

## COMPARATIVE STUDY BETWEEN RICKETS AND *PHAKKA ROGA* AND ITS MANAGEMENT BY AYURVEDIC METHOD: A REVIEW ARTICLE

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### ABSTRACT

Rickets is a bone disease where bones soften and becomes prone to fracture and deformity in children. It is caused by deficiency of vitamin D, Calcium or phosphate. The mineralization defects can be differentiated as rickets caused by calcium deficiency called as calcipenic rickets (hypocalcemic) and phosphate deficiency called as phosphopenic rickets (hypophosphatemic). In this disease, softening and weakening of the bones is seen and it is most commonly found in children 6 – 24 months of age. Poor mineralization of calcium and phosphate shows various bony anomalies in Rickets. In Ayurveda, the symptoms of rickets are similar to that of *Phakka vyadhi*. *Phakka Roga* has been described by *Acharya Kashyapa*. Various Ayurvedic

therapies are given in *Kashyapa Samhita* which are used in the treatment of *Phakka Roga*.

**KEYWORDS:** Rickets, Childhood, Mineralization, Calcipenic, Phosphopenic, *Phakka Roga*, *Acharya Kashyapa*, *Kashyapa Samhita*.

### INTRODUCTION

In Rickets disease, bones in children become soft and weakened. This is usually due to a long term and severe absence of Vitamin D in the body.<sup>[1]</sup> The body needs vitamin D to absorb calcium from the intestine. The Ultraviolet light in sunlight helps the skin cells to convert Vitamin D from an inactive to an active state. Lack of Vitamin D causes decreased absorption of calcium and phosphorus which leads to the softness and weakness of bones. Growth and

development of bones depend on the availability of calcium and phosphate in body. Less amount of calcium and phosphate result in deficient mineralization and causes rickets and osteomalacia. In rickets, deficient mineralization takes place at growth plate while in Osteomalacia there is impaired mineralization of the bone matrix.<sup>[2]</sup>

*Bala samvatsara (panna:) padaabhyam yonaGacchati |  
Sa Phakka iti Vidneya: || - Kashyapa Sa.Chi. 17/3<sup>[3]</sup>*

*Acharya Kashyapa* described *Phakka* as a nutritional disorder where a child of around 1 year of age is unable to stand up or walk on his/her feet. The feet show crookedness like that in rickets.

### **Causes**

#### **1) LACK OF VITAMIN D<sup>[4]</sup>**

Very less exposure to sunlight.

In children who always stays inside.

Children who have lactose intolerance.

Have trouble in digesting milk, cannot get vitamin D.

Children who don't drink milk products at all.

If children are only on breastfeed.

Disorder that reduce the digestion and absorption of fats from the intestines cause a lack of vitamin D.

#### **2) LACK OF CALCIUM AND PHOSPHORUS<sup>[4]</sup>**

When because of hereditary reasons our kidneys hold back phosphorus, and there is loss of it through kidneys.

Body shows deficiency of calcium and phosphorus due to Severe diarrhoea and vomiting.

Overactive thyroid gland causes Overactive resorption (taking out the calcium from bones).

#### **3) VARIOUS CAUSES IN ADULTS WHICH RESULT IN LACK OF VITAMIN D<sup>[4]</sup>**

Renal tubular acidosis.

Malnutrition during pregnancy.

Malabsorption syndrome.

Hypophosphatemia.

Chronic renal failure.

Long term anticonvulsant therapy.  
Coeliac disease – *GRAHANI ROGA*

#### ***Asthikshaya Lakshana***<sup>[5]</sup>

*Danta, Nakha, Roma, Loma, Kesha, Patan, Asthi toda, Kesha Rukshata, Deh Rukshata*, Pain in the Body, *Maans Abhilasha, Asthi badhhata* like feeling, Fatigue, Weakness and Looseness of the Joints

#### ***Asthivrudhi Lakshana***<sup>[6]</sup>

*Adhyasthi* (extra bone growing over the bone)

*Adhidantau* (extra teeth growing)

*Dantashtibheda* (pain in the teeth and bone)

### **SIGN AND SYMPTOMS**

#### ***Asthi Vakrataa in Children or Rickets***

- 1) Bone tenderness in various parts of the body.
- 2) Dental problems – delayed formation of teeth, holes in the enamel, increased cavities in the teeth.
- 3) Muscle weakness – Ricketal myopathy.
- 4) Increases tendency for Fracture.
- 5) Skeletal deformities like bowed legs (Genu Varum), knock knees (Genu Valgum), Cranium deformities (Skull bossing), Spinal deformities.
- 6) Stunted Growth, short stature.
- 7) Hypocalcaemia.
- 8) Tetany – uncontrolled muscles spasms all over the body.
- 9) Soft skull (Craniotabes).
- 10) Costochondral swelling – Ricketal rosary.
- 11) Harrisons groove – A horizontal groove along the lower border of the thorax equivalent to costal insertion of diaphragm.
- 12) Widening of Wrist and bowing of the distal radius and ulna and progressive lateral bowing of the Femur and Tibia, widening of the ankle can be seen.
- 13) Breast bone pushed forward (Pigeon shaped chest)

#### ***Asthi Vakrataa in Adults or Osteomalacia***

- 1) Bone pains, bone tenderness, weakness in the bones, pelvic flattening.

- 2) Numbness around the mouth, numbness in the arms and legs, spasms in the hands and the feet.
- 3) Starts insidiously as aches and pains in the lumber region and thighs, pain is symmetrical and non-radiating.
- 4) There is difficulty in climbing up the stairs and standing from the sitting position.
- 5) The typical waddling gait.
- 6) chronic fatigue is an important feature many a times

### ACCORDING TO AGE CHANGES

In infants - the deformities are seen in forearm bones and the tibia.

In toddlers - there is exaggeration of normal physiological bowing of the Legs.

Older children - they have either genu valgum or windswept deformity of lower limb (Genu varum on one side and valgum on the other)

In adults – the body deformities are unusual, however, in females there may be triradiate pelvis which makes normal vaginal delivery difficult.

### Ayurvedic management

In the management of *Phakka roga prakruta rasa nirmana* is very important by improvement in *agni* with the help of *mrudu shodhana* followed by *deepana, pachana, bruhana* therapy. The *Samprapti of roga* can be controlled by doing *shodhana* in *dhatri* to treat *kaphaj stanya*. Various *Tikshna Vamana dravya* such as *sarshapa, pippali* and *vacha* can be used. To reduce pathology of diseased *dipana* and *pachana dravya* such as *vacha, ativisha* and *panchmula ghana kwatha* should be used. For the prevention of *Phakka roga* *Ayurveda* has suggested *Nasya, dhum, gandush, pradeha, parisheka* and *kapha shamak ahara*.<sup>[7]</sup>

Management of disease at *Balaka level* (diseased child) is done by using *Raja taila* and *Abhyantar Snehana*. *Amruta ghrita, Kalyanaka ghrita, Shatapala ghrita* and *Bramhi ghrita* should be taken orally followed by *Virechanawith trivrutksheerambasti*. Various *dipana* and *pachana dravya* like *madhukasidha ghrita, raasna, milk with gomutra for pana, bruhana dravya* must be indicated.

### Management of *Ksheeraj Phakka*<sup>[7]</sup>

*Kaphaja stanya sevana* is *hetu of Ksheeraja Phakka*. Management of this disease can be done by milk which is medicated with various *deepaniya dravyas* like *Rasna, Madhuka, Ekaparni, Eranda, Punarnava, Shatapushpa* also gives relief in this disease.

**Management of Garbhaj Phakka<sup>[7]</sup>**

Lakshana of Garbhaj phakka are similar to *balshosha*, also called as *Parigarbhik* which is explained by *Vagbhata*. There are three stages in which *shosha* leads to *Ksheeraj phakka*, *parigarbhik* then *garbhaj phakka*. In this we should primarily treat *parigarbhik* by *agnideepan chikitsa* by various *deepaniya* and *pachaniya dravya*. *Vidari*, *yava*, *godhum* and *pippali sidhha ghrita* should be used. *Anupan* which is rich in milk with honey and sugar helps to manage vitamin deficiency associated in *phakka roga*.

**Management of Vyadhija Phakka<sup>[7]</sup>**

In *Vyadhija phakka* mainly *dosh dushya samprapti* is involved which is associated with *nija roga* and *agantuj roga*. Because of *mandagni* and *dushtagrahani* there is deterioration of *sarasadhanan*. In the treatment of *Vyadhija phakka* consideration of *hetu* and its management involved. *Kshirapeya*, *Lehya dravya*, *Kalpas* and nutritious food is recommended.

**Bahya Chikitsa**

In *bahya chikitsa* of *phakka roga abhyanga* with *raj-taila* is recommended. *Raja-taila* consist of *Eranda*, *shaliparni* and *bilwa* which are *vataharain* nature and shows beneficial result in disease. *Mamsaandyusa sidhha* oil is also very useful in *phakka roga*. *Sudhavargaaushadhi dravyas* are important in the nourishment of *Asthidhatu*. *Samvardhan Ghrita* described in *Lehadhyaya* shows good results in developmental disorders.

Literature review of *Ashwagandha Ghrita* shows efficacy in *phakka roga*. *Ashwagandha ghrita* helps in improvement of physical as well as mental status of undernourished children. It acts as *Rasayana* and give strength to the internal circulation, improves *agni* and then weight.<sup>[8]</sup>

**Diet and Lifestyle<sup>[9]</sup>**

- 1) Expose the child to the sunrays in morning hours for about 15-20 minutes. Human skin contains provitamin which gets activated and synthesized on exposure to sun. This promotes the absorption of calcium and phosphorus by the body which makes the bone grow stronger.
- 2) Include whole grains and beans like oats, Barley, Rice, Black beans, Lentils etc in the diet regularly.
- 3) Consume more of green leafy vegetables like Spinach, Methi etc
- 4) Consume dry fruits like Almond, Walnuts, Cashews, Raisins in diet
- 5) Include fresh fruits like Oranges, Figs, Bananas etc in your diet

- 6) Vegetables like Onion, Garlic, Tomatoes are beneficial to get rid of the problems.
- 7) Banana is very good for children suffering from rickets as it is rich in necessary minerals, potassium and carbohydrates needed to keep the body function normally.
- 8) Place the pulses in the Sunlight before cooking them. In this way the vitamin D gets absorbed in pulses kept in the sunlight.
- 9) Practice weight bearing exercise like walking.
- 10) Avoid tea, coffee and other caffeinated product.

## DISCUSSION

Rickets is a condition usually caused due to the malnutrition and also called as Nutritional Rickets. Since the year 2000 statistics on rickets have shown a rise in the number of people diagnosed. The condition comes about due to low intake of Vitamin D which means that low exposure to sunlight may also contribute. If proper treatment of rickets is not taken then child with rickets is more prone to fracture of the bones. People with more severe and prolonged rickets may experience permanent bone deformities. Severely low calcium levels in the blood can lead to cramps, seizures and breathing problems. In rare cases, rickets can weaken the heart muscles.

## CONCLUSION

Rickets mainly affects children and compared with *Asthivakrata* or *Phakka roga* in Ayurveda. Management of *Phakka roga* is done by doing treatment of *Asthivrudhi*, *Asthikshaya*. *Panchakarma* therapies such as *Vamana*, *Virechana*, *Basti*, *Raktamokshana* are used. *Snehana* and *Abhyanga* with various medicated oil is done. *Basti of Tikta rasa Pradhan Dravya sidhha ghrita* is given. Various drugs of *Sandhaneeya Guna* are used to cure the Ricketal changes in bones.

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