALCIUM	500-800 mg/day	Tetany, Rickets
MAGNESIUM	200-300 mg/day	PEM, Malabsorption, diarrhea
IRON	15-20 mg/day	Iron deficiency anemia
IODINE	90-120 microgm/day	Hypothyroidism
ZINC	10 mg/day	Growth retardation, Anorexia, Alopecia
FOLIC ACID	100 microgm/day	Diarrhea, Megaloblastic anemia
Vitamin A	400-600 microgm/day	Xerophthalmia
Vitamin B₁ THIAMINE	0.4 mg/1000 kcal	Beriberi (Irritability, Fatigue, Headache, Polynuritis)
Vitamin B₂ RIBOFLAVIN	0.6 mg/1000 kcal	Glossitis, Cheilosis (Cracking at the angle of the mouth)
Vitamin B₅	6.6 mg/1000 kcal	Pellagra (diarrhea, loss of appetite,

NIACIN		nausea, vomiting)
Vitamin B₆ PYRIDOXINE	0.5-1.0 mg/day	Malabsorption and Diarrhea
Vitamin B₁₂ PYRIDOXINE	0.2-1.0 microgm/day	Malabsorption and Diarrhea
Vitamin C	40 mg/day	Scurvy (Petechie, gum bleeds, conjunctival hemorrhage)
Vitamin D	10 microgram/day	Rickets
Vitamin E	8-10 mg/day	Anemia, Malabsorption

HYPERVITAMINOSIS

Hypervitaminosis A

Excess of vitamin A can lead to rupture of lysosomal membranes.

Clinical Features

- Headache
- Vomiting
- Dizziness
- Raised of intracranial pressure including bulging of anterior fontanel
- Anorexia
- Dry itchy skin
- Weight loss
- Painful extremities

Hypervitaminosis D

Overdose of vitamin D for long period results in toxic symptoms such as hypotonia, anorexia, irritability, polydipsia, constipation, pallor and failure to thrive.

Calciuria occurs as result of hypercalcemia. It damages the kidney tubules, causing proteinuria and eventually metastatic calcification.

FAILURE TO THRIVE

Definition

Rate of weight gain is sluggish in infants is called Failure to thrive. The length of the child may or may not be affected.

Causes

The causes of failure to thrive may be intrinsic or extrinsic.

1. Intrinsic:

- Defects in absorption e.g. lactose intolerance.
- Persistent vomiting e.g. gastrointestinal reflux.
- Metabolic disorders e.g. diabetes mellitus.
- Chronic diseases of heart, lungs, kidney or liver.

2. Extrinsic:

- Inadequate nutrition intake.
- Social or environmental deprivation.

Clinical Features

- The infant looks small for age.
- Weight is below third percentile.
- Vocalization is delayed.
- Response of social stimuli is inadequate.

Management

Treatment is both immediate and long term and should be directed both at the infant and the mother. Nutritional problems need to be appropriately managed.

Feeds should be thickened to increase the calorie intake.

Ayurvedic Management

- Abhyanga.
- Swedana (Pinda Swedana).
- Matra Basti.
- Agni Deepana Chikitsa - Balachaturbhadra Churna, Sudarshana Ghanavati etc.
- Godanti Bhasma with Dugha.
- Laghu Vasant Malati.

POINT 10
AUPASARGIKA VYADHI
(INFECTIOUS DISEASES)

KARNAMULA SHOTHA (MUMPS)

Definition

Mumps is a self limiting benign viral infection of the salivary glands with systemic manifestations.

Epidemiology

Age: Most cases occur between the ages of 5 and 15 years. The incidence is higher in winter and spring.

Transmission

The infection is transmitted via saliva through airborne droplets.

Clinical Features

The illness starts with fever, headache, nausea, malaise and loss of appetite.

Salivary manifestations:

- Pain near the lobe of the ear.
- Difficulty in chewing.
- Parotid swelling.
- Sub maxillary and sublingual glands may also be enlarged.

Complications

- Orchitis – seen frequently in adolescence and usually follows a week or more after the appearance of parotitis.
- Oophoritis - It may occur in a proportion of post pubescent female patients with mumps.

Treatment

- Symptomatic.
- Paracetamol may be used to relieve pain.
- Warm saline mouth washes are useful.
- Steroids relive pain and swelling.

Prevention

A child with mumps should be isolated until the parotid swelling has resolved. Active immunization in the form of MMR vaccine to children provides 95% of protection.

ROMANTIKA (MEASLES)

Definition

Measles is a contagious disease characterized by catarrhal symptoms, followed by the appearance of typically measles rash.

The peak incidence is during winter and spring. One attack of measles confers lifelong immunity.

Etiology Caused by measles virus, RNA type.

Clinical Manifestations 4 Clinical stages

1. **Incubation:** Range from 10-12 days
2. **Prodromal stage:** Fever, malaise, coryza and tracheobronchitis
3. **Catarrhal stage:**
 - At the end of prodromal stage the child gets high grade fever.
 - Koplik Spots: It is pathogenic sign of measles, are seen on day 2 – 3 of fever.
 - Conjunctival congestion and photophobia.
 - Rashes: Rashes appear on 4th to 6th days after fever starts on upper lateral aspect of the neck and behind the ears and increasingly involve the face then spreading over the trunk and then to legs and arms over next 3 to 4 days.

By the time rash appears on feet it starts disappearing from face and fades down in same pattern. Temperature also suddenly normalizes once rashes start fading.

4. Post measles stage of complications:

- Respiratory System: Post measles bronchopneumonia, empyema
- GIT: Diarrhea
- ENT: Otitis media
- Systemic: Acute malnutrition
- SSPE: Subacute sclerosing pan encephalitis

Management

- Supportive

- The child may be given antipyretics, fluids and antihistamines during acute phase.
- No antiviral therapy is needed.
- The child may be isolated for the period of infectivity.

RUBELLA

Definition

Rubella or German measles is a mild disease affecting the children.

Etiology

An RNA virus of genus rubivirus in the family of Togavirus.

Clinical Manifestations

- Incubation: Range from 14 – 21 days
- Initial prodromal symptoms include malaise, headache and low grade fever.
- Lymphadenopathy
- Forchheimer Spots: Discrete rose colored spots on the soft palate.
- Skin rashes – Maculopapular, Starts on the face and spreads rapidly over the trunk.
- Occasionally conjunctivitis is present.

Congenital rubella syndrome:

- CRS includes a triad of malformations – cataract, congenital heart diseases, most commonly PDA.
- It can also lead to IUGR, microcephaly, mental and motor retardation.

Treatment

- No specific antiviral therapy is available for rubella. Antipyretics are used for symptomatic relief.

CHICKEN POX

Definition

Highly contagious disease. Presenting with sudden onset of low fever, mild constitutional symptoms and rash appears on the first day of the illness.

Organism: Varicella zoster virus.

Incubation period: 14 to 16 days

Clinical Features

- Mild fever
- Malaise
- Impaired appetite
- Rash appears on first day and then convert into vesicles.
- The rash of the chicken pox has a characteristics centripetal distribution, the lesion being mainly concentrated on the trunk, back and shoulders with fewer lesions on the face, scalp and extremities.

Diagnosis: Culture

Management

- Personal hygiene
- Itching (local application of antipruritus agent)
- Oral acyclovir

ROHINI

जिह्वाप्रबंधजाः कण्ठे दारुणा मार्गरोधिनः ।

मांसाङ्कुराः शीघ्रचया रोहिणी शीघ्रकारिणी ॥ (A.H.U.21/41)

Extra development of muscles (budding), at the route of the tongue in the throat, intolerable, is obstructing the passage of the throat, developing and fast progressing responsible for the death of the patient is called Rohini.

DIPHTHERIA

Definition

An acute infectious disease of childhood characterized by local inflammation of epithelial surface, formation of membrane and severe toxemia.

Organism: *Corynebacterium diphtheriae* – proliferate and liberate a powerful exotoxin is principle cause of systemic and local lesions.

Source of infection (Transmssion): Secretion and discharge from affected persons.

Clinical Features

Incubation period: 2 – 5 days.

A. Constituional symptoms:

- Acute fever.
 - Headache.
 - Loss of appetite.
- B. Local manifestations:
- Nasal discharge.
 - Redness and swelling around the tonsils.
 - Greyish white pseudomembrane on tonsils.
 - Sore throat.
 - Dysphagia.
 - Brassy cough and hoarseness of voice.

Complications

- Myocarditis
- Renal complications

Diagnosis

- Culture
- Smear
- Clinical examination

Management

- Neutralization of free circulating toxins by administration of antitoxin (IV/IM)
- Antibiotics to eradicate bacteria
- Supportive and symptomatic therapy
- Management of complications

WHOOPING COUGH (PERTUSSIS)

Definition

Whooping cough is a highly contagious acute infection of respiratory tract caused by *Bordetella pertussis*. Also known as cough of 100 days.

The infection is transmitted by droplets from the infectious person.

Clinical Features

Incubation period: 7 – 10 days

Three clinical stages:

1. Catarrhal phase:

- Most infectious period
- URTI symptoms: Cough, Coryza with little nasal discharge.

2. Paroxysmal phase:

- There is rapid succession of cough.
- The bout of cough terminates with a long drawn out inspiratory crowing sound or whoop.
- Paroxysmal cough is precipitated by food, cold air and cold water.

3. Convalescent stage:

- Interval between paroxysmal cough increases and severity of cough decreases gradually.
- Appetite, general condition and health gradually improve.

Investigations

- Lymphocytosis
- Laryngeal swab – culture

Management

- Antibiotics
- A small dose of bronchodilator may relieve bronchospasm during paroxysms of cough.

DHANURVATA (TETANUS)

Definition

Tetanus is a bacterial infection caused by clostridium tetani, this bacterium produces a toxin that affects the brain and nervous system, leading to stiffness of the muscles.

Symptoms

Incubation period: 7-10 days

- Muscle spasm and rigidity of the muscles
- Lock jaw - Stiffness in the chewing muscles
- Breathing difficulties (Neck and chest muscle stiffness)
- In severe cases, the spine will arch backward as the back muscles are affected.

- Other associated symptoms like, bloody stools, diarrhea, fever, headache, sensitivity to touch, sore throat tachycardia etc.

Complications

- Aspiration pneumonia (If secretions or contents of stomach are inhaled, a lower respiratory tract infection can develop leading to pneumonia)
- Seizures

Management

- Antibiotics (Penicillin or metronidazole)
- Anticonvulsants
- Muscle relaxants (baclofen)
- Nutrition - A patient with tetanus requires a high daily calorie intake because of increased muscle activity.

KRIMIROGA

Types

1. Bahya (Bahirmala)
2. Abhyantara (Kaphaja, Raktaja, Purishaja)

Nidana

1. Bahya Krimi - Not maintain proper hygiene
2. Kaphaja - Excessive ingestion of Madhura Bhojana, Guda, Dugdha and Curd.
3. Raktaja - Same as Kaphaja Krimi.
4. Purishaja - Excessive eating of leafy vegetables and Harita Shaka.

Lakshana

1. Bahya Krimi - Development of Kotha, Pidika and Kandu (itching).
2. Kaphaja - Nausea, Excessive salivation, Indigestion, Impaired appetite, Vomiting, Fever, Pratishyaya and Karshya.
3. Raktaja - Responsible for development of Kushtha.
4. Purishaja - Atisara (Diarrhea), Shula (Abdominal pain), Vibhandaha (Constipation), Karshya, Parushya (Dryness), Pandu (Anemia), Agnimandhya (Impaired appetite) and Gudakandu (Itching around the anus).

Chikitsa

1. Nidana Parivarjana
2. Sanshodhana
3. Shamana
 - Balachaturbhadra Churna.
 - Aushadhi of Surasadi Gana - Tulsi etc.
 - Vidanga Churna with Madhu.
 - Vidangarishta.

HELMENTHIC INFESTATIONS

- Nematodes (Round worms)
- Trematodes (Flukes)
- Cestodes (Tape worms)

Mode of infection

The infective form of parasites enters the human body through either of the following mechanisms:

1. Through ingestion of the fecally contaminated material.
2. By piercing the skin.
3. By ingestion through intermediate host (fish etc)

Clinical Features

- Abdominal distension
- Vomiting
- Abdominal discomfort
- Irritability

Diagnosis

- Stool – microscopy

Management

- Albendazole
- Mebendazole

ENTERIC FEVER (TYPHOID)

Definition: Typhoid fever is primarily caused by salmonella typhi.

Clinical Features

First week of illness:

- Onset is gradually
- Rapid elevation of temperature, often with headache and vomiting.
- Constipation is frequent.
- The tongue is often coated in the centre and clears at margins.
- Pulse rate may rise proportionally to height of temperature.

Second and third week:

- The abdomen is usually distended.
- The spleen is palpable 1 or 2 m below the costal margin.

Laboratory Investigations

Hematology: lymphocytosis, thrombocytopenia, proteinuria.

Serology: The widal agglutination test shows a diagnostic titer of more than 1 in 80 for *S. typhi* usually after 7 – 10 days of the illness.

Elevation of antibody titer against O antigen indicates acute infection.

Rise in the titer of antibodies H indicates the type of the infection.

Management

- Antibiotic therapy

MENINGITIS

Definition

Inflammation of meninges can be caused by bacteria, virus or rarely fungi.

Organisms

Bacterial: Streptococcal, Pseudomonas, Escherichia coli, Salmonella species

Viral: enterovirus, cox-sackie virus, echovirus

Clinical Features

Onset acute and febrile with headache, seizures, nausea, vomiting, lethargy, irritability and photophobia

Hypertonia and marked neck rigidity

- Kernig's sign: Extension of knee is limited to less than 135 degrees; there may be pain in back or thigh.

- Brudzinski sign: The get flexed as neck of the child is passively flexed.

Investigations

- CSF examination: WBC count, protein, glucose level, gram stain
- Hemogram

Management

Third generation antibiotics – cephalosporins (IV)

AIDS

Definition

Acquired immune deficiency syndrome is caused by human immunodeficiency virus types 1 and 2 (HIV).

Epidemiology

Vertical transmission of HIV – 1:

Potential route of infection include admixyure of maternal fetal blood or infection across the placenta.

- High viral load in maternal circulation
- STD in mother
- Delivery before 34 weeks
- LBW

Transfusion acquired HIV infection

Clinical Features

1. Clinical stage 1 (asymptomatic)
 - Persistent generalized lymphadenopathy
2. Clinical stage 2 (mild)
 - Hepatomegaly
 - Papular pruritic eruptions
 - Viral wart infection
 - Fungal nail infection
 - Recurrent oral ulcerations
 - Parotid enlargement
 - Herpes zoster

- Recurrent upper respiratory tract infections

3. Clinical stage 3 (advanced)

- Malnutrition
- Persistent diarrhea
- Severe bacterial pneumonia
- Unexplained anemia
- Persistent oral candidiasis

4. Clinical stage 4 (severe)

- Severe wasting
- Pneumonia
- Extrapulmonary tuberculosis
- Esophageal candidiasis
- CNS toxoplasmosis
- HIV encephalopathy

Diagnosis

- ELISA test

Management

- Specific therapy:

Specific antiretroviral therapy is believed to result in extended survival and reduction in infection with improvement in weight gain and general well being.

DENGUE ILLNESS

Definition

The dengue virus is transmitted to humans by the bite of domestic mosquito, *Aedes aegypti*.

- Four viruses, dengue 1 – 4, Flavivirus genus family are the etiologic agents of the disease.
- *Aedes aegypti* mosquito is the principal factor. The mosquito lives indoors and bites the host during daytime. It breeds in stored water. It bites the patient and sucks the viral containing blood. The virus multiplies in its salivary glands. After a

period of 3 to 10 days, the female mosquito can transmit the disease to other patients.

Clinical Features

Dengue fever:

- Acute onset of high grade fever associated with headache, retro – orbital pain, photophobia, backache, myalgia and arthralgia. (Breakbone fever)
- Other common symptoms include extreme weakness, anorexia, constipation, altered sensation and colicky abdominal pain.
- A transient maculopapular rash may erupt on chest and back within first few days after fever.
- Leucopenia and thrombocytopenia are two of the usually observed hematologic changes.

Dengue hemorrhagic fever:

Plasma leakage is the main pathology.

- Fever
- Bleeding tendency
- Hepatomegaly
- Petechiae are present on skin and mucosa. (extrimities, axillae, face and palms)
- Venipuncture shows prolonged bleeding – Tourniquet test is positive.
- Patients recover spontaneously or develop circulatory failure and shock.

Dengue shock syndrome:

- Patient may lethargic initially, and then become restless.
- DSS is characterized by rapid, weak pulse or hypotension.
- Untreated shock becomes fatally in 12 – 24 hours. If shock is overcome, complete recovery occurs within 2 – 3 days.

Diagnosis

- Thrombocytopenia and positive tourniquet test.
- Leukopenia and Prothrombin and partial thromboplastin time may be prolonged

Management

- There is no specific antiviral treatment.

- The management is essentially supportive and symptomatic.
- Hyperpyrexia is managed by hydrotherapy and paracetamol.
- The patients are closely monitored for vital signs and fluid intake should be maintained.

MALARIA

Definition

A Parasitic infection caused by plasmodium.

Four species of plasmodium are responsible for disease in humans:

P. falciparum

P. vivax

P. ovale

P. malariae

TRANSMISSION

Malaria is spread to humans during the bite of an infected female anopheline mosquito. Blood meal is required to produce eggs by female mosquitoes.

Life cycle of malarial parasite

Clinical Features

Fever may not follow any definite pattern and may be irregular, continuous, remittent or intermittent in nature.

The initial symptoms are anorexia, malaise, irritability, headache, myalgia and slight fever.

As infection continues the child may develop high fever, headache, vomiting, diarrhea, pallor and slight jaundice.

The classical malarial paroxysm consists of three stages

Cold Stage

Cold stage is characterized by sudden rise of temperature, feeling of intense cold (chills) and shivering.

Hot Stage

The patient feels hot and fever becomes high grade. There is severe headache, myalgia and vomiting.

Sweating Stage

There is sweating and rapid fall of temperature.

Severe and Complicated Malaria

Cerebral malaria

Anemia

Blackwater fever

hypoglycemia

Algid malaria

Diagnosis

Peripheral blood smear

Management

- Chloroquine sensitive malaria
Chloroquine 10 mg/kg stat followed by 5 mg/kg at 6, 24 and 48 hours
- Chloroquine resistant malaria
Quinine
Mefloquine

TUBERCULOSIS

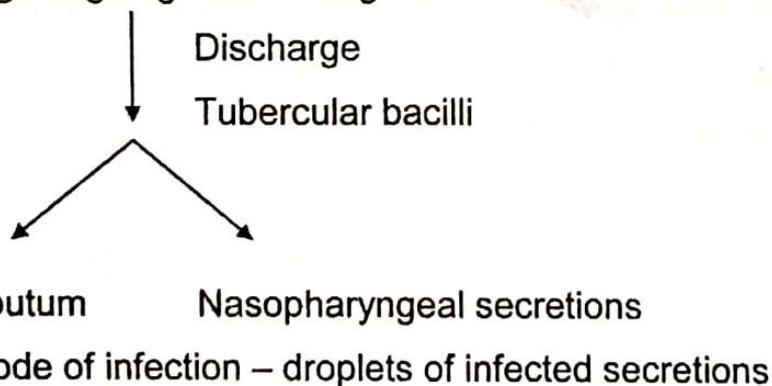
Definition

Chronic infectious disease caused by mycobacterium tuberculosis (both pulmonary and extrapulmonary).

Epidemiology

Spread by tuberculous patient

During coughing or sneezing



Pathology

Inhaled tubercular bacilli may lodge in pulmonary alveoli



Inflammation with hyperemia and congestion



Phagocytosis

The pulmonary alveoli are filled with exudates, fibrin, leukocytes, phagocytes and tubercular bacilli. The central part of inflamed area is necrosed and looks like cheezy material - Granuloma

Clinical Features

- Coughing
- Low grade fever
- Reduced appetite
- Progressive weight loss
- Night sweating

Diagnosis

- Tuberculin test
- Mantoux test
- X ray chest
- Hemogram

Treatment

1. First line drugs
2. Second line drugs

First line drugs

1. Bactericidal
 2. Bacteriostatic
1. Bactericidal: Kills actively extracellular population
 - Rifampicin (R)
 - Isoniazid (H)
 - Pyrazinamide (Z)

- Streptomycin (S)
2. Bacteriostatic: Inhibit the multiplication of organism
- Ethambutol (E)

Second line drugs

Used in drug resistance cases

E.g. Kanamycine, Ethinomide, Cycloserine

HEPATITIS

Definition: Systemic viral infection marked by diffuse hepatic cell necrosis and inflammation. The hepatotropic viruses are Hepatitis A, B, C, D, E and G.

Clinical Features

The two common presentation of viral hepatitis are – Acute and Chronic

Acute: When the illness is acute in onset and usually lasts less than 4 weeks.

Chronic: Continuing hepatic inflammation for more than 6 weeks.

Complication: Cirrhosis

Acute viral hepatitis: 3 stages

1. Prodrôme: Usually lasts for 2 – 7 days and characterized by nausea, vomiting, high colored urine, fever and right hypochondrial pain.
 2. During icteric stage: The child has jaundice, pale stools and tender hepatomegaly. The icteric stage lasts for 7 – 14 days.
 3. During recovery phase: The constitutional symptoms disappear, appetite improves and size of liver decreases.
- Chronic viral hepatitis: Chronic hepatitis B is more common.

Complications

- Subacute hepatic failure
- Chronic hepatitis
- Acute liver failure
- Prolonged hyperbilirubinemia

Management

Most of the children with AVH will recover spontaneously and require only supportive treatment.

POINT 11
SROTASA VIKARA
A
PRANAVAHA SROTASA
PRATISHYAY

Nidana

अवश्यायानिलरजोभाष्यातिस्वप्नजागरैः ।

नीचात्युश्चोपधानेन पीतान्येन वारिणा ॥

अत्यम्बुपानरमणच्छर्दिबाष्पग्रहादिभिः ।

क्रद्धा वातोल्बणा दोषा नासायां स्त्यानतां गताः ॥

जनयन्ति प्रतिश्यायं वर्धमानं क्षयप्रदम् । (A.H.U.19/1,2)

Exposure of fog, wind and dust, too much of speaking, sleeping and being awake, keeping the pillow either very low or very high under the head, indulging more different places of water, drinking more quantity of water, suppression of vomiting, tears etc, by these and similar other similar causes the Doshas dominated by Vata and become accumulated in the Nasa and produce Pratishyay. Pratishyay when advanced leads to Kshaya.

Chikitsa (A.H.U.19)

- निवातमागार सेवन
- लघु अम्ल लवण स्निग्ध भोजन
- व्योषादि गुटिका - व्योष तालीस चवक अम्लवेतस एलापत्र
पीनसश्वासकासघ्नं रुचिस्वरकरं परम् ।
- बालचातुभ्रदं चूर्णं

COMMON COLD

Definition

The common cold is a viral illness in which the symptoms of running nose and nasal obstruction are prominent. Systemic symptoms such as myalgia and fever are absent or mild.

Etiology: Most common pathogens are rhinoviruses but can be caused by many different viruses (adenovirus, influenza)

Clinical Features

- Frequently sore throat, followed by nasal obstruction and running nose.
- Conjunctival congestion.
- The sore throat usually resolves quickly and by the 2nd and 3rd day of illness, nasal symptoms are predominant.
- Cough is associated with 30% of colds.

Management

- Common cold is caused by virus and self limiting requires no specific treatment.
- For fever Paracetamol can be given 4 to 6 hourly.
- For nasal block normal saline can be instilled in nostrils every 4 to 6 hourly.

KASA

Nidana

तत्राधोविहितोनिलः ।

ऊर्ध्वं प्रवृत्तः प्राप्योरस्तस्मिन् कण्ठे च संसजन ॥

शिरः स्रोतांसि सम्पूर्य ततोऽङ्गान्युत्क्षिपन्निव ।

क्षिपन्निवाक्षिणी पृष्ठमुरः पाने च पीडयन् ॥

प्रवर्तते स वक्त्रेण भिन्नकास्योपमध्वनि ।

(A.H.Ni.3/19,20)

Vata obstructed in its downward movement, begins to move upwards, comes to the chest, invades in throat and then filling the Srotasa of the Murdha, and makes the upward movement of the body, the eyes, back and chest and comes out from the mouth with producing noise same as the sound of a broken bell metal.

Chikitsa (A.H.Chi.3)

1. Padmaka, Triphala, Trikatu, Vidanga, Devadaru, Bala and Rasna Churna with Madhu and Ghrita
2. Haritaki, Sunthi, Musta and Guda
3. Talisadi Churna (Bhaishajya Ratnavali)
4. Balachaturbhadra Churna (Yogaratanakar)



COUGH

Cough is a reflex response of the lower respiratory tract to stimulation or irritant or cough receptors in the airway mucosa.

The most common cause in children is reactive airways.

Types

1. Recurrent cough

2. Persistent cough

1. Recurrent cough:

- Bronchial reactivity (Allergic asthma)

- Frequently recurring RTI in immunodeficit patients

2. Persistent cough:

- Bronchitis

- Bronchial Asthma

- Foreign body aspiration

- Pertussis

- Upper respiratory tract infection

- Tuberculosis

Management

- Antibiotics

- Bronchodilators

RESPIRATORY DISTRESS SYNDROME

Definition

Any infant or child, who is having difficulty in breathing characterized by excessive work of the muscles of respiration, is said to be in Respiratory distress.

Etiology

1. Extrathoracic:

Any pathology that cause obstruction in upper airways

2. Intrathoracic:

Intrapulmonary: Bronchial asthma, foreign body

Extrapulmonary: Diaphragmatic hernia

1. Parenchymal lung disease: Pneumonia, Pleural effusion
2. Non parenchymal disease: CCF, Birth asphyxia

Clinical Features

- Rapid respiration, in newborn >60 / min, in children >40/min
- Inspiratory retractions
- Wheezing
- Grunting
- Flaring of alae nasi
- Cyanosis

Management

- Depend upon the etiological condition causes respiratory distress
- Mechanical ventilation
- Surfactant administration
- Use of steroids

TAMAKA SHWASA (BRONCHIAL ASTHMA)

कासवृद्ध्या भवेच्छ्वासः ।

आमातिसारवमथुविषपाण्डुज्वरेरपि ॥

रजोधूमनिलैर्मर्मघातादतिहिमाम्बुना ॥ (A.H.Ni.4/1, 2)

Shwasa arises by increase of cough or aggravations of the Doshas, also by diarrhea due to indigestion, vomiting, poisoning, anemia, fever, exposure to dust, smoke, injury to vital organs and drinking of very cold water.

Tamaka Shwasa is one of the types of five Shwasa.

Chikitsa (A.H.Chi.4)

1. Abhyanga Swedana Vatanulomanam
2. Shatyadi Churna – Shati Jivanti Musta Pushkaramula Tamalaki Ela etc
3. Bharangi Shunthi Churna with Madhu
4. Dashamula Kwath
5. Balachaturbhadra Churna

BROCHIAL ASTHMA

Definition

Asthma is a chronic lung disease with airway obstruction, airway inflammation and airway hyperactivity to various stimuli.

Etiology

- Family history of asthma and atopic diseases.
- Bronchiolitis during infancy.
- Sensitization to allergens during childhood.
- Passive smoking.

PATHOPHYSIOLOGY

Triggering factors

(Immunologic – Allergens and non immunologic – viral infection)

Bronchospasm
(Muscle spasm)

Inflammation

(Edema, excessive mucus production)

Air way obstruction (Partially)

Ventilation perfusion abnormality

Hypoxemia

Hyperventilation

Clinical Features

1. In early phase
2. In severe condition

1. In early phase:

Cough is non productive. The patient becomes dyspneic, with prolonged aspiration and wheezing. The child may develop cyanosis and looks fatigued.

2. In severe condition:

The chest is hyper resonant because of air trapping.

Investigations

- Pulmonary function test (PFT)
- Absolute eosinophil count
- Chest x ray
- Allergic test IgE

Management

1. Quick relievers:

- Bronchodilators
- Salbutamol

2. Preventers:

- Steroids (inhaled)

UTFULLIKA

आध्मानात्फुल्लकुक्षिश्च श्वासदोषादिपीडितः ।

उत्फुल्लिका च विज्ञेया बालानां दुःखकारिणी ॥ (Harita Samhita 54/10))

Clinical Features

- Difficulty in breathing
- Distension of abdomen

उत्फुल्लिका दोषे दातव्यं क्षीरदोषनिवारणम् ।

Management

- Treatment depends upon Stanya Dushtijanya Vikara.

SHWASANAKA JWARA (PNEUMONIA)

Definition

An inflammatory process involving lung parenchyma.

Types

1. Bronchopneumonia: Spreading inflammation of terminal bronchioles and their related alveoli.

2. Lobar pneumonia: Pathological state of lung where the alveolar air has been replaced by cellular exudates or transudates.

Etiology

- S. pneumonia
- H. influenza
- Staphylococcus

Clinical Features

- Rapid Respiration:

Respiratory rate > 60/min below 2 month of age

Respiratory rate > 50/min between 2 months to 12 months

Respiratory rate > 40/min between 1 to 5 years

For the diagnosis of pneumonia presence of rapid respiration is sufficient.

- Chest indrawing
- Cyanosis
- Difficulty in feeding
- Fever

Diagnosis

- CBC

WBC >15000 cells/mm³

Management

If the child is not sick and suggestive of viral etiology withhold antibiotics, give only supportive care

- Specific: Antibiotic therapy
- Supportive: Antipyretics, hydration and nutrition.

PHARYNGITIS

Definition

Inflammation of pharynx

Viral Pharyngitis

- Etiology: adenovirus, enterovirus, coxsackie and parainfluenza virus

- Clinical features:

Erythema

Tender cervical adenopathy

Frequently associated with respiratory symptoms

- Treatment: Supportive and self-limiting process

Acute Bacterial Pharyngotonsillitis

- Etiology: Other common pathogens include diphtheria, mycoplasma
- Clinical features:
 - Erythema with characteristic whitish exudates
 - Tonsillar hypertrophy
- Diagnosis: Throat culture
- Treatment: First generation cephalosporin

TALUKANTAKA (TONSILLITIS)

तालुमांसे कफः क्रुद्धः कुरुते तालुकण्टकम् ।

तेन तालुप्रदेशस्य निम्नता मूर्ध्नि जायते ॥ (A.H.U.2/63)

Kapha Dosha getting aggravated in the muscles of the Talu and produced the disease Talukantaka. In this condition, there is depression on the skull at the region of Talupradesha.

Symptoms

तालुपातः स्तनद्वेषः कृच्छात्पानं शकृद्भवम् ।

तृडास्यकण्ड्वक्षिरुजा ग्रीवादुर्घरता वमिः ॥ (A.H.U.2/64)

- Depression of the Talu
- Refusal to feed
- Difficulty and sucking
- Elimination of watery faeces
- Thirst
- Irritation in the mouth
- Pain in eyes
- Inability to hold the neck straight
- Vomiting

Chikitsa (A.H.U.2/65)

- तालुप्रदेशे प्रतिसारण - यवक्षार क्षौद्र
- कणा शुण्ठी गोशकृतरस सैन्धव - प्रतिसारण
- शृंगवेर निशा कुष्ठ - लेप
- हरीतकी वचा कुष्ठ - मधु

TONSILLITIS

Etiology

Viruses: Adenovirus, Rhinovirus, Epstein barr virus

Bacteria: Streptococcus

Clinical Features

- Acute:
 - Dry throat
 - Fever and chills
 - Dysphagia
 - Headache
 - Referred otalgia
- Chronic
 - Halitosis
 - Chronic sore throat
 - Foreign body sensation

Management

- Same as pharyngitis

B

**ANNAVAHA SROTASA
AJEERNA (INDIGESTION)**

Nidana

- Adhyashana
- Atyambupana
- Vishamashana
- Shushka, Viruddha, Vishtambhi Bhojana

- Ati Guru, Ati Shta Bhojana Sevana

Types (Ka.Su.24)

1. Aamajeerna
2. Vidagdhaveerna
3. Shleshmajeerna
4. Rasasheshajeerna

Management

- Pathyaashana.
- Aushadha – Shunthi, Pippali, Chitraka, Ajamoda, Trikatu.
- Munga with Dadima Rasa.
- Hingavashtaka Churna.
- Balachaturbhadra Churna.

ATISARA (DIARRHOEA)

Nidana

जायते अत्यम्बुपानतः ॥

कृशशुष्कामिषासात्म्यतिलपिष्टविरुढकैः ।

मद्यरूक्षातिमात्रान्नैरशोभिः स्नेहविभ्रमात् ॥

कृमिभ्यो वेगरोधाम्ब तद्विधैः कुपितोऽनिलः । (A.H.Ni.8/1,2)

Drinking of large quantity of water, eating meat which is dry, unadapted foods, puddings of Tila, sprouted grains, foods which are dry and in large quantity, improper Snehana therapy, worms, suppression of urges and such others are responsible for the making of Samprapti of Atisara.

Samprapti

कुपितोऽनिलः ।

विस्रसयत्यधोऽब्धातुं हत्वा तेनैव चानलम् ॥

व्यापद्यानुशकृत्कोष्ठं पुरीषं द्रवतां नयन् ।

प्रकल्यतेऽतिसाराय

(A.H.Ni.8/4)

Anila (Vata) gets aggravated, makes Jaliya Dhatu to move downwards, destroying Agni (digestion) and enter by force in to Koshta (alimentary tract), makes the faeces watery and produce Atisara.

Chikitsa

1. Amatisara

- The child is not able to take Langhana, so the Atisara in children should treat with Pachana Aushadhi. (Cha. Chi. 19)
- Pachana Yoga:
Balachatubhadra Churna.
Sunthi Ativisha Musta Pippali Indrajava with Madhu.
Patha Indrajava Haritaki Shunthi with Madhu.

2. Pakvatisara

- Kutaja Ghanavati.
- Musta Churna.
- Amrasthimadhyā, Lodhra, Bilvagarbha, Priyangu.

DIARRHEA

Definition

A passage of liquid or watery stool more than three times a day.

The syndrome of dysentery is characterized by the presence of blood and pus in stools, abdominal cramps.

Etiology

- Rotavirus
- Enterotoxigenic E. coli
- E. histolytica
- Giardia

Clinical Features

- Watery, large, frequent (one or more stools every 3 hours) stools indicate diarrhea.

Assess in the examination:

1. Physical signs of dehydration.

2. Nutritional state of the child, weight is the best parameter.
3. Presence of pneumonia, otitis media or other associated infection

Laboratory Investigations

- Stool microscopy
- Stool culture
- Stool pH

Management

1. ORT (Oral Rehydration Therapy)
2. Assessment of dehydration
3. Drug therapy

1. ORT

The term ORT includes:

- Complete ORS solution (Oral Rehydration Salt Solution) with composition (WHO recommended)
- Solutions made from sugar and salt
- Food based solution

2. Assessment of degree of dehydration.

Signs	No Dehydration	Some Dehydration	Severe Dehydration
Condition	Well, Alert	Restless, irritable	Lethargic or unconscious
Eyes	Normal	Sunken	Very sunken or dry
Mouth and Tongue	Moist	Dry	Very dry
Thirst	Drinks normally	Thirsty, drinks eagerly	Drinks poorly or not able to drink
Skin pinch	Goes back quickly	Goes back slowly	Goes back very slowly

3. Drug Therapy

- Antibiotics and antimicrobial therapy
- Antimotility agents and Antisecretory drugs

CHARDI (VOMITING)

Nidana

उदानो विकृतो दोषान् सर्वास्वप्यूर्ध्वमस्यति ॥ (A.H.Ni.5/30)

Udana has become abnormal, aggravates all the Doshas and makes them move upwards and develops Chardi.

Main causative factors are Aama Dosha and Krimi in children. (A.H.Ni.5/37)

Chikitsa

- Balachatubhadra with Madhu.
- Pippali Churna with Madhu Ghrita.
- Trikatu Churna with Madhu and Ghrita.
- Panchkola Churna.

VOMITING

Definition

Vomiting is a coordinated motor response of the gastrointestinal and respiratory tracts that results in increased salivation followed by forceful expulsion of the stomach contents.

Regurgitation: Non forceful, effortless expulsion of gastric contents through the mouth, common in neonates and infants.

Causes

	Newborn	Infant And Child
Infections	Sepsis	Gastroenteritis
	Meningitis	Meningitis
Anatomic	Atresia	Resp. infections
		Pyloric stenosis
Gastrointestinal	Overfeeding	Intussusceptions
		Hepatitis
Renal	UTI	Appendicitis
		UTI
Neurogenic	Birth trauma	Increase ICP
		Toxic ingestion

Investigations

Urine – Routine and microscopic, Hemogram, LFT, RFT

Management

Antiemetic drugs – Metocloperamide, Domperidone

VIBANDHA (CONSTIPATION)

Definition

Decrease in frequency of bowel movements, and difficult or painful passage of hard stool.

- Constipation may be functional or organic:
 1. Functional constipation: Common cause in children during weaning
 2. Organic:
 - Intestinal:
 - Hirschprung disease (Aganglionosis)
 - Stricture
 - Metabolic: Hypothyroidism
 - Neuromuscular: CP

Management

- Increase the intake of fluids, use of high residue diet help in relieving constipation.
- Use of liquid paraffin may be recommended in some cases.
- Dulcolax rectal suppository may be used.

Ayurvedic Management

- Balachaturbhadra Churna with Madhu.
- Haritaki Churna with Madhu.
- Erandataila mixes with milk.

MUKHAPAKA (STOMATITIS)

• Recurrent Aphthous stomatitis

Painful ulcers of variable size in oral mucosa.

Etiology: Unknown

The ulcers resolve spontaneously within few days.

• Herpetic stomatitis

Presents in children aged 2 – 5 years with painful vesicles that evolve into gray pseudomembranous mucosal ulcers.

Antiviral medications.

Lesions usually heal spontaneously within 10 – 14 days.

Ayurvedic Management

- Yashtimadhu Churna with Madhu.
- Aamalaki Churna with Madhu.
- Triphala Churna with Madhu.

UDARASHULA (INFANTILE COLIC)

स्तनं व्युदरस्ते रौति चोत्तानश्चावभज्यते ।

उदरस्तब्धता शैत्यं मुखस्वेदश्च शूलिनः ॥ (Ka.Su.25/15)

स्तनं व्युदरस्ते - Reject the feeding. रौति - Excessive crying.

उत्तानश्चावभज्यते - Sleeps in a supine position.

उदरस्तब्धता - Stiffness of abdomen.

शैत्यं - Feeling of coldness. मुखस्वेद - Perspiration on mouth.

Main causes in children are Stanya Dushti, Ajeerna and Shotha.

Main vitiated Dosha is Vata Dosha.

So, the management should depend upon Vata Shamana.

Aushadhi Yoga should describe according to associated complaints.

INFANTILE COLIC

Definition

Infantile colic is defined as episodes of crying for more than three hours a day, for more than three days a week, for three weeks. Often crying occurs in the evening.

Usual Onset: 6 weeks of age.

Etiology:

Unknown

- In 5% cases have constipation, gastroesophageal reflux disease and lactose intolerance.

Clinical Features

Excessive crying

Excessive gas passing

Clenched fists

Blanching

Management

- Balachaturbhadra Churna with Madhu.

PRAVAHIKA

Types (Su. Ut. 40)

1. Vatika – Sashula
2. Paitika – Daha
3. Shleshmika – Kaphayukta
4. Shonita Sambhava – Sashonita

Chikitsa

1. Vatashamaka, Grahi, Deepaniya Aushadha
2. Trikatu Churna
3. Balachtubhadra
4. Pippali, Patha, Ajamoda, Sunthi, Indrajava etc.
5. Dadima Rasa

GUDABHRAMSHA (RECTAL PROLAPSE)

Nidana

प्रवाहणातिसाराभ्यां निर्गच्छति गुदं बहिः ।

रुक्षदुर्बलदेहस्य तं गुदभ्रंशमादिशेत ॥

(Su.Ni.13)

Chikitsa

- Swedana on anal region.
- Local application of Sneha on anal region.
- Keep the prolapsed portion in its actual position.
- Then put the Gofana Bandh (gae)[ab<x).

- Swedana should done repeatedly.
- Use Mushika Taila for local application and Snahapana.

RECTAL PROLAPSE

Definition

Rectal prolapse is the exteriorization of fecal mucosa through the anus.

Etiology

Most causes of prolapse are idiopathic. The onset is often between age 1 and 5 year.

Other predisposing factors include;

- Intestinal parasites
- Malnutrition
- Diarrhea
- Ulcerative colitis
- Meningocele
- Chronic constipation

Management

- Surgical treatment
- Liner cauterization

AMA AND ITS DISORDERS LIKE AMAVATA JWARA (RHEUMATIC FEVER)

Definition

An Immunological disorder initiated by Group A beta hemolytic streptococcus. Antibodies produced against some streptococcal cell wall proteins and sugars react with the connective tissues of the body as well as the heart and result in rheumatic fever.

Etiopathogenesis

The etiology of rheumatic fever is unknown. A strong association with beta hemolytic streptococci of group A is indicated by number of observations:

1. A history of preceding sore throat is available in approximately 50 percent of patients.

2. Epidemics of streptococcal infection are followed by a higher incidence of rheumatic fever.
3. In patients with established rheumatic heart disease streptococcal infections is followed by recurrence of acute rheumatic fever.
4. The patients with acute rheumatic fever consistently show elevated levels of anti-streptococcal antibody titer.

Rheumatic fever is an antigen - antibody reaction.

Clinical Features

Criteria for the diagnosis of rheumatic fever

MAJOR CRITERIA	MINOR CRITERIA
<ol style="list-style-type: none"> 1. Carditis 2. Arthritis 3. Subcutaneous nodules 4. Chorea 5. Erythema marginatum 	<ol style="list-style-type: none"> A. Clinical <ol style="list-style-type: none"> 1. Fever 2. Arthralgia 3. Previous rheumatic fever or RHD B. Laboratory <ol style="list-style-type: none"> 1. Leukocytosis, elevated sedimentation rate and C reactive protein. 2. Prolonged PR interval in ECG
Essential criteria <ol style="list-style-type: none"> 1. Increased antistreptolysin O titer 2. Positive throat culture 3. Recent scarlet fever 	

Management

1. Bed rest
2. Penicillin
3. Aspirin or steroids are given as supportive therapy.

C

RASAVAHA SROTASA

JWARA

Samprapti and Lakshana

मलास्तत्र स्वैः स्वैर्दुष्टाः प्रदुषणैः ॥

आमाशयं प्रविश्यायमनुगम्य पिधाय च ।

स्रोतांसि पक्ति स्थानाश्च निरस्य ज्वलनं बहिः ॥

सह तेनाभिसर्पन्तस्तपन्तः सकलं वपुः ।

कुर्वन्तो गात्रमत्युष्णं ज्वरं निर्वर्तयन्ति ते ॥ (A.H.Ni.2/3,4)

Malas getting increased by their respective causes, enter the Aamashaya (stomach), combine with Ama, and obstructs the Srotasa channels, force the fire to the exterior and Malas moving along with it, and make for large increase of heat of the body thus generate Jwara (fever).

Chikitsa

- Balachaturbhadra Churna
- Sudarshana Churna
- Sanshamani Vati
- Shadanaga Paniya
- Musta, Guduchi, Sunthi Churna with Madhu

FEVER

Definition

Fever is defined as an elevation of the body temperature in response to a pathological stimulus. Fever considered as body temperature > 100°F

Types

1. Short Duration Fever

- Respiratory infections
- UTI
- Viral infections
- Meningitis
- Pyogenic infections
- Malaria
- Typhoid fever
- Heat hyperpyrexia

2. Prolonged fever

- Infections
- Autoimmune
- Neoplastic disorders

Investigations

- Hemogram, Urine examination, Widal, LFT

Management

- First line antipyretics: Paracetamol (15 mg/kg/dose) repeated 4 hourly
- Second line antipyretics:
 - Ibuprofen
 - Nimesulide (Not used in child < 6 months)
- Hydrotherapy: Sponging with lukewarm water.

PANDU

Samprapti

पित्तप्रधानाः कुपिता यथोक्तैः कोपनैर्मलाः ।

तत्रानिलेन बलिना क्षिप्तं पित्तं हृदि स्थितम् ॥

धमनीर्दश सम्प्राप्य व्याप्तुवत्सकलां तनुम् ।

श्लेष्मत्वग्रक्तमांसानि प्रदुष्यान्तरमाश्रितम् ॥

त्वऽमांसायोस्तत्कुरुते त्वचि वर्णान् पृथग्विधान् । (A.H.Ni.13/1,2,3)

Doshas along which Pitta is predominant, get aggravated by indulgence in their respective causative factors, Pitta is situated in the heart is forced into ten Dhamanis by aggravated Vata and made it spread throughout the body. Then after Pitta is responsible for vitiation of Shleshma, Twaka, Rakta, Mamsa by residing within them and produce different kinds of colors such as Pandu, harita etc in the Twaka and Mamsa.

Chikitsa

1. Phalatrikadi Kwath
2. Musta Churna
3. Triphala Churna
4. Guduchi Churna / Sanshamani Vati

ANEMIA

Definition

Hemoglobin level < 11 gm/dL in children between 6 months to 6 years old or < 12 gm/dL in older children is suggestive of anemia.

Hemoglobin level < 5 gm/dL – Severe anemia

Hemoglobin level 5 - 10gm/dL – Moderate anemia

Types

Microcytic hypochromic:

1. IDA:

- Post hemorrhagic
- Nutritional

2. Ineffective erythropoiesis:

- Thalassemia
- Lead poisoning.

Normocytic normochromic:

1. Impaired cell production:

- Infection
- Hypothyroidism
- Chronic liver and kidney disease
- Leukemia

2. Hemolytic:

- Thalassemia
- Sickle cell anemia

Macrocytic anemia:

1. Megaloblastic:

- Nutritional
- Continue on anticonvulsion drug
- Malabsorption

2. Non – megaloblastic anemia:

- Liver disease
- Folate deficiency
- Hypothyroidism

Nidana and Samprapti

मृतकषायाऽनिलं पित्तमूषरा मधुरा कफम् ।

दूषयित्वा रसादींश्च रौक्ष्याद् भुक्तं विरुक्ष्य च ॥

स्रोतांस्यपक्वैवापूर्य कुर्याद्द्विदृष्ट्वा च पूर्ववत् ।

पाण्डुरोगं ततः ॥ (A.H.Ni.13/13,14)

When the child eats mud habitually for long time, Kashaya (astringent) mud aggravates Vata, Lavana (Salty) mud aggravates Pitta and Madhura (sweet) mud aggravates Kapha, and it vitiates Rasa Dhatu by its dryness, produces dryness in Srotasa channels without undergoing digestion it blocks the Srotasa channels and produces Panduroga.

Lakshana

शूननाभिपादास्यमेहनः -

पुरीषं कृमिमन्मुञ्चेद्भिन्नं सासृक्कफं नरः ॥ (A.H.Ni.13/14)

- Develops swelling around the umbilicus, feet, face and genitalas
- Expel faeces containing worms
- The stool is not well formed, mixed with blood and Kapha.

Chikitsa

1. Tikshna Virechana.
2. Deepaniya Ghrita Prayoga - Vyoshadi Ghrita.
3. Balachaturbhadra Churna with Madhu.
4. Godanti Bhasma with Madhu.

PICA

Definition: Habit of eating non edible substances such as wall plaster, clay, paint and earth, etc.

Symptoms

- Chronic abdominal pain
- Pallor

Management

- No specific treatment. Iron is often prescribed.

D
RAKTAVAHA SROTASA
KAMLA

यः पाण्डुरोगी सेवेत पित्तलं तस्य कामलाम् ।
कोष्ठशाखाश्रयां पित्तं दग्धवाऽसृऽमांसमावहेत् ॥
हारिद्रनेत्रमूत्रत्वङ्नखवक्त्रशकृत्तया ।

दाहविपाकतृष्णावान् भेकाभो दुर्बलेन्द्रियः ॥

भवेत्पित्तोल्बणस्यासौ पाण्डुरोगादृतेऽपि च ॥ (A.H.Ni.13/15,16,17)

The patient of Pandu Roga indulges things which cause increase of Pitta, the Pitta gets increased, burns up the blood and muscles and produces the Kamala Roga.

Symptoms

- Deep yellow coloration of eyes, urine, skin, nails, mouth and faeces.
- Feeling burning sensation
- Indigestion
- Thirst
- Weakness

Management

1. Navayasa Lauha (A.H.Chi.16/14)
2. Sudarshana Ghanavati (Sha.Sam.)
3. Bhumyamalaki Churna with Madhu.
4. Sanshamani Vati.
5. Phalatrikadi Kwath (Sha.Sam.)
6. Triphala, Guduchi and Daruharidra Kwath (A.H.Chi.16/44)
7. Neem Swarasa (A.H.Chi.16/44)

JAUNDICE

Jaundice is yellowness of the sclera conjunctiva and skin due to hyperbilirubinemia.

Jaundice in later infancy and childhood

- Viral hepatitis
- Cirrhosis of liver

- Toxic hepatitis (Drugs and agents causing hepatitis)
- Hemolysis (Thalassemia, Sickle-cell anemia)

RAKTAPITTA (HEMORRHAGIC DISORDERS)

RAKTAPITTA

भृशोष्णतीक्ष्णकट्वम्ललवणादिविदाहिभिः ।

कोद्रवोद्दालकैश्चान्नैस्तद्युक्तैरतिसेवितैः ॥

कुपितं पित्तलैः पित्तं द्रवं रक्तं च मूर्च्छिते ।

ते मिथतुल्यरूपत्वमागम्य व्याप्नुतस्तनुम् ॥ (A.H.Ni.3)

Over indulgence in materials which are Ushna, Tikshana, Katu, Amla, Lavana in nature and others which cause burning sensation during digestion with other causes bring about increase of Pitta. By these causes, both Pitta and Rakta get vitiated, mix together and spread throughout the body, and produce the disease Raktapitta.

Utpatti Sthana: Yakrita, Pleeha.

Types

1. **Urdhvagami:** A bleeding from Nasa, Akshi, Karna and Mukha.
2. **Adhahagami:** A bleeding from Mehana (Penis), Yoni (Vagina) and Guda.
3. **From Romakupa of whole body.**

Chikitsa

1. Vasa Churna
2. Sitopaladi Churna
3. Musta Churna
4. Shatavari Churna with Dugdha
5. Ushirasava
6. Vasa Ghrita

HEMORRHAGIC DISORDERS

Normal hemostasis requires an integrated vessel wall, quantitative and qualitatively well functioning of platelets and availability of coagulation factors.

Any defect in above three can lead to bleeding. The defects can be hereditary or acquired. Vessel wall injuries are usually local events and platelet and coagulation abnormalities are systemic events.



Disorders of Platelets

Most common platelet disorder in pediatric age is thrombocytopenia.

Thrombocytopenia may result from decreased production (aplastic anemia) or due to increase destruction of platelets. Idiopathic thrombocytopenic purpura is the major cause of thrombocytopenia.

Idiopathic Thrombocytopenic Purpura

Types

1. Acute

It is preceded by viral infection. It has self limiting course and majority of the children have a natural remission within two months

2. Chronic

Patients have insidious onset of symptoms with moderate thrombocytopenia persisting for at least six months.

3. Relapsing

Onset is similar to acute ITP but children have relapses. Relapses may get precipitated following viral infections.

Clinical Presentation

- The peak age for acute ITP is between 3 to 5 years, while infants below 1 year often develop chronic ITP.
- Petechiae, purpura and easy bruising.
- Severe manifestation of ITP includes hematuria, gastrointestinal bleeding, severe epistaxis etc.

Laboratory Investigations

- Thrombocytopenia
- Coagulation studies are normal except for increased bleeding time in majority
- Circulating anti platelet antibodies can be demonstrated

Management

- Supportive care
- Restriction of physical activities and avoidance of aspirin and related drugs.
- All immunization should be avoided during the acute phase.

Oral anti fibrinolytic drugs can be used for mild to moderate bleeding episodes. For a child with minor bleed, supportive treatment is usually sufficient. For platelet count of less than 10,000 or patient with threatening bleeding treatment is required. The most commonly used drugs are:

1. Corticosteroids
 2. IV IgG
 3. Anti D IgG
- Platelet Transfusion
 - Splenectomy

Platelet Function Disorders

Hereditary Coagulation Factor Deficiency

Von Willebrand's Disease

- von Willebrand Factor (vWF) is a central component of hemostasis which serves as a carrier for factor 8 and acts as a link between platelet and the vessel wall.
- It binds to platelet (vWF receptor) on adjoining platelets and subendothelium and helps them making clump.
- Its deficiency leads to von Willebrand's disease.
- Present with mucocutaneous bleeding.

Hemophilia

Hemophilia A and B are inherited bleeding disorder. They are inherited as X linked recessive disorder.

Women are carriers of hemophilia defect but are asymptomatic while their male offsprings suffer from the disease.

Hemophilia A is due to Factor 8 deficiency.

Hemophilia B is due to Factor 9 deficiency.

These both factors are essential for the generation of thrombin during hemostasis.

Clinical Features

- Mild disease - Asymptomatic and may develop prolonged bleeding following tooth extraction, severe trauma or following surgery.

- Severe cases - Spontaneous bleeding from skin, subcutaneous tissue and musculoskeletal system.
- Intra articular bleeding in mostly weight bearing joints such as knee, elbow and ankle.
- Acute hemarthrosis is characterized by rapid joint swelling with pain, redness, stiffness and restriction of movements.
- Recurrent joint bleeding in the same joint results in progressively joint damage and the development of hemophilic arthropathy over prolonged period.

Laboratory Investigations

- Partial thromboplastin time and clotting time are prolonged while bleeding time and prothrombin time are normal.
- Factor 8 and Factor 9 deficiency can be identified factor assays.

Management

- Replacement therapy with factor 8.
- Desmopressin Acetate - 1-deamino-8-d-arginine vasopressin (DDAVP) is a synthetic analogue result in three fold increase of factor 8.

HEPATOMEGALY

Hepatomegaly in the newborn

- Neonatal hepatitis
- Extra hepatic biliary atresia
- Erythroblastosis fetalis
- Intruterine infections
- Septicemia
- Galactosemia

Hepatomegaly in later infancy and childhood

- Infections and inflammations
Viral hepatitis, Cholangitis, Tuberculosis, Malaria, Enteric fever, Septicemia, Leptospirosis, Brucellosis.
- Hematogenous disease
Thalassemia major, Sickle-cell anemia



- Nutritional problems
Kwashiorkor
- Storage disease
Reye's syndrome
Gaucher's disease
Galactosemia
- Malignant disease
Leukemia
Lymphoma
Neuroblastoma
Wilm's tumor
- Miscellaneous conditions
Indian childhood cirrhosis
Congenital cysts
Hemangioma of liver
Hepatotoxic drugs (toxic hepatitis)

SPLEENOMEGALY

- Infections
Malaria, Enteric fever, Tuberculosis, Septicemia, Brucellosis, Intrauterine infections, Congenital syphilis, Neonatal herpes simplex, Neonatal hepatitis, Common viral infections.
- Hematogenous Diseases
Anemias, Iron deficiency anemia, vitamin B₁₂ deficiency, folate deficiency, Thrombocytopenic purpura.
- Inborn error of metabolism
Glycogen storage disease, Gaucher's disease, Cystic fibrosis.
- Malignant disease
Splenic cysts, Hemangioma, Abscess, extra hepatic biliary atresia.

E.

MAMSA MEDOVAHA SROTASA

APACHI

GANDAMALA

GALAGANDA

Introduction

Shopha - Ubhara - elevation (Dosha Dushti - Dosha Sanchaya)

Granthi - Grathinikarana (Dosha Sanchaya - Sthanika Meda Dhatu Dushti)

Apachi - Increase in size and also increase in numbers. (Meda Dhatu Chaya due to Dosha Sanchaya)

Gandamala - Spreading in whole body (Dushti of whole body Meda Dhatu)

	Shopha	Granthi	Apachi	Gandamala
Lakshana	Ubhara (swelling) Chala	Achala (Sthira) Vritta	Aamalakashthi samana Ubhara Increase in numbers	Spreading in whole body
Chikitsa	Deepana- Pachana	Deepana Pachana Bhedana	Vamana Virechana	Asadhya



APACHI

Definition

मेदःस्थाः कण्ठमन्याऽक्षकक्षावऽक्षणगा मलाः ।

सर्वगान् कठिनान् स्निग्धान् वार्ताकमलकाकृतीन् ॥

अवगाढान् बहुन् गण्डाश्रिरपाकांश्च कुर्वते ।

पच्यन्तेऽल्परुजस्तेऽन्ये स्रवन्तेऽतिकण्डुराः ॥

नस्यन्त्यन्ये भवन्त्यन्ये दीर्घकालानुबन्धिनः ।

गण्डमालाऽपची चेयं ॥ (A.H.U.29/23,24,25)

The vitiated Meda and Kapha collected in the region of mandible, axilla, clavicle, shoulder joint and posterior and anterior cervical regions produce Granthis which are fixed, extensive, circular in shape, smooth and associated with mild pain.

Some of these swellings are of the size of the Aamalakasthi while others are like the spawn of fish in shape.

They are of the same color (as skin) and are progressively increasing and because of the continuous growth, they are called as Apachi.

They are associated with itching and mild pain, when burst they discharge and disappear while others appear.

CHIKITSA

- Balachaturbhadra Churna.
- Nasya - Apamarga Beeja.
- Varunadi Kwath.
- Kanchanar Guggulu / Triphala Guggulu.

GALAGANDA

Definition

पवनश्लेष्ममेदोभिर्गलगण्डो भवेद्वहिः ।

वर्धमानः स कालेन मुष्कवल्लम्बते निरुक् ॥ (A.H.U.21/53)

Vata and Kapha having aggravated in the neck region and having accumulated in Manya and along with Meda produce glandular enlargement with their characteristic symptoms, known as Galaganda.

Types

1. Vatika
2. Kaphaja
3. Medoja

Samanya Lakshana

Swelling around the neck

Chikitsa

1. Pathya - Trikatu, Madhu, Gomutra, Java, Aadraka, Patola, Nimba Yusha
2. Nadi Swedana
3. Varunadi Kwath.
4. Kanchanar Guggulu / Triphala Guggulu

GOITER

Definition

It is an enlargement of thyroid gland.

Classification

1. Congenital
2. Acquired

1. Congenital

- Results from administration of antithyroid drugs or iodides to mother during pregnancy for relief of thyrotoxicosis.
- Low T_4 , TSH - elevated

2. Acquired

- Painless thyroid enlargement
- Firm in consistency
- Symmetrical enlargement
- TSH - normal / Low

Etiology

- Physiological - Puberty goiter
- Inflammatory - Acute suppurative thyroiditis
- Autoimmune

- Compensatory - Drug induced
- Neoplastic - Adenoma, Carcinoma

Diagnosis: USG

Management: Thyroxine

F.

MUTRAVAHA SROTASA

SHOPHA IN VRIKKA

(GLOMERULONEPHRITIS, NEPHROTIC SYNDROME)

GLOMERULONEPHRITIS

Definition

Glomerulonephritis is characterized by sudden onset of hematuria, generalized edema and hypertension.

Epidemiology

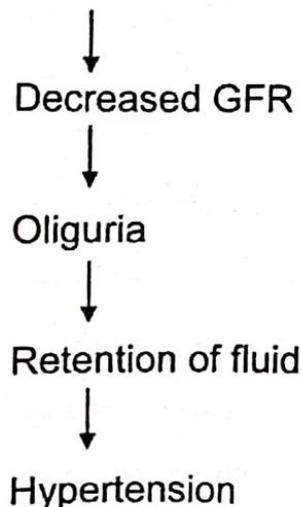
Acute Glomerulonephritis following streptococcal infection is the commonest type in children.

Clinical Features

- Hematuria
- Anasarca
- Acute renal failure - oliguria, hypertension
- Dysnea, tachycardia, tachypnea

Pathophysiology

The diffuse proliferation of glomeruli leads to obliteration of the capillary lumen



Edema (retention of salt and water)

Glomerular injury (Hematuria and proteinuria)

The streptococcal antigen - antibody complexes are trapped in the glomerular capillaries where they initiate inflammatory changes.

Laboratory Findings

Urine - RBC, proteinuria.

ESR elevated.

Biochemical - S.creatinine, Blood urea elevated.

Anemia.

Complications

- ARF

Management

1. General measures:

Activity - restricted, advice for complete bed rest.

Diet - salt and protein restricted.

2. Antibiotics

3. Daily monitoring of blood pressure, urine output, weight and edema.

4. Treatment of complications - Renal failure and hypertension.

Ayurvedic Management

1. Vardhman Pippali Prayoga.

2. Rasayana Churna.

3. Gokshuradi Guggulu.

NEPHROTIC SYNDROME

Definition

Nephrotic syndrome is characterized by the presence of heavy proteinuria (>1gm/24 hr), hypoproteinemia (S. albumin < 2.5 gm/dL), hyperlipidemia (>250mg/dL) and edema.

Pathology

Certain HLA types (HLA – DR7, HLA – B8 and HLA – B12) are associated with an increase incidence of nephrotic syndrome.

A loss of the glomerular basement membrane sialoproteins (loss of normal negative charge)

↓
Increase glomerular permeability to proteins

↓
Proteinuria

Hypoproteinemia stimulates hepatic lipoprotein synthesis

↓
Hypercholesterolemia

Etiology

1. 90% cases are idiopathic.
2. 10% cases are secondary nephritic infections - glomerulonephritis.
3. Congenital.

Classification

1. Idiopathic:

- Minimal Change Nephrotic Syndrome (MCNS)
- Focal Segmental Glomerular Sclerosis (FSGS)

2. Secondary

- Membranous nephropathy

3. Congenital

- Infant develop nephritic syndrome in first three months of life.

Clinical Features

- Edema first noticed around the eyes and subsequently on legs.
- Gradually edema may become generalized with ascites.
- Decrease urine output.

Diagnosis

Proteinuria - > +1

S. cholesterol – increased

S. albumin – decreased

S. C3 level – decreased (indicates degenerative changes)

(C3 - complement component - 3: Protein of immune system, ability to antibodies to clear pathogens from infection)

Complications

- Recurrent infection
- Steroid related toxicity
- ARF (Acute Renal Failure)
- Hypertension

Treatment

- Prednisone or equivalent steroids (to reduce edema).
- The optimal duration of steroid therapy for responders is 12 weeks.
- If a child does not respond to daily prednisone therapy, a renal biopsy is indicated.

Ayurvedic Management

1. Vardhman Pippali Prayoga.
2. Rasayana Churna.
3. Gokshuradi Guggulu.



POINT 12
ANYA BALA VIKARA
(MISCELLANEOUS PEDIATRIC DISORDERS)
AKSHEPAK (SEIZURES) APASMARA (EPILEPSY)
SEIZURES

Definition

Seizures are defined as abnormal electrical discharge from brain resulting in abnormal involuntary, motor, sensory or autonomic disturbance with or without alteration of sensorium.

Motor - jerking of the limb, twitching of the face.

Sensory - numbness, tingling or burning sensation in a region of the body.

Autonomic - pallor, racing heart rate, nausea.

Psychic - hallucinations (visual, sound, taste or smell), anxiety.

EPILEPSY

Definition

Recurrent, episodic, paroxysmal, involuntary clinical events associated with abnormal electrical activity from the brain.

Etiology

• **Early neonatal period**

Birth asphyxia

Hypoglycemia

Intracranial hemorrhage

Inborn error of metabolism

• **Neonatal period**

Hypoglycemia

Kernicterus

Meningitis

Septicemia

Developmental malformations

• **From 1 year to 3 years of age**

Febrile convulsions

Infections of CNS
Post infectious encephalopathy
SOL: neoplasm, brain abscess
Drugs and poisons

Classification

Partial

Seizure activity starts in one area of the brain.

1. Simple Partial

Patient remains alert e.g. jerking of a limb, nausea, strange taste or smell.

There is no loss of awareness or consciousness and they usually last less than a minute.

2. Complex Partial

Altered awareness and behaviour e.g. confusion, repetitive movements.

After seizure, the person is confused and may not remember anything about seizure. Usually last from 30 seconds to 3 minutes

Generalized

Seizure involves whole brain – consciousness is lost at the onset.

1. Tonic – clonic

'Grand-mal' or convulsion with loss of consciousness, stiffening of body then jerking of limbs. Usually lasts approximately two minutes or less.

2. Absence

'Petit-mal' or staring or trance-like state. Lasts for two to 10 seconds.

3. Atonic

'Drop attack' or abrupt fall, either with stiffening (tonic) or loss of muscle tone (atonic or astatic attacks).

4. Myoclonic

Sudden muscle jerks usually involving the upper body.

Investigations: EEG, MRI Brain

Management

- **Emergency supportive treatment**

Securing the airway opening

Maintaining oxygenation

Maintain blood pressure

Protect the patient from injury

• **Anti epileptic Drugs**

Carbamazepine - 10-40 mg/kg/day

Phenobarbitone - 3-8 mg/kg/day

Phenytoin - 3-8 mg/kg/day

Valporic acid - 10-60 mg/kg/day

Clonazepam - 0.05-0.2 mg/kg/day

Clobazepam - 0.1-1 mg/kg/day

Ethosuximide - 20 mg/kg/day

APASMAR (Cha.Ni.8)

अपस्मारं पुनः स्मृतिबुद्धिसत्वसंप्लवाद्धिभत्सचेष्टामावस्थिकं तमःप्रवेशमाचक्षते ।

Apasmara is characterized by occasional unconsciousness associated with unreluctant activities like abnormal posture of the body, due to distortion of memory, intellect and other senses.

Nidana

उद्धान्तविषमबहुदोषाणां (When Doshas get aggravated and their equilibrium is disturbed)

वैषम्ययुक्तेनोपयोगविधिमुपयुज्जानानां (Neglecting the prescribed regimens)

क्षीणदेहानां (Excessive emaciation)



दोषाः प्रकुपिता (Doshas get aggravated)



रजस्तमोभ्यामुपहत (Dosha covered person's whole mind)



चेतसा अन्तरात्मनः श्रेष्ठतममायतनं हृदयमुपसृत्य (Aggravated Doshas fill the heart)

इन्द्रियायतनानि



कामक्रोधलोभमोहहर्षभयशोकचिन्तोद्वेगादिभिर्भूयः (While staying there, Doshas aggravated by force of anger etc.)

↓
सहसाभिपूरयति (All of sudden spread throughout the heart and sense organs)

↓
तदा जन्तुरपस्मरति ॥

Types

इह खलु चत्वारोपसमारा भवन्ति - वातपित्तकफसन्निपातनिमित्ताः ॥

There are four types of Apasmara: Vatika, Paitika, Shleshmika and Sannipatika.

Lakshana

पश्यत्यसन्ति रूपाणि पतति प्रस्फुरत्यपि ।

जिह्वाक्षिभ्रूः स्रवलालो हस्तौ पादौ च विक्षिपन् ॥

दोषवेगे च विगते सुप्तवत्प्रतिबुद्ध्यते ॥

पश्यत्यसन्ति रूपाणि - Non existence forms

पतति - Falls down

प्रस्फुरत्यपि - Gets tremors

स्रवलालो - Frothing from the mouth

हस्तौ पादौ च विक्षिपन् - Convulsions

दोषवेगे च विगते सुप्तवत्प्रतिबुद्ध्यते - When the convulsions are over, he regains consciousness as getting from the sleep.

Management (Cha.Chi.10, A.H.U.8)

- Sanshodhana
- Sanshamana
- 1. Panchagavya Ghrita.
- 2. Maha Panchgavya Ghrita.
- 3. Brahmi Ghrita.
- 4. Vachadi Sneha.
- 5. Kalyanaka Ghrita.
- 6. Mahakalyanaka Ghrita.
- 7. Nasya.
- 8. Shiropichu.
- 9. Vacha Churna with Madhu.

NIRUDDHAPRAKARSHA (PHIMOSIS)

Definition

Phimosis is narrowing of the preputial orifice, leading to inability to retract the foreskin over the glans penis.

Etiology

1. Physiological

2. Pathological

1. Physiological:

Normal in newborn male babies.

The skin is adhered to the glans and separates over the time.

2. Pathological:

It is due to infection either in penis (balanitis) or in the foreskin (posthitis).

Clinical Features

1. Physiological:

Physiological phimosis involves only non retractibility of the foreskin. There may be some ballooning during urination.

2. Pathological:

Skin irritation

Local infection

Dysuria

Pain

Recurrent urinary tract infections

Weak urinary stream

Classification

Grade 0: Full retractibility.

Grade 1: Full retractibility but tight behind the penis.

Grade 2: Partial exposure of the penis.

Grade 3: Partial retraction with metus just visible.

Grade 4: Slight retraction neither metus nor glans visible.

Grade 5: Absolute no retraction.

Diagnosis

Diagnosis is based on clinical features. No laboratory investigations and imaging studies are required.

Management

Management depends upon the etiology either physiological or pathological.

Also depends upon severity of the phimosis, age of the child, type of the non retraction and associated features.

Surgery.

NIRUDDHAPRAKARSHA (Su. Ni. 13)

Nidana and Samprapti

वातवर्धक निदान सेवन (Excessive ingestion of Nidana responsible for aggravation of Vata) ↓

चर्म संश्रयते मणिम् (Accumulation of Vata in foreskin around the penis)

↓
मणिश्चर्मोपनद्धस्तु (Foreskin covers the penis)

↓
मूत्रस्रोतोरुणद्धि (Obstruction of urine flow)

↓
निरुद्धप्रकर्श

Clinical Features

मन्दधार - अवेदना युक्त मूत्रप्रवृत्ति (Weak urinary stream without pain)

Chikitsa

नाडीशस्त्र - स्रोतो विवर्धन (Once in a three days)

स्निग्धमन्न भोजयेत्

शस्त्रकर्म - भेदन

CEREBRAL PALSY

Definition

Cerebral Palsy is defined as non progressive disorder resulting from insult to developing brain antenatally, natally or postnatally.

Etiology

Antenatal Causes:

1. Intrauterine infections

2. Congenital malformations

Natal Cause:

1. Birth Asphyxia (baby not cried soon after birth)

Postnatal Causes:

1. Very low birth weight babies (< 1000 gms)
2. Prematurity
3. Kernicterus
4. Neonatal hypoglycemia
5. Postnatal infections – meningitis, septicemia

Clinical Features

Delayed developmental milestones

Associated features:

1. Learning disability
2. Involuntary movements
3. Abnormalities in muscle tone and reflexes
4. Speech disability
5. Hearing impairment
6. Visual impairment, Squint
7. Mental Retardation
8. Seizures

Classification

1. Spastic cerebral palsy

- Most common form of CP
- Injury to UMN of pyramidal tract
- Spasticity, Rigidity and hypertonia of affected parts

2. Dyskinetic CP

- Injury to basal ganglia (kernicterus)
- Variable tone of body
- Involuntary movements

3. Ataxic CP: Injury to cerebellum

Classification by distribution:

1. Spastic diplegia
2. Spastic quadriplegia
3. Spastic hemiplegia
4. Extrapyramidal

Diagnosis

1. History
2. Physical examination
3. MRI
4. Additional studies:
 - Test of visual function
 - Test of hearing
 - Genetic study (patient with congenital anomalies)

Management

1. Physiotherapy: For prevention of contractures
2. Symptomatic treatment: Anticonvulsion drugs for seizures
3. Botulinum injections in muscles
4. Speech therapy
5. Occupational therapy

Ayurvedic Management of Cerebral Palsy (Cha. Chi. 28)

1. Sarvanga Abhyanga (Bala Taila).
2. Sankara Sweda in the form of Shashti Shali Pinda Swedana.
3. Matra Basti (Narayana Taila).
4. Nasya – Marsha or Pratimarsha (Narayana Taila / Bala Taila / Brahmi Ghrita).
5. Shiro Pichu (Narayana Taila / Bala Taila).
6. Balamula Kwatha – 2 times/day.
7. Vacha Churna with Madhu. (Medhya and Speech improvement).
8. Rasayana – Brahma Rasayana or Chyavanaprasha.
9. Yogasana

BEHAVIOUR DISORDERS OF CHILDREN

BREATH HOLDING SPELL

Definition

It is reflexive disorder, in which crying child holds breath and becomes cyanotic or pale for few seconds.

Age: 6 months to 5 year.

Types

1. Cyanotic breath holding spell

Precipitating factors

- Anger
- Frustration
- When child is hurt

2. Pallid type breathe holding spell

Precipitating factors

- Minor injury
- Painful stimulation

Management

1. Reassurance and counseling to parents.
2. Anemia should be treated.
3. Sodium valporate is helpful if attacks are very frequent.

Ayurvedic Management

Predominant Dosha: Vata

Management should related with Vata Shamana Chikitsa.

1. Chyavanaprasha.
2. Yashtimadhu Churna with Dugdha.
3. Abhyanga with Bala Taila.
4. Swedana.

ENURESIS

Definition

Inadvertent (unintentionally) voiding of the urine during sleep after fifth year of life.

Presentation

Enuresis may be primary or secondary.

- Primary (Persistent) - The child has never been dry at night. About 75% children belong to this category.
- Secondary (Regressive) - Precipitated by stressful environment.
- Nocturnal enuresis - Voiding of the urine during sleep.
- Diurnal enuresis - Wetting while awake.
- Combined variety

Etiology

1. Primary

- Bladder neck obstruction
- Meningomyelocele
- Development delay
- Psychological factor - anxiety

2. Secondary

- UTI
- Stressful situations
- Diabetes mellitus

Investigations

Urine examination for albumin, sugar, microscopy, specific gravity and culture.

Management

1. Non pharmacological

- Behavior modifications
- Bladder strengthening exercises
- Alarm system

2. Pharmacological

- Imipramine orally

- Desmopressine acetate - nasal spray
- The effect of medications is temporary only.

Ayurvedic Management

1. Medhya Rasayana - Brahmi Churna, Shankhapushpi Churna with Madhu.
2. Sanshamani Vati (Guduchi Ghan).
3. Management of associated complaints.

PICA

Definition: A habit of eating non edible substances such as wall plaster, clay, paint and earth etc.

Etiology

- Iron deficiency
- More common in mental subnormal children.
- Undernourished children.
- Worm infestation
- Child negligence and poor observation.

Complications associated with pica

- Risk of infections e.g. gastroenteritis, bacillary dysentery
- Injury (if the object is sharp)
- Worm infestation
- Recurrent vomiting
- Chronic abdominal pain
- Paleness

Management

- Stool - routine and microscopy
- Hemogram - screening for iron deficiency
- Advice for supervision of the child.

Ayurvedic Management

1. Godanti Bhasma with Madhu or Dugdha.
2. Balachaturbhadra Churna with Madhu.
3. Chyavanaprasha.



उन्मादं पुनर्मनोबुद्धिसंज्ञाज्ञानस्मृतिभक्तिशीलचेष्टाचारविभ्रम विद्यात् । (Cha.Ni.7)

Insanity is defined as migrating about the mind, intellect, consciousness, knowledge, memory, tendency, manners, activities and behavior.

संप्राप्तिः (Cha.Ni.7)

- निदानसेवन (Nidana Sevana)



अभ्युदीर्णदोषाः (Doshas are vitiated)



प्रकुपिता (then Doshas are elevated)



हृदयमुपसृत्य (Situated in Hridaya and cover the Manovaha Srotasa)

मनोवहानिस्त्रोतसामावृत्य



जनयत्युन्माद

सामान्य लक्षणः

धीविभ्रमः सत्वपरिप्लवश्च पर्यात्कुला दृष्टिधीरता च ।

अवद्धवाकत्वं हृदयं च शून्यं सामान्यमुन्मादगदस्यलिङ्गम् ॥ (Cha.Chi.9)

धीविभ्रमः - Intellectual confusion

सत्वपरिप्लव - Fluctuation of the mind

पर्यात्कुला दृष्टि - Unsteadiness of the vision

अधीरता - Impatience

अवद्धवाकत्वं - Unrelated speech

हृदयं च शून्य - Sensation of emptying of the heart

भेदः

इह खलु पञ्चोन्मादा भवन्ति - तद्यथा - वातपित्तकफसन्निपातागन्तुनिमित्ताः ॥ (Cha.Ni.7)

चिकित्साः (च.चि.९)

स्नेह वमन आस्थापन

स्वेदन विरेचन अनुवासन

- उपशमनः कल्याणकघृत, महाकल्याणकघृत, महापैशाचिकघृत, पुराणघृत

AUTISM

Definition

Neurobehaviour and neurodevelopmental disorder.

Etiology

- Unknown etiology.
- Prenatal, Perinatal and Postnatal factors do not play a major role.
- A small number of children with autism have a known association in conditions such as fragile x syndrome, congenital rubella, structural anomalies of the brain and metabolic diseases.

Clinical Features

- Typical age of presentation is 18 – 24 months children.
- Inability to develop normal social skill with lack of eye contact, gestures and facial expressions.
- They understand little or no language. Therefore they fail to acquire speech.
- An inability to concentrate, together with intrusive stereotypes may prevent children from engaging in meaningful activity or social interaction.
- Approximately 75% of children with autism are mentally retarded.

Signs of autism

- Inappropriate playing with toys.
- Inability to relate to others.
- Hyperactivity.
- Inappropriate laughing or crying.
- Oversensitive or under sensitive to sound.
- Strange attachment to objects.
- Difficulty dealing with changes to routine.
- Lack of awareness of danger.

Investigations

- Speech and Language assessment
- Chromosomal analysis
- EEG

- Neuroimaging

Management

- No drug or other treatment cures autism.
- The most important intervention is early and intensive remedial education that addresses both behavioral and communicable disorders.
- Drugs that are commonly used for seizures, anti – depressants, stimulants have been used.

Ayurvedic Management

- Abhyanga (Bala Tila).
- Swedana.
- Matra Basti (Narayana Taila / Bala Taila).
- Nasya (Brahmi Ghrita).
- Shiropichu (Narayana Taila/ Brahmi Ghrita).
- Medhya Rasayana - Brahmi, Shankhapushpi, Vacha, Yashtimadhu Churna with Madhu.
- Chyavanaprasha.
- Brahma Rasayana.

ADHD

Attention Deficit Hyperactivity Disorder

Definition

ADHD is characterized by an age inappropriate **hyperactivity, impulsiveness** and **inattention**. The disorder is divided into three classes:

Class 1: All three symptoms (majority)

Class 2: First two only

Class 3: Mainly third (Relatively uncommon)

Hyperactivity is usually the first symptom to be noticed. It is three times more common in boys than girls.

Diagnosis

- The diagnosis is based on the criteria for DSM 4 on hyperactivity, impulsiveness and inattention. (Diagnosis and Statistical manual of mental disorder).

D/D

Mild mental retardation.

Iron deficiency anemia.

Thyroid abnormalities should be excluded.

Management

- Drug and behavior therapy.
- Drugs - Stimulants and tricyclic antidepressants are one part of management. Drugs cannot provide children with skills they have never learned.

Ayurvedic Management

- Abhyanga (Bala Tila).
- Swedana.
- Matra Basti (Narayana Taila / Bala Taila).
- Nasya (Brahmi Ghrita).
- Shiropichu (Narayana Taila/Brahmi Ghrita).
- Medhya Rasayana - Brahmi, Shankhapushpi, Vacha, Yashtimadhu Churna with Madhu.
- Chyavanaprasha.
- Brahma Rasayana

A. Either (1) or (2):

(1) Six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention

- (a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- (b) Often has difficulty sustaining attention in tasks or play activities
- (c) Often does not seem to listen when spoken to directly
- (d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior) or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- (e) Often has difficulty organizing tasks and activities
- (f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- (g) Often loses things necessary for tasks or activities (eg, toys, school assignments, pencils, books, or tools)
- (h) Is often easily distracted by extraneous stimuli
- (i) Is often forgetful in daily activities

(2) Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

- (a) Often fidgets with hands or feet or squirms in seat
- (b) Often leaves seat in classroom or in other situations in which remaining seated is expected
- (c) Often runs around or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings or restlessness)
- (d) Often has difficulty playing or engaging in leisure activities quietly
- (e) Is often "on the go" or often acts as if "driven by a motor"
- (f) Often talks excessively

Impulsivity

- (g) Often blurts out answers before questions have been completed
- (h) Often has difficulty awaiting turn
- (i) Often interrupts or intrudes on others (eg, butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning

C. Some impairment from the symptoms is present in two or more settings (eg, at school [or work] and at home)

E. The symptoms do not occur exclusively during the course of a pervasive developmental disorder, schizophrenia, or other psychotic disorder and are not better accounted for by another mental disorder (eg, mood disorder, anxiety disorder, dissociative disorder, or a personality disorder)

MENTAL RETARDATION

Definition

Mental retardation is defined as intellectual disability, learning difficulty or mental sub normality, during early developmental period. (American psychiatric association, 2000)

Intelligence measured with I.Q.

Intelligence Quotient = Mental age (100) / Chronological age

I.Q.

51 – 70 = Mild

36 – 50 = Moderate

21 – 35 = Severe

0 – 20 = Profound

71 – 90 = Borderline intelligence (not included in mental handicap)

Etiology

Prenatal

- Chromosomal Anomalies: Down syndrome, Fragile x syndrome
- Environmental and Nutritional Gaps: Iodine deficiency
- Developmental Delay: Microcephaly, Cretinism
- Maternal factors: Use of teratogenic drugs in first trimester of pregnancy, Infection such as Rubella, Toxoplasmosis, Herpes, Syphilis etc., Toxemia of pregnancy, Antepartum hemorrhage, Radiation during pregnancy.

Natal

- Birth injuries
- HIE
- Intracranial hemorrhage

Postnatal

- Infections of CNS
- Head injuries
- Hypoxia
- Autism

- Hypoglycemia

Clinical Features

- The mental age is below chronological age.
- Most of present with the behavior syndrome of cerebral dysfunction such as hyperactivity, short span of inattention, disturbed sleep, emotional instability etc.

Investigations

- IQ test: Wechsler Scale

Management

- Assessing the child's capabilities.
- Early stimulation and education.
- Behavior modification techniques.
- School placement or home management.

Ayurvedic Management

- Abhyanga (Bala Tila).
- Swedana.
- Nasya (Brahmi Ghrita).
- Shiropichu (Narayana Taila).
- Medhya Rasayana - Brahmi, Shankhapushpi, Vacha, Yashtimadhu Churna with Madhu.
- Chyavanaprasha.
- Brahma Rasayana.

POINT 14
PRANA RAKSHA VIDHI
LIFE SAVING MEASURES IN CHILDREN

SHOCK

Definition

Shock is a state of reduction in effective tissue perfusion resulting in insufficient utilization of oxygen and nutrients to the tissues.

The result is an altered cellular and subcellular function leading to anerobic metabolism, accumulation of lactic acid, consequently cellular damage, multiple organ dysfunction and finally cardiovascular collapse.

Classification

Shock can be classified into the following four major categories:

1. Hypovolemic (Reduced intravascular volume).

Reduced venous return to the heart, resulting in decreased oxygen and other substrate delivery insufficient to the tissues.

Causes:

I. Fluid and electrolyte losses:

- Acute gastroenteritis (diarrhea and vomiting).

- Excessive sweating

- Renal disease

II. Plasma loss:

- Burns

- Third space loss (Intestinal obstruction, peritonitis)

III. Hemorrhage:

- External: Trauma, Bleeding disorders

- Internal: Visceral injury, fractures, Gastrointestinal bleeding

IV. Endocrinal disorders:

- Diabetes mellitus

- Diabetes insipidus

2. Cardiogenic: (Impaired cardiac function)

Results from abnormalities of cardiac rhythm or function (pump failure). Commonly this is caused by impairment in myocardial contractibility.

Causes:

I. Cardiac insufficiency:

- Cardiac myopathies
- Congenital heart disease
- Cardiac surgery
- Drug intoxication

II. Obstructive lesions:

- Pulmonary embolism
- Pericardial tamponade

3. Distributive: (Alteration of vascular tone, either primary or secondary neurohormonal changes)

Causes:

- Anaphylaxis
- Drug overdose
- Neurogenic shock

4. Septic Shock: (This has a feature of all above mentioned types)

Results when infections or infection induced mediators in the blood stream lead to circulatory decompensation.

Stages of shock

1. Compensated: (Pre-shock)

The homeostatic mechanisms maintain perfusion of the essential organs.

Blood pressure, cardiac function and urine output may appear to be normal.

2. Decompensated: (Organ hypoperfusion)

The circulatory compensation fails, leading to manifestations of abnormalities in all organ systems.

3. Irreversible: (End organ failure)

Progressive reduction in cardiac output with multiple organ failure.

Clinical parameters and stages of shock

Clinical Parameters	Stage 1 Compensated	Stage 2 Decompensated	Stage 3 Irreversible
Heart Rate	Tachycardia	Marked tachycardia	Severe tachycardia
Respiratory Rate	Increased	Increased	Respiratory Failure
Blood Pressure	Normal	low	Unrecordable
Skin	Cold	Cool	Cool, Cyanotic & mottled
Mental Status	Clear but distressed	Confused/Obtunded	Coma
Urine Output	Normal	Oliguria	Anuria

Management

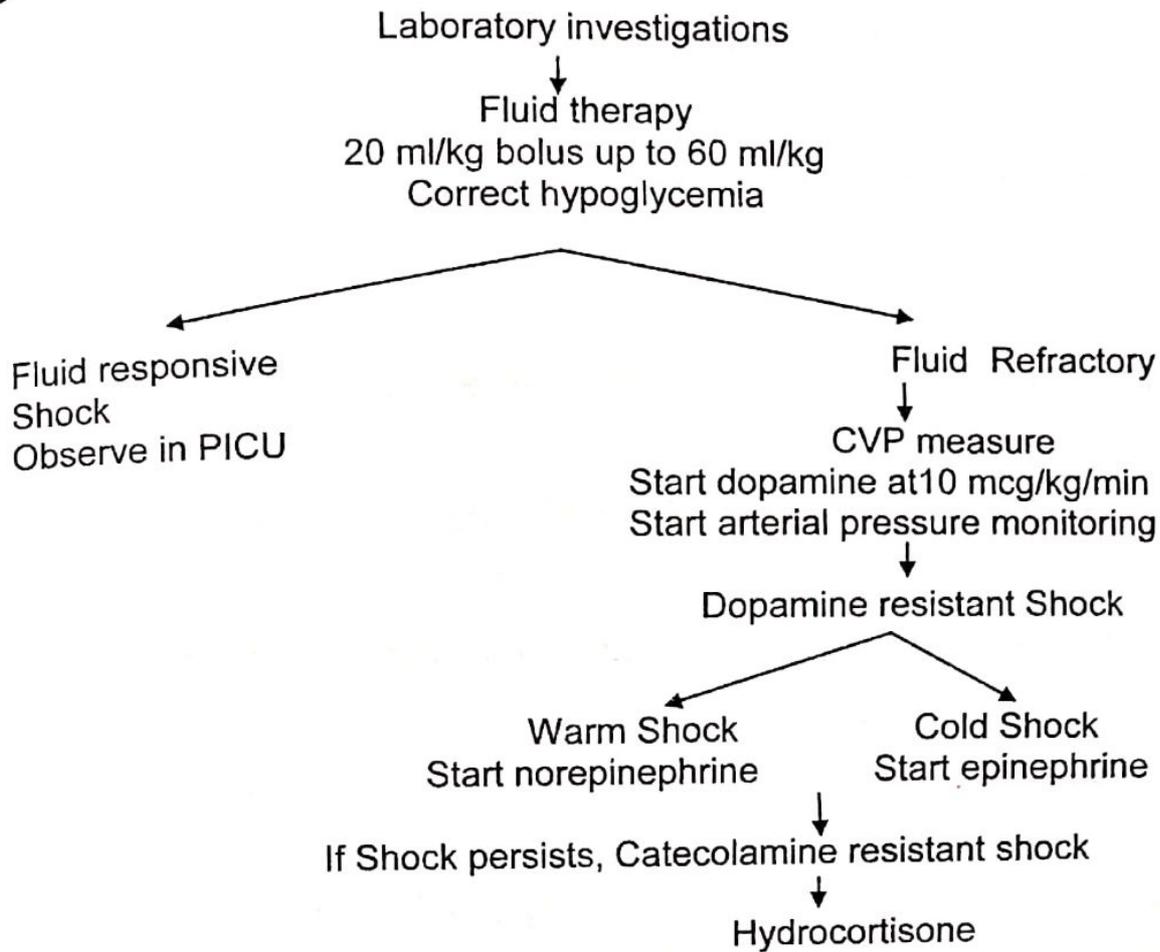
1. Oxygen administration

2. Fluid therapy

3. Cardiovascular Support

- **Inotropes:** Increase myocardial contractibility (Dobutamine, Dopamine)
- **Vasopressure:** Increase systemic and pulmonary vascular resistance (Norepinephrine)
- **Vasodilators:** To reduce systemic and pulmonary vascular resistance, increase cardiac output and simultaneously reduce myocardial oxygen demand (Nitroprusside)
- **Inodilators:** (Inotropes + Vasodilators) Improve cardiac contractibility and reduce after load.

Management of Shock



ANAPHYLAXIS

Definition

An IgE mediated life threatening clinical syndrome that occurs when large quantities of inflammatory mediators are released from mast cells and basophils with exposure to an allergen to which the individual has been sensitized.

Etiology

- Food: Peanuts, tree nuts (walnut, hazelnut, cashew), milk, eggs, fish, seeds (sesame, cottonseeds), fruits (apple, banana, kiwi, orange, melon), grains (wheat)
- Drugs: Penicillin, cephalosporins, streptomycin, dextran
- Biological products: Blood products, vaccines, intravenous immunoglobulins
- Idiopathic.

Pathology

If an individual with specific IgE antibodies get exposed to an allergen



IgE antibodies get fixed on high affinity cell surface receptors of mast cells and basophils



Cross linking of numerous IgE antibody molecules occupying the FcERI receptors



Activation of mast cells and Results in intracellular free calcium levels



Cytoplasmic granules fuse with each other causing release of mediators of inflammation like histamine and many others.

Clinical Features

Pruritus	Urticaria	
Bronchospasm	Cough	Nasal congestion
A sensation of warmth	Weakness	Loss of consciousness

Investigations

Elevated IgE.
Elevated plasma histamine.

Management

1. Assess the **circulation, airway, breathing, mental status, skin and body weight.**
2. Inject **epinephrine** (adrenaline) IM in mid anterior lateral aspect of thigh 0.01 mg/kg of 1:1000 (1 mg/ml), max 0.3 mg in child. Record the time of dose and repeat it in 5 - 15 min, if needed. Most patients respond to 1 or 2 doses.
3. If needed then go for **oxygen therapy.**
4. IV - normal saline.

POISONING

Common medical emergency in childhood.

Most cases of poisoning are due to substances available in the home environment and occur due to easy accessibility and poor housekeeping.

Substances commonly accounting for poisoning in children:

Kerosene and other hydrocarbons

Household Products: Insecticides, acid etc.

Plant Products: Dhatura, castor seeds etc

Food Poisoning

Venomous bites and stings

Management

1. Laboratory investigations.
2. Managing and protecting the airway, breathing and circulation.
3. In comatose child, an emergency IV assess and a bolus of 2 ml/kg of 25% dextrose is given.
4. In a comatose child, if respiration is shallow, IV naloxone in the dose of 0.2 mg/kg is given.
5. Antidotes.
6. Promotion of excretion - Diuretics.

FOREIGN BODY ASPIRATION IN RESPIRATORY TRACT

Management

Most airway foreign bodies are lodge in the bronchus (58%), laryngeal or tracheal location in 10% cases.

- Perform Bronchoscopy in
General inhaled anesthesia.
Control ventilation.
Muscle relaxation.

STATUS EPILEPTICUS

Definition

It is a neurological emergency that may lead to permanent neurological damage. Defined as persistent seizure activity and does not regain consciousness for five minutes or more.

Etiology

Neonates

- Birth injury (anoxia, hemorrhage) and congenital abnormalities

- Metabolic disorders (hypoglycemia, hypocalcemia) and inborn error of metabolism (lipidosis, aminoacidurias)

- Infection (meningitis)

- Drugs / drug withdrawal

Early Childhood (< 6 years)

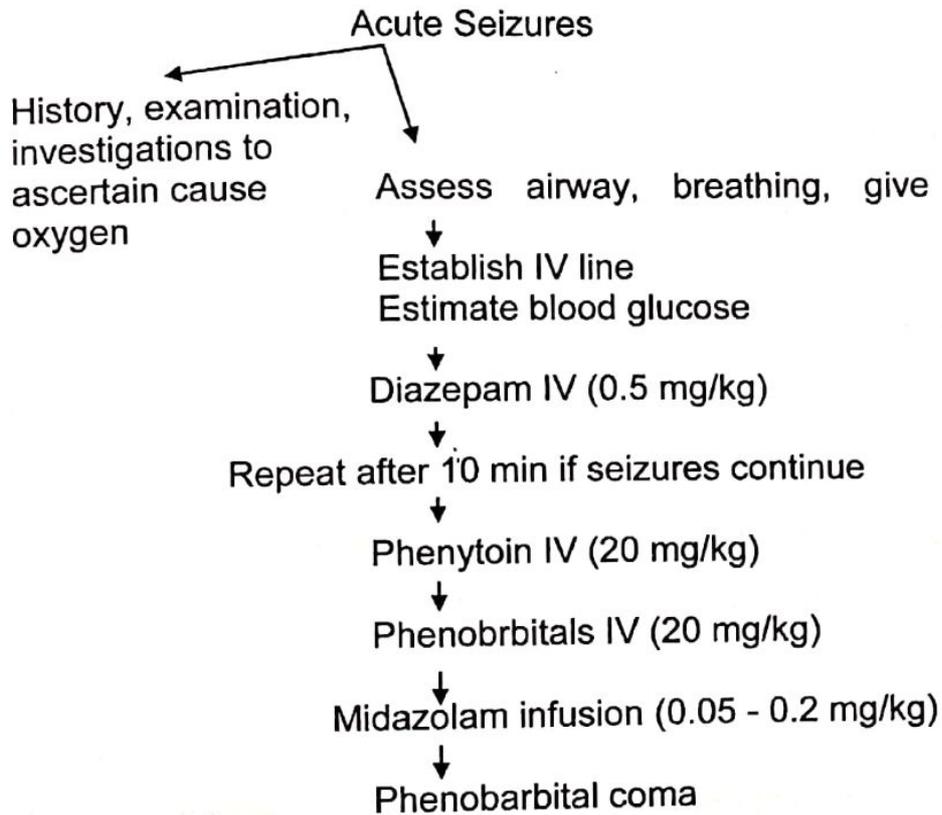
- Febrile convulsions
- Infections
- Trauma
- Metabolic disorders
- Cerebral degenerative diseases
- Tumors
- Toxins
- Idiopathic

Children and Adolescents (> 6 years)

- Infections
- Trauma
- Epilepsy with inadequate drug level
- Cerebral degenerative diseases
- Tumors
- Toxins
- Idiopathic



Management of Status epilepticus



HEMORRHAGE

Management should depend upon type of hemorrhage.

Types

- Internal hemorrhage:
 1. Kept the child in NICU/PICU.
 2. Respiratory distress or cardiac arrest - epinephrine.
 3. Blood transfusion (BT).
 4. Surgical therapy to stop internal bleeding.
- External hemorrhage:
 1. Kept in NICU/PICU.
 2. Oxygen administration.
 3. Blood transfusion (BT).

ACUTE RENAL FAILURE

Definition

An abrupt decline in renal functions, resulting in a sustained rise in blood levels of urea and creatinine.

Oliguria or anuria is the prominent feature; through rarely urine output may be normal.

Etiology

Pre-renal: Acute gastroenteritis, hemorrhage, shock.

Intrinsic renal: Infections, drugs, autoimmune, idiopathic.

Post renal: Calculus.

Clinical Features

- Anuria.
- Oliguria.
- Loss of renal function including acidotic breathing, alteration of sensorium and irregularities of cardiac arrest and rhythm.

Management

- Fluid and electrolyte therapy.
- Treatment of complications: Fluid overload, Hyperkalemia, metabolic acidosis, hypertension.
- Dialysis.
- Supportive care.
- Renal Replacement therapy

FEBRILE CONVULSIONS

Definition

A seizure is associated with a high body temperature.

Most commonly occur in children between the ages of 6 months to 5 years.

Management

- Antipyretics and hydrotherapy
- IV line should be started to maintain hydration, to give anti convulsion drug.
- Management should depend on pathology of fever.

STATUS ASTHMATICUS

Definition

- A Lung disorder in which inflammation of bronchi causes swelling and narrowing of the airways creating breathing difficulties.

- A prolonged severe attack of asthma that is unresponsive to initial standard therapy.

Clinical Features

- Shortness of breathing
- Coughing
- Wheezing
- Chest tightness

Management

- Oxygen.
- Bronchodilators.
- Albuterol nebulizer solution.
- Systemic corticosteroids: Prednisone - anti inflammatory.

FLUID AND ELECTROLYTE MANAGEMENT

- Next to oxygen, water is the most essential element for life. The largest component of body is water. Total body water in term infants, at birth is 75-80% of the body weight. This gradually declines to 60 percent of body weight by one year of age.

- **Dehydration**

Dehydration is net loss of body water. It is the commonest imbalance of body water in infants and children.

The most common cause of dehydration in children is diarrhea and vomiting. It may also occur due to excessive urinary losses because of diabetes insipidus.

- The steps in the successful **management** of dehydration in infants and children include the following:
 1. Assessment of degree of dehydration.
 2. Rapid expansion of intravascular volume if necessary.
 3. Correction of total fluid deficit (rehydration therapy).
 4. Provision of maintenance fluids and electrolytes and replacement of ongoing losses.
 5. Monitoring.

1. Assessment of degree of dehydration

Signs	No Dehydration	Some Dehydration	Severe Dehydration
Condition	Well, Alert	Restless, irritable	Lethargic or unconscious
Eyes	Normal	Sunken	Very sunken or dry
Mouth and Tongue	Moist	Dry	Very dry
Thirst	Drinks normally	Thirsty, drinks eagerly	Drinks poorly or not able to drink
Skin pinch	Goes back quickly	Goes back slowly	Goes back very slowly

2. Expansion of Intravascular Volume

In severe dehydration and hypovolemia, a rapid expansion of intravascular volume is required to maintain vital functions. This is achieved by rapid intravenous infusion of isotonic solution such as Ringer's lactate or normal saline. Ringer's lactate is probably the best choice. It supplies adequate concentration of sodium and potassium and lactate yields bicarbonate for correction of acidosis, which usually accompanies severe dehydration.

Guidelines for intravenous rehydration therapy for severe dehydration

Time	Type of fluid	Amount of fluids (ml/Kg)	
		1 year or less	Above 1 year
0-1 hr	Ringer's lactate or 0.9% saline	30	40
1-3 hrs	Ringer's lactate or 0.9% saline	40	60
4-6 hrs	ORS OR NS in 5% glucose (+1 ml KCL/100 ml fluid if urine output is established)	50	50

3. Correction of total fluid deficit (rehydration therapy)

• ORAL REHYDRATION THERAPY

Total correction of fluid and electrolyte deficit can be achieved safely and rapidly through Oral Rehydration Therapy (ORT) in most cases with dehydration.

Also in patients with severe dehydration, once the intravascular volume deficit has been corrected and urine flow is established, rest of the deficit can be corrected by ORT.

WHO has recommended oral rehydration solution (ORS). This is prepared by dissolving sodium chloride 3.5 gm, sodium bicarbonate 2.5 gm, potassium chloride 1.5 gm and glucose 20 gm in one liter of clean drinking water.

- **Approximate amount of ors solution to be given in first 4 hours for treatment of some dehydration**

AGE	less than 4 months	4-11 months	12-23 months	2-4 years	5-14 years	> 15 years
Weight	< 5 kg	5-7.9 kg	8-10.9 kg	11-15.9 kg	16-29.9 kg	>30 kg
Fluids (ml)	200-400	400-600	600-800	800-1200	1200-2000	2000-4000

• INTRAVNOUS REHYDRATION THERAPY

Intravenous rehydration therapy is recommended if there is severe dehydration or if there is persistent vomiting, paralytic ileus, or child is unconscious or too sick to drink ORS.

- Hourly Maintenance intravenous fluid requirements.

Weight (kg)	4	6	8	10	12	14	16	20	30	40	50	60
ml/hr	16	24	32	40	44	48	52	60	70	80	90	100

POINT 15
BALA GRAHA

General Description

- Bala Graha is a combination of two words Bala + Graha.
Bala is pertaining to children while Graha means to seize or grasp.
- Graha means sheltered the whole body.
- धात्रीमात्रोः प्राक्प्रदिष्टापचाराच्छौचभ्रष्टाचारन्मङ्गलाचारहीनान् ।
त्रस्तान् हृष्टांस्तर्जितान्क्रन्दितान्वा पूजाहेतोर्हिंस्युरेते कुमारान् ॥ (Su.U.27/4)
The mother and wet mother do not follow spiritual rituals, cleanliness is not maintained, auspicious rituals are not performed and where the children are scared or beaten these Grahas attack the children for veneration (worship).
- These can be seen only by divine eyes.
- Thus Grahas are said to be a class of evil demons supposed to capture or affect the children and produce various clinical features.
- These are invisible and correlate with microbes.

Etiopathogenesis

Mother does not follow spiritual rituals.

Not maintained proper hygiene.

Where the children are scared and beaten by family members.

Purva Rupa

Excessive crying

Fever

Classification

- स्कन्दग्रहस्तु प्रथमः स्कन्दापस्मार एव च । शकुनी रेवती चैव पूतना चान्धपूतना ॥
पूतना शीतनामा च तथैव मुखमण्डिका । नवमो नैगमेषश्च यः पितृग्रहसंज्ञितः ॥ (Su. U. 27)

The Graha are nine in number according to Sushruta Samhita.

1. Skanda
2. Skandapasmara
3. Shakuni



4. Revati
5. Putana
6. Andhaputana
7. Shitaputana
8. Mukhamandika
9. Naigamesha

• मनुष्यविग्रहा पञ्च सप्त स्त्रीविग्रहा ग्रहाः ॥ (A.H.U.3)

Manushya – 5

1. Skanda
2. Vishakha
3. Mesha
4. Shwagraha
5. Pitrusangyita

Strivighraha – 7

1. Shakuni
2. Putana
3. Shitaputana
4. Drashtiputana
5. Mukhamandika
6. Revati
7. Shushka Revati

Samanya Lakshana (Clinical Features) (Su.U.27)

त्रासजृम्भा भ्रूविक्षेपदीनताः ।

फेनस्रावोर्ध्वदृष्टयोष्ठदन्तदंशप्रजागराः ॥

रोदनं कूजनं स्तन्यविद्वेषः स्वरवैकृतम् ॥

(A.H.U.3/5)

जृम्भा - Yawning

रोदन - Excessive crying

स्तन्यद्वेष - Refusal to feed

त्रास . - Tired

भ्रूविक्षेप - Twitching of eyebrows

कूजन - Moaning

स्वरविकृति - Change of voice

Vishishta Lakshana

1. स्कन्द

- शूनाक्ष - Swelling of the eyes क्षतजसगन्धिक - bloody odor
स्तनद्विड - Refusal breast milk वक्रास्य - distorted facial features
हतचलतैकपक्षमनेत्र - Movement of one eye or eyelid
उद्विग्न - Frightened appearance अल्परोदी - Crying occasionally
गाढमुष्टिवर्च - Has clinched fist and passes hard stool

2. स्कन्दापस्मार

- निःसंज्ञो भवति पुनः भवेत्ससंज्ञः - Alternately losses and regains consciousness
संरब्ध - Looks violent करचरणैश्चनृत्यतीव - Moving with hands and legs as dancing
जृम्भमाण - Yawns फेनश्च प्रसृजति - Frothing from the mouth
विणमूत्रे सृजति विनद्य - Passes urine and stool vigorously

3. शकुनी

- सस्त्रांग - Flaccid limbs भयचकित - is frightened
विहङ्गगन्धि - Bird like odor
संस्त्राविव्रणपिडित - Suffering with discharging ulcers all over the body
स्फोट - Eruption of blisters with burning sensation and suppuration

4. रेवती

- रक्तास्य - Flushed face हरितमल - Passes greenish stool
अतिपाण्डुदेह - Excessive anemic body ज्वर - Fever
मुखपाक - Stomatitis कर्णनासं मुद्वाति - Rubbing the ears and nose

5. पूतना

- सस्त्रांग - Flaccid limbs विड्भिन्न - Passes watery stool
स्वपिति सुखं दिवा न रात्रौ - Sleep comfortably in the day but not in the night
काकतुल्यगन्धि - An odor like the crow छर्दि - Vomiting
तृष्णा - Excessive thirst

6. अन्धपूतना

स्तन्यद्वेष - Refusal of breast milk

कास - Coughing

छर्दि - Vomiting

दुवर्ण - Becomes discolored

अम्लगन्धि - Emits sore odor

अतिसार - Loose watery motion

हिक्का - Hiccup

ज्वर - Fever

सततमधःशय - Always sleeps in prone position

7. शीतपूतना

उद्विग्न - Anxious

आन्त्रकूजन - Gurgling in the intestine

अतिसार - Loose watery motion

भृशमतिवेपते - Excessive tremors

विस्त्रांग - Bed odor

8. मुखमण्डिका

म्लानाङ्ग - Thinned body

सुरुचिरपाणिपादवक्त्र - Good looking upper - lower extremities and face

बह्याशी - Excessive hunger कलुषवृतोदर - Abdomen covered with engorged veins

मूत्रतुल्यगन्धि - Emits urine like odor

9. नैगमेष

फेनं वमति - Vomits froth from the mouth

विनम्यते च मध्ये - Bowed trunk

वसासगन्धि - Emits fat like odor

ज्वर - Fever

निःसंज्ञो भवति - Becomes unconscious

Management (Su.U.27)

1. Child should be kept in clean and purified house.
2. Body should be rubbed with Purana Ghrita.
3. Mustard seeds should be strewn all over.
4. A lamp of mustard oil should be kept burning.
5. Sarvagandha Aushadhi seeds should be cast in fire which should be kept consistently burning with Mantra Chanting.

6. Fumigation with Dhoopa. (A.H.U.3/47)

Putyadi Dhoopa.

Dashang Dhoopa.

Sarshapadi Dhoopa.

7. Aushadhi Siddha Snanarth Jala.

1. **Balachaturbhadra Churna:** (Bhaishajya Ratnavali)
Ingredients: Musta, Ativisha, Pippali, Karkatashrunji
Anupana: Madhu
Phalashruti: Jwara, Atisara, Chardi, Shwasa, Kasa.
2. **Arvindasava:** (Bhaishajya Ratnavali)
Ingredients: Kamal, Ushira, Gambhari, Sariva, Haritaki, Vacha, Bibhitaki, Aamalaki, Draksha, etc
Anupana: Jala
Phalashruti: Agnimandhya, Graha Roga, Balaroga.
3. **Samvardhana Ghrita:** (Kashyapa Samhita Lehadhyaya)
Ingredients: Khadira, Prushniparni, Arjuna, Saindhava, Bala
Anupana: Madhu
Phalashruti: Improve growth and development of the child.
4. **Preenana Modaka:** (Ashtang Hridaya Uttara Tantra 1)
Ingredients: Priyal majja, Yashtimadhu, Madhu, Laja, Sitopala
Anupana: -
Phalashruti: Provide nutrition after weaning
5. **Sangrahi Modaka:** (Ashtang Hridaya Uttara Tantra 1)
Ingredients: Dhataki Pushpa, Sharkara, Laja
Anupana: -
Phalashruti: Provide nutrition after weaning
6. **Deepana Modaka:** (Ashtang Hridaya Uttara Tantra 1)
Ingredients: Bilva, Ela, Sharkara, Laja, Sattu
Anupana: -
Phalashruti: Provide nutrition after weaning
7. **Krimikuthara Rasa:**
Ingredients: Shu. Karpura, Kutaja Twaka, Ajamoda, Vidanga, Shu. Hingula, Shu. Vatsanabha, Kesar, Palashbeeja etc
Anupana: Jala

Phalashruti: Krimi Roga

8. Karpura Rasa: (Bhaishajya Ratnavali)

Ingredients: Shu. Hingula, Shu, Ahiphena, Musta, Indrajava, Jatiphala, Karpura.
Anupana: Jala

Phalashruti: Atisara, Jwaratisara, Grahani, Raktatisara.

9. Dantodbheda Gadantaka Rasa: (Bhaishajya Ratnavali)

Ingredients: Pippali, Pippalimula, Chavya, Chitraka, Sunthi, Ajamoda, yavani,
Haridra, Yashtimadhu, Abhraka Bhasma, Loha Bhasma, Shankha Bhasma etc.
Anupana: Madhu

Phalashruti: Dantodbhedajanya Vikara

10. Vidangarishta: (Bhaishajya Ratnavali)

Ingredients: Vidanga, Pippalimula, Rasna, Kutaja Twaka, Ela, Tejapatra,
Aamalaki, Patha, Indrajava, Sunthi, Marich etc.

Anupana: Jala

Phalashruti: Vidradhi, Ashmari, Prameha, Gandamala etc.

11. Vakshuddhikara Yoga: (Ashtang Hridaya Uttara Tantra 1)

Ingredients: Vacha, Yashtimadhu, Saindhava, haritaki, Sunthi, Kushtha, Pippali,
Shatapushpa, Jeeraka

Anupana: Madhu

Phalashruti: Speech improvement

12. Lakshadi Taila: (Ashtang Hridaya Uttara Tantra 1)

Ingredients: Laksha Rasa, Ashwagandha, Haridra, Devadaru, Musta, Rasna etc.

Phalashruti: In condition of Kshaya, Unmada, Shwasa, Apasmara for Abhyanga.

13. Sitopaladi Churna: (Cha. Sam. Chi. Rajayakshama Chikitsa)

Ingredients: Sitopala, Vanshalochana, Pippali, Ela, Twaka

Anupana: Madhu and Ghrita

Phalashruti: Kasa, kshaya, Shwasa, Kaphanashana.

- 1 Garbha Upakrama and Sutika Upakrama is indicated in Bala Chikitsa by
 A. Kashyap Samhita B. Sushruta Samhita
 C. Bhela Samhita D. Harita Samhita
- 2 कौमारभृत्यमद्यनां तन्त्राणामाद्यमुच्यते । - described in Kashyap Samhita
 A. Sutra Sthana B. Vimana Sthana
 C. Sharira Sthana D. Khila Sthana
- 3 Detail description of Suvarnaprashana described by
 A. Sushruta Samhita B. Charaka Samhita
 C. Ashtang Hridaya D. Kashyap Samhita
- 4 Suryodaya Darshana and Chandra Darshana should perform in child at the age of
 A. 7 days B. 14 days
 C. 21 days D. 30 days
- 5 Devatagar Pravesha should perform in child at the age of
 A. 1 month B. 2 month
 C. 3 month D. 4 month
- 6 Phala Prashana should start in child at the age of
 A. 4 month B. 6 month
 C. 8 month D. 12 month
- 7 Annaprashana should start in child at the age of
 A. 4 month B. 6 month
 C. 8 month D. 10 month
- 8 According to Kashyap Samhita, Bala Avastha is considered up to
 A. 6 month B. 12 month
 C. 18 month D. 16 years
- 9 According to Kashyap Samhita, Kumara Avastha is considered up to
 A. birth to 6 months B. birth to 1 year
 C. 1 year to 16 years D. All
- 10 Infant
 A. Up to 6 months B. Up to 1 year
 C. 1 - 3 years D. 3 - 5 years
- 11 Toddler
 A. Up to 6 months B. Up to 1 year
 C. 1 - 3 years D. 3 - 6 years
- 12 Preschool
 A. Up to 6 months B. Up to 1 year
 C. 1 - 3 years D. 3 - 6 years
- 13 Indication of Bag and mask ventilation
 A. HR < 120 B. HR < 100
 C. HR < 60 D. All
- 14 Indication of Chest compression
 A. HR < 120 B. HR < 100
 C. HR < 60 D. All
- 15 If Apgar is between 5 - 7, the condition is described as,
 A. Apnea B. Asphyxia
 C. Normal D. None

- 16 Closing time of Anterior fontanelle
 A. At birth
 B. At 3 - 4 months after birth
 C. At 6 months after birth
 D. At 12 months after birth
- 17 Closing time of Posterior fontanelle
 A. 6 -12 months
 B. 12 - 18 months
 C. 18 - 24 months
 D. After 24 months
- 18 Abnormal softening of the skull bones described as
 A. Craniotabs
 B. Craniocynostosis
 C. Mirocephaly
 D. All
- 19 Persistent of primitive Reflexes are described as early sign of
 A. Normal
 B. Cerebral palsy
 C. Low birth baby
 D. None
- 20 In the absence of mother's milk, the milk is medicated by the decoction of
 A. Laghu Panchmula
 B. Brihat Panchmula
 C. Dashamula
 D. Jeevana panchmula
- 21 Graha Dushita Stanya Dushti is described by
 A. Charaka Samhita
 B. Sushruta samhita
 C. Kashyap Samhita
 D. Ashtang Hridaya
- 22 Child can able to ride a tricycle at the age of
 A. 12 months
 B. 24 months
 C. 36 months
 D. 48 months
- 23 Child can able to walk upstairs at the age of
 A. 12 months
 B. 24 months
 C. 36 months
 D. 48 months
- 24 Child can able to hold up neck at the age of
 A. At birth
 B. 2 months
 C. 3 months
 D. 6 months
- 25 Palmer Grasp achieved at the age of
 A. 5 months
 B. 7 months
 C. 9 months
 D. 11 months
- 26 Pincer Grasp achieved at the age of
 A. 5 months
 B. 7 months
 C. 9 months
 D. 11 months
- 27 Social Smile developed at the age of
 A. At birth
 B. 2 months
 C. 3 months
 D. 6 months
- 28 Recognizing mother at the age of
 A. At birth
 B. 2 months
 C. 3 months
 D. 6 months
- 29 Kumara kalia Ghrita is indicated in the treatment of
 A. Stanya Dushti Vikara
 B. Dantodbheda Vikara
 C. Phakka Roga
 D. Kukkunaka
- 30 Dose of BCG vaccine
 A. 0.01 ml
 B. 0.1 ml
 C. 0.05 ml
 D. 0.5 ml

- 31 BCG
A. Live attenuated vaccine B. Killed vaccine
C. Both D. None
- 32 Dose of DPT vaccine
A. 0.01 ml B. 0.1 ml
C. 0.05 ml D. 0.5 ml
- 33 Indication of Lehana
A. Mahashana B. Mandagni
C. Kalyana Matraka D. All
- 34 Contraindication of Lehana
A. Mahashana B. Mandagni
C. Alpanutrapurisha D. All
- 35 Continuous use of medicine should avoid in children up to the age of
A. 1 year B. 5 year
C. 10 year D. 12 year
- 36 Aushadhi Matra should depend upon
A. Vaya+Agni B. Agni+Bala
C. Vaya+Bala D. All
- 37 Aushadhimatra in Jatamatra Avastha
A. Vidangaphala Matra B. Kolasthi Matra
C. Kola Matra D. None
- 38 Preferable Sneha during Childhood period
A. Milk B. Ghrita
C. Majja D. All
- 39 Karma is specific indicated in Snehapayi Shishu
A. Abhyanga B. Nasya
C. Basti D. None
- 40 Madhyama Vamana Vega in children described by Kashyapa
A. 4 - 5 Vega B. 5 - 6 Vega
C. 6 - 7 Vega D. 7 - 8 Vega
- 41 Avara Virechana Vega in children described by Kashyapa
A. 2 B. 3
C. 4 D. 5
- 42 In the condition of Phakka Roga, Virechana Karma should perform with
A. Trivritta Ghrita B. Trivritta Kshira
C. Trivritta Leha D. Trivritta Kwath
- 43 Types of Nasya Karma according to kashyap Samhita
A. 2 B. 4
C. 5 D. 8
- 44 Chaturbhadra Kalpa is described by
A. Kashyap Samhita B. Sushruta Samhita
C. Bhela Samhita D. Harita Samhita
- 45 अधस्तनोऽन्नभोक्ता । - is the indication of
A. Vamana B. Virechana
C. Basti D. Nasya

- 46 Apgar score signifies
 A. Cardiac status
 B. Respiratory Status
 C. CNS Status
 D. Birth Anoxia
- 47 Fetal bradycardia is defined as
 A. Less than 100/min
 B. Less than 120/min
 C. Between 100-200/min
 D. Less than 120/min for a period of 15 min of continuous monitoring
- 48 Apgar is the name of
 A. Pediatrition
 B. Gynecologist
 C. Anesthesiologist
 D. Neurologist
- 49 Ulvaka
 A. Sahaja Vyadhi
 B. Anuvanshika Vyadhi
 C. Kulaja Vyadhi
 D. None
- 50 Snana and abhyanga should avoid in
 A. Upashirshaka
 B. Ulvaka
 C. Nabhi Roga
 D. All
- 51 Main Dosha Dushti in Upashirshaka
 A. Vata
 B. Pitta
 C. Kapha
 D. All
- 52 Injury to upper cervical roots (C5, C6) during child birth develops
 A. Erb's palsy
 B. Klumpke's palsy
 C. Spina bifida
 D. Meningocele
- 53 Injury to upper cervical roots (C7, C8) during child birth develops
 A. Erb's palsy
 B. Klumpke's palsy
 C. Spina bifida
 D. Meningocele
- 54 The following is the cause of communicating type of hydrocephalus
 A. Dandy walker malformation
 B. Arnold chiari malformation
 C. Midline brain tumor
 D. Aquaductal stenosis
- 55 Management of cleft palate includes
 A. Feeding
 B. Surgical closure
 C. Speech therapy
 D. All
- 56 The clinical features of down syndrome include the following except
 A. Mental retardation
 B. Hypertonia
 C. Simian Crease
 D. Brushfield Spots
- 57 The cardiovascular disease is commonly associated with Down Syndrome is
 A. Endocardial cushion defect
 B. VSD
 C. PDA
 D. Teratology of fellot
- 58 The following is not the clinical feature of Turner syndrome
 A. Oedema of dorsum of hand and feet
 B. Long stature
 C. Webbing of neck
 D. Broad chest
- 59 Trisomy 21
 A. Down Syndrome
 B. Turner syndrome
 C. Edward Syndrome
 D. Patau Syndrome

- 60 The following is the not feature of muscular dystrophy
 A. Family h/o myopathy B. Parasthesia
 C. Positive Gower's sign D. Calf muscle hypertrophy
- 61 45 X
 A. Down Syndrome B. Turner syndrome
 C. Edward Syndrome D. Patau Syndrome
- 62 Number of Graha described by Acharya Sushruta
 A. 9 B. 10
 C. 12 D. 14
- 63 Number of Graha described by Ashtang Hridaya
 A. 9 B. 10
 C. 12 D. 14
- 64 Manushyavigraha Graha
 A. 4 B. 5
 C. 9 D. 12
- 65 Strivigraha Graha
 A. 5 B. 7
 C. 9 D. 11
- 66 Graha described in Ashtang Hridaya
 A. Skanda B. Shwagraha
 C. Vishakha D. All
- 67 In the management of Graha Roga, whole body should be rubbed with
 A. Panchgavya Ghrita B. Mahapaishachika Ghrita
 C. Purana Ghrita D. All
- 68 Graha described in Sushruta Samhita
 A. Chikitsa Sthana B. Uttar Tantra
 C. Nidana Sthana D. Khila Sthana
- 69 Common cause of dehydration in children
 A. Diarrhoea B. Vomiting
 C. Excessive urinary loss D. All
- 70 Quantity of Glucose in ORS solution
 A. 10 gms B. 20 gms
 C. 30 gms D. 40 gms
- 71 An IgE mediated life threatening clinical syndrome
 A. Status Asthmaticus B. Anaphylaxis
 C. Status epilepticus D. All
- 72 Best choice for expansion of intravascular volume
 A. Normal Saline B. Ringer lactate
 C. ORS solution D. All
- 73 In mild mental retardation IQ is
 A. 21 - 35 B. 36 - 50
 C. 51 - 70 D. 71 - 100
- 74 Mental retardation is as a clinical feature of
 A. Down syndrome B. Fragile X syndrome
 C. Microcephaly D. All

- 75 Neurobehaviour and neurodevelopmental disorder
 A. ADHD B. Autism
 C. Mental retardation D. All
- 76 Main cause of PICA
 A. Calcium deficiency B. Iron deficiency
 C. Both D. None
- 77 Following is not the feature of ADHD
 A. Hyperactivity B. Strange attachment to objects
 C. Impulsivity D. Not listen when spoken directly
- 78 Enuresis is considered after the age of
 A. 4 year B. 5 year
 C. 6 year D. 7 year
- 79 Diurnal enuresis
 A. Wetting while awake B. Voiding of urine during sleep
 C. Precipitated by stressful environment D. All
- 80 Breath holding spell usually occurs up to age of
 A. 6 months B. 1 year
 C. 2 years D. 5 years
- 81 Rh positive baby born to Rh negative mother may not develop erythroblastosis in
 A. First child B. Second child
 C. None D. ABO incompatibility
- 82 The models of treatment of indirect bilirubin except
 A. Phenobarbitone B. Antibiotics
 C. Phototherapy D. Exchange transfusion
- 83 The long term sequel of Kernicterus except
 A. Mental retardation B. Deafness
 C. Seizures D. Visual defect
- 84 Etiology of Pathological Jaundice
 A. Hypothyroidism B. Sepsis
 C. Rh incompatibility D. All
- 85 Kramer's rule is used to severity of
 A. Hypothyroidism B. Neonatal jaundice
 C. Neonatal Septicemia D. Hydrocephalus
- 86 Birth asphyxia is one of the etiology of
 A. Hypothyroidism B. Neonatal jaundice
 C. Neonatal Septicemia D. Hydrocephalus
- 87 Dantopatti Nimitaja Vikara
 A. Kshiralasaka B. Kukkunaka
 C. Ahiputana D. All
- 88 Ahiputana develops due to
 A. Dushta Stanyapana B. Improper hygiene
 C. Both D. None
- 89 Matraka dosha is the synonym of
 A. Kshiralasaka B. Kukkunaka
 C. Ahiputana D. All

- 90 Main Dosh Dushti in Balashosha
 A. Vata B. Pitta
 C. Kapha D. All
- 91 Flag Sign
 A. Marasmus B. Kwashiorkor
 C. Both D. None
- 92 Clinical features of Zinc deficiency
 A. Growth retardation B. Anorexia
 C. Alopecia D. All
- 93 Failure to thrive
 A. Hypervitaminosis A B. Hypervitaminosis D
 C. Hypervitaminosis C D. All
- 94 Orchitis is the complication of
 A. Mumps B. Measles
 C. Rubella D. All
- 95 Subacute sclerosing pan encephalitis is the complication of
 A. Mumps B. Measles
 C. Rubella D. All
- 96 Forchheimer Spots are the clinical feature of
 A. Mumps B. Measles
 C. Rubella D. Chicken pox
- 97 Varicella Zoster virus develops
 A. Mumps B. Measles
 C. Rubella D. Chicken pox
- 98 Kernig Sign
 A. Meningitis B. Hydrocephalus
 C. Hydronephrosis D. All
- 99 Brudzinski Sign
 A. Meningitis B. Hydrocephalus
 C. Hydronephrosis D. All
- 100 Types of Hepatitis
 A. Hepatitis G B. Hepatitis E
 C. Hepatitis E D. All
- 101 Rectal prolapsed is the complication of
 A. Chronic diarrhoea B. Ulcerative colitis
 C. Chronic constipation D. All
- 102 Anasarca is the complication of
 A. Nephrotic Syndrome B. Nephritis
 C. Chronic renal failure D. All
- 103 Diagnose tools of epilepsy
 A. CT scan of brain B. MRI Brain
 C. EEG D. All
- 104 Complication of Vesiculo Urinary Reflux (VUR)
 A. CKD B. Nephrotic Syndrome
 C. Anemia D. All

- 105 The pathological changes in cerebral palsy found in the brain include
 A. Cerebral atrophy
 B. Cavity formation
 C. Degeneration of basal ganglia
 D. All
- 106 The most common clinical type of cerebral palsy
 A. Spastic cerebral palsy
 B. Extraparamidal
 C. Autonomic cerebral palsy
 D. Mixed
- 107 The management of hepatitis does not include
 A. Vaccine
 B. Immunoglobulin
 C. Laxative
 D. Antibiotics
- 108 The most common cause of convulsions is
 A. Meningitis
 B. Febrile
 C. Metabolic
 D. Sepsis
- 109 The mainstay of management of the febrile convulsion includes
 A. Antibiotics
 B. Reducing temperature
 C. Anticonvulsions
 D. maintain hydration
- 110 Management of Nephrotic syndrome is
 A. Salt free diet
 B. Diuretics
 C. Corticosteroids
 D. All
- 111 "Balanam Angavardhanam" is the Phalashruti of
 A. Balachaturbhadrha Churna
 B. Chatubhadra Kalpa
 C. Chyavanaprasha
 D. Brahmarasayana
- 112 Balachaturbhadrha Churna contains
 A. Sunthi
 B. Haritaki
 C. Musta
 D. All
- 113 "Shishijwaratisaraghnaswasakasavamiharam" is the Phalashruti of
 A. Balachaturbhadrha Churna
 B. Chatubhadra Kalpa
 C. Chyavanaprasha
 D. Brahmarasayana

1	D	24	C	47	D	70	B	93	B
2	B	25	B	48	C	71	B	94	A
3	D	26	C	49	A	72	B	95	B
4	D	27	B	50	B	73	C	96	C
5	D	28	C	51	A	74	D	97	D
6	B	29	B	52	A	75	B	98	A
7	D	30	B	53	B	76	B	99	A
8	B	31	A	54	B	77	B	100	D
9	C	32	D	55	D	78	B	101	D
10	B	33	A	56	B	79	A	102	A
11	C	34	B	57	A	80	D	103	D
12	D	35	D	58	B	81	B	104	A
13	B	36	A	59	A	82	B	105	D
14	C	37	A	60	B	83	D	106	A
15	B	38	B	61	B	84	D	107	D
16	B	39	B	62	A	85	B	108	B
17	C	40	A	63	C	86	B	109	B
18	A	41	A	64	B	87	B	110	D
19	B	42	B	65	B	88	C	111	C
20	A	43	A	66	D	89	C	112	C
21	C	44	A	67	C	90	C	113	A
22	C	45	C	68	B	91	B		
23	B	46	D	69	D	92	D		

UNIVERSITY EXAM PAPER QUESTIONS (LAST 5 YEARS)

PART A

10 MARKS

1. Describe Navajata Shishu Paricharya.
2. Describe scientific contribution of Kashyapa Samhita in Kaumarbhritya.
3. Describe Navajata Shishu Parikshana (examination of newborn).
4. Why Kashyapa Samhita is baseline Grantha for Kaumarbhritya?
5. Describe neonatal resuscitation with classic and modern view.
6. Describe importance and method of Navajata Shishu Parikshana.
7. Describe scope of Kaumarbhritya in relation to modern era.
8. Describe milestone development in relation to Samskara during infancy.
9. Describe schedule and importance of proper feeding procedure up to 1 year.
10. Describe milestone of development of child.
11. Describe neonatal resuscitation with Ayurveda and modern science.
12. Write classification of age according to Ayurveda and modern science.
13. Write an importance of mother milk and describe Dhatri.
14. Describe Growth and development of child.
15. Write the examination of newborn and its importance.
16. Describe care of newborn for full term and pre term.
17. Write month wise development of fetus and Samanya Paricharya.
18. Describe alternative feeding in the absence of breast milk.
19. Describe fetal growth from conception to full term maturity.
20. Write the definition of Kaumarbhritya and importance of Kashyapa Samhita in Kaumarbhritya.
21. Describe indications and contraindications of Lehana and note any four Leha prescribe by Kashyapa with ingredient and indications.
22. Describe proper cord cutting procedure with complication and management.
23. Describe examination and management of preterm baby.
24. Explain Vyadhikshamatva and describe vaccination prescribe up to 1 year according to National Immunization program.
25. Explain Sharira Vriddhikara Bhava.
26. Write importance of mother's milk.
27. Write about types, names of teeth, time of dentition, Danta Sampat and Danta Asampat.

5 MARKS

1. Explain Stanyotpatti according to Ayurveda and modern science.
2. Write the causes of Stanyanasha and describe Stanyavardhanopkrama.
3. Write about Annaprashana Sanskara.

4. Describe Dantodbheda and Dantodbhedajanya Vikara.
5. Specify Rakshoghna Karma with modern and Ayurvedic point of view.
6. Elaborate Dhatri and its qualities.
7. Specify Sanskara and nomaculate sanskara describe in infancy.
8. Describe growth and development process in adolescence.
9. Describe classic method of Nabhi Chhedana.
10. Describe Stanya Pariksha and nomeclate of Ashtokshiradosha.
11. Differentiate: Brest feeding - Bottle feeding, Preterm baby - Full term baby.
12. Describe the national Immunization Program with its importance.
13. Write complication and management of improper cutting of umbilical cord.
14. Describe any five neonatal reflexes.
15. Write about Dhatri.
16. Describe Karnavedhana Samskara.
17. Write Prana Pratyagamana Vidhi according to Ayurveda and modern science.
18. Describe Kumaragara.
19. Write the importance of toys in development of the child.
20. Write the names of Samskara for childhood. Describe anyone.
21. Write the indications and contraindications of Lehana.
22. Write the immunization schedule with dose and route of administration.
23. Write about Danta Sampata and Danta Asampata.
24. What is Shuddha Stanya? Write the importance of mother milk.
25. Describe care of preterm baby.
26. Describe various neonatal reflexes.
27. Describe various stanyajanana and Vardhanopakrama.
28. Specify general concept of Bala (Immunity).
29. Describe Jatakarma Samskara and Chudakarana Samskara.
30. Describe advantages and disadvantages of breast feeding.
31. Differentiate: Brest feeding - Bottle feeding, Goat milk - Cow milk.
32. Explain Samskara in relation to Growth and development.
33. Explain importance of Bala Roga in Ashtanga Ayurveda.
34. Describe speciality of Dantajanlika Adhyaya.
35. Write history of Kashyapa Samhita.
36. Describe classification of age according to Sushruta Samhita.
37. Describe Aushtau Kshira Doasha.
38. Describe Snana and Raksha Karma of newborn.

39. स्तैमित्यं कटिदौर्बल्यं पृष्ठभङ्गश्चर्मो ज्वरः । विणमूत्रानिल संरोधाध्मानं चात्युपवेशनात् ॥ - Explain.
40. चतुर्विधं तु दन्तजन्माचक्षते । - Explain.
41. कषायपानैर्वमनैर्विरेकैः पथ्यभोजनैः । वाजिकरणसिद्धैश्चस्नेहैः क्षीरं विशुद्धयति ॥ - Explain.
42. कौमारभृत्यमष्टानां तन्त्राणामाद्यमुच्यते । - Explain.
43. कौमारभृत्यं नाम कुमारभरणधात्रीक्षीरदोषसंशोधनार्थं दुष्टस्तन्यग्रहसमुत्थानां व्याधिनामुपशमनार्थं च । - Explain.
44. मधुराणि कषायाणि क्षीरवन्ति मृदुनि च । प्रयोजयेद्विषग्बाले मतिमानप्रमादतः ॥ - Explain.
45. तस्मिन्नैवमासि विविधानां फलानां प्राशनं भिषगनुनिष्ठेत् । तद्धि दनतजातस्यान्नप्राशनं दशमे मासि प्रशस्तेहनिः ॥ - Explain.
46. मासात् परम मेघावी व्याधिभिर्न च घृष्यते ।
षड्भिर्मासैः श्रुतधरः सुवर्णप्राशनाद्भवेत् ॥ - Explain.
47. अवात्सल्याद् भ्रमशोकात् क्रोधात् अपतर्पणात् ।
स्त्रीणां स्तन्यभवेत् स्वल्पं गर्भातरणविधारणात् ॥ - Explain.
48. मातुरेव पिबेत्स्तन्यं तत्परं देहवृद्धये ॥ - Explain.
49. तत्र बालमपरिपक्वधातुमजातव्यंजनं सुकुमार क्लेशसह सम्पूर्णबलं ।
श्लेष्म धातुप्रायमाषोडशवर्षम् ॥ - Explain.
50. अथैनं जातदशनं क्रमेणोपनयेस्तनात् । - Explain.
51. जीवनं बृहणं सात्म्यं स्नेहनं मानुषं पयः ।
नावनं रक्तपित्ते च तर्पणं चाक्षिशूलनुत् ॥ - Explain.

2 MARKS

1. Write about the government nutritional programs.
2. Define Stanya Sampat.
3. Write definition of Kaumarbhritya.
4. Write classification of age according to Acharya Sushruta.
5. Write importance of APGAR.
6. Write normal vitals of newborn.
7. Write the name of vaccines given up to the age of 1 year.
8. Specify Pragastanya Aahara to new born as per classics.
9. Write the complications developed due to improper cutting of cord.
10. Describe importance of Kridakani.
11. Describe Stanyapana Vidhi.
12. Describe qualities of goat milk.
13. Describe premature baby.
14. Describe Moro reflex and Rooting reflex.
15. Describe preventive measures for hypothermia in new born.

16. Nomenclature factors play role in Grabhavriddhivikasa.
17. Write route, dose and indication of BCG vaccine.
18. Write about Upaveshana.
19. Write about Danta Sampat.
20. Write about CCH program.
21. Write benefits of suvarnaprashana.
22. Write the name of Stanya Shodhana Aushadha.
23. What is Piyush Stanya?
24. What is meconium?
25. What is LBW?
26. What is RCH program?
27. Write causes of weight loss after birth up to 10 days of newborn.
28. What is growth?
29. What is development?
30. What is postmaturity?
31. What is importance of H.C. in new born?
32. Write about Jatakarma Samskara.
33. Write importance of Kshirannada Avastha.
34. Write importance of Lehana.
35. Write H.C., C.C. and length of newborn.
36. Write importance of toys.
37. Define Kaumarbhritya.
38. Write short introduction of Kashyapa Samhita.
39. Define and describe Jatavyanjana.
40. Differentiate: Anterior fontanel - Posterior fontanel.
41. Introduce RCH program.
42. Write ingredients of Balachaturbhadra.
43. Describe MMR.
44. Describe Prinana Modaka.
45. Importance of Suvarna Prashana.
46. Define Kumara.
47. Write the causative factors for inadequate production of breast milk.
48. Describe importance of colostrum.
49. Explain importance of H.C. examination.
50. Write about nutritional program.
51. Write Navajata Rakshoghna karma.

52. Inform national program related to Child health care.
53. Define NICU.
54. Describe: Moro Reflex, Grasping Reflex.
55. Write breast feeding method.
56. Write about Tandulabali Hma.
57. Describe Planter and Grasp reflex.
58. Write about navajata Mukha Shodhana.

PART B

10 MARKS

1. Write the name of Prasavakalin Abhigata and describe caput succidenum and cephalhematoma.
2. Describe Phakka Roga with treatment.
3. Describe Balagraha, name, general clinical features and general treatment.
4. Describe Neonatal Jaundice in detail.
5. Introduce Balagraha with classification and general management.
6. Describe any two vitamin deficiency disorders with line of treatment.
7. Specify general principal of treatment in children.
8. Describe Swedana Karma for children as per kashyapa Samhita.
9. Describe causative factors and line of treatment for convulsion in preschool child period.
10. Write the name of Sahaja Vyadhi and describe Jalashirshaka (Hydrocephalus).
11. Write the name of Kuposhanajanya Vyadhi and describe Balashosha.
12. Describe Down syndrome and Turner syndrome.
13. Describe Phakka Roga with treatment.
14. Write the name of Prasavakalin Abhigata and describe Upashirshaka.
15. Write the name and general clinical features and treatment of Balagraha.
16. Write the name of Dushta Stanyapana janya Vikara and describe Kshiralasaka with treatment.
17. Describe navajata Shwasavarodha (Asphyxia neonatorum).
18. Describe examination of sick child and Samanya Chikitsa Siddhanta (General principals of treatment in children).
19. Describe Skanda Graha with treatment.
20. Describe Phakka and Parigarbhika and write treatment for Parigarbhika.
21. What should be in mind while performing Panchkarma procedures specific to pediatric age group.
22. Specify Balagraha described by Vagabhatta and describe fully any one of them.
23. Describe causative factors of congenital abnormalities.
24. Describe Balapakshaghata with treatment.

25. Write the name of diseases occurs due to Kuposhana and describe Phakka Roga with treatment.
26. Write the examination of diseased child according to Ayurveda and Modern Science.
27. Write the name of Prasavakalin Vyadhi and describe any two of them.
28. Describe neonatal asphyxia.
29. Describe Hydrocephalus.
30. Describe eight Kshiradosha with treatment.

5 MARKS

1. Describe Shayyamuutra with treatment.
2. Describe Atisara with treatment.
3. Describe neonatal jaundice.
4. Describe ADHD.
5. Write short note on causative factors of congenital anomalies.
6. Describe neonatal umbilical disorders with line of treatment.
7. Describe Parigarbhika with treatment.
8. Describe Talukantaka and Talupata and write the treatment of Talukantaka.
9. Write short note on Shishu Vedana Parigyana in relation to Kashyapa Samhita with any two examples.
10. Describe any Pugraha in detail.
11. Differentiate: Jalashirshaka - Upashirshaka, Down Syndrome - Turner Syndrome.
12. Describe Ulvaka with treatment.
13. Describe causes of infantile colic with treatment.
14. Write short note on Balagraha.
15. Describe Thalassaemia.
16. Describe navajata Nabhi Roga with detail.
17. Write about neonatal septicemia and Rh incompatibility.
18. Describe Tamaka Shwasa with treatment.
19. Describe Parigarbhika with treatment.
20. Describe Krimiroga with treatment.
21. Describe Vibhandha with treatment.
22. Describe Mridabhakshanajanya Pandu with treatment.
23. Describe APGAR.
24. Describe Caput succedenum.
25. Describe Bala Pariksha Vidhi.
26. Describe Bala Aushadhi Matra Nirdharana.
27. Describe various formula related to Aushadhi Matra Nirdharana in relation to Infant patient.

28. Describe Ahiputana with treatment.
29. Describe Krimi Roga treatment with principles.
30. Write short note on Cerebral Palsy.
31. Differentiate: Skanda Graha - Skandaapasmara Graha, Ahiputana - Gudapaka.
32. What is Karyotype? Describe its importance.
33. Describe bedwetting with treatment.
34. Describe examination of diseased child according to Ayurveda.
35. Differentiate: Blue asphyxia - White asphyxia, Caput succedenum - Hydrocephalus.
36. Explain Rh incompatibility.
37. Describe causative factors of neonatal convulsions.
38. Describe treatment of Kukkunaka.
39. Describe karnamula Shotha with treatment.
40. Describe Kukkura Kasa with treatment.
41. Describe Navajata Kamla with treatment.
42. Differentiate: Phakka - Bala Pakshavadha, Down Syndrome - Turner Syndrome.
43. Describe formulas for the purification of breast milk.
44. Describe Mukha Dushika.
45. Describe Niruddha Prakarsha.
46. Write the Nidanas of Vamanata according to Ayurveda nad modern science.
47. Describe Navajata Netrabhishyanda with treatment.
48. भृशं शिरः स्पन्दयति निमीलयति चक्षुषी ।
अवकुजत्यरतिमानस्वप्नश्चशिरोरूजी ॥ - Explain.
49. क्षीरजं गर्भजं चैव तृतीयं व्याधिसंभवम् ।
फक्त्वं त्रिविधं प्रोक्तं ॥ - Explain.
50. स तेभ्यो निश्चयं प्राह शिशूनां बस्तिकर्माणि ।
अधस्तनोऽन्नभोक्ता च चयदावा ॥ - Explain.
51. कर्णौ स्पृशति हस्ताभ्यां शिरो भ्रमयते भृशम् ।
अरत्यरोचका स्वपनैर्जानीयात् कणवेदनाम् ॥ - Explain.
52. देह वैवर्ण्यमरतिमुखग्लानिनिरनिद्रता ।
वातकर्म निवृत्तिश्चेत्यतिसाराग्रवेदनाः ॥ - Explain.
53. धात्री श्लैष्मिक दुग्धात् फक्कदुग्धेति संज्ञिता ।
तत्क्षीरपो बहुव्याधिः काश्यात् फक्त्वमुप्नुयात् ॥ - Explain.
54. बालकानामवचसां विविधा देहवेदना । प्रादुर्भूताः कथं वैद्यो जानीयाल्लक्षणार्थतः ॥ - Explain.

55. हिंसारत्यार्चनाकाक्षां ग्रह ग्रहणं कारणम् । - Explain.

56. दोषदूष्यमलाश्चैव ।

त एव सर्वं बामानाम मात्रात्वल्पतरामताः ॥ - Explain.

57. निःसंज्ञो भवति पुनर्भवेत् ससंज्ञः संरब्धः करचरणैश्च नृत्यतीव । - Explain.

58. त्रिचक्रं फक्करथं प्राज्ञ शिल्पिक निर्मितम् । - Explain.

59. लालास्त्रावमत्यर्थं स्तनद्वेषारतिव्यथाः ।

पीतमुद्गिरितिक्षीरं नासाश्वासि मुखामये ॥ - Explain.

2 MARKS

1. Write treatment of Kukkurakasa.
2. Write management of febrile convulsions.
3. Write breath holding spell.
4. Write about asphyxia pallid.
5. What is Ulvaka?
6. Write about Shashti Shali Pinda sweda.
7. Describe symptoms of Alasaka as per Vedanadhyaya.
8. Describe APGAR score in detail.
9. Define Kshiralasaka.
10. Describe symptoms and complications of Mumps.
11. Describe ADHD.
12. Specify PICA and its treatment.
13. Describe Graha Grahishya Karanani.
14. Define Bala Shosha.
15. Write treatment of Gudapaka.
16. Specify causative factors of Thalassaemia.
17. Describe specify symptoms of Tetanus.
18. Define Shaiya Mutrata.
19. What is Talipes equinovarus and vulgus.
20. What is lactose intolerance.
21. Write the treatment of Ahiputana.
22. Write general principles of treatment in children.
23. Write about asphyxia lavida.
24. Describe तेषां ग्रहीष्यतां रूपं प्रततं रोदनं ज्वरः ।
25. What is Autism?
26. Write the causes of Udarashula.
27. Write the causes of Balashosha.

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32. What is Status Asthmaticus?
33. Write the treatment of Navajata Netrabhishyanda.
34. What is PEM?
35. Write the treatment of Kasa (cough) in children.
36. Write the treatment of Kukkunaka.
37. Write the treatment of Yauvana Pidika.
38. Write the chikitsa sutra of Krimi Roga.
39. Write about Garbhaja Phakka.
40. Write symptoms of Mukha Roga according to Vedanadhyaya.
41. Describe symptoms of Shoola as per Vedanadhyaya.
42. Write weight, length, head circumference and chest circumference of normal newborn.
43. Specify Rh incompatibility.
44. Describe Stanya Pariksha.
45. Define Autism.
46. Write Chikitsa Sutra of Jalashirshaka.
47. Explain Tracheosophagial fistula.
48. Write causative factors of cerebral palsy.
49. Write Chikitsa sutra of Parigarbhika.
50. Explain Mumps.
51. Describe symptomatology of Mukha Roga as Kashyapa Samhita.
52. Write treatment for Rectal Prolapse.
53. Write treatment of PICA.
54. Describe dose of drug of one year child.
55. Write contain and use of Krimikuthara Rasa.
56. Write Dashavidha Pariksha Vidhi.
57. Explain Erb's palsy.
58. Write ingredients and use of Balachaturbhadra.
59. Write about neonatal mastitis.
60. Write about child of diabetic mother.
61. Which deformities occur by Dauhrud Vimanana?