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PHAKKA ROGA AND NUTRITIONAL DEFICIENCY IN CHILDREN: AYURVEDIC AND MODERN REVIEW

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ABSTRACT

Acharya *Kashyapa* is considered as the father of *Kaumarbhritya*. The *Phakka* means walking inability in growing children. The childhood is divided into three stages i.e. *Garbh*, *Bal*, and *Kumar* which is accepted even today. *Asthivah srotas dushti* seen in *Phakka Vyadhi*. *Phakka* is a disease complex characterized by symptoms as the child is unable to walk even after the age of one year. Rickets may be vit D deficiency or non-deficiency various metabolic disorder. *Phakka* resembles slothful movement associated with poor physical development & impaired psychomotor changes. *Phakka roga* are three types; *Kshiraja Phakka*, *Garbhaja Phakka* and *Vyadhija Phakka*. The obstruction in *rasa vaha srotasa* & nutritional deficiency resulted *Phakka roga*. Calcium and vitamin D hampered the bone mineralization and gives rise to multiple symptoms due to brittle bones in child especially below two years of life. Ayurveda consider this disease entity as *Phakka roga* and explained in detailed about the pathogenesis, symptomology and treatment of the *Phakka roga*. *Asthivah srotasa dushti* seen in *Phakka Vyadhi*. Rickets is the disease of children caused by Vit D deficiency. This article presented various Ayurveda perspectives of *Phakka* and nutritional deficiency.

Keywords: Ayurveda, *Kaumarbhritya*, *Phakka*, Nutritional Deficiency, Malnourished.

INTRODUCTION

Phakka disease is classified under *kuposhanajanya vyadhi*. *Phakka* roga is a condition that affects bone development in children. *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. Malnutrition is one of such condition and rickets is one among them in which there is deficiency of results in bow legs. Either calcium or vitamin D hampered the bone mineralization and gives rise to multiple symptoms due to brittle bones in child especially below two years of life.

A lack of adequate mineralization of growing bones results in rickets. The term Rickets is derived from English word wrick (twist) and Greek word rachitis means excess of osteoid tissue. Rickets is a condition that affects bone development in children. It causes the bones to become soft and weak which can lead to bone deformities. Rickets can cause bone pain, poor growth and deformity of the skeleton such as bowlegs, curvature of the spine and thickening of the ankle, wrists and knees. The incident is more in six month to 2 years age.

The *Samprapti* of disease involve *Agni dosha* caused by etiological factors & malnutrition which affect process of

digestion, metabolism & absorption thus body tissue becomes nutrients deficient which results *Ati dravamala pravrutti*, *Atimutrata* and improper utilization of *Ahara rasa* finally child becomes malnourished and *Phakka* roga occurs. The Laxanas of *Phakka* roga are; *Jwara*, loss of; *dhyuti*, *sphik*, *bahu* and *uru*, excess growth of abdomen, *Peetakshi*, *angaharsha*, weakness, excess of *Mutra* and *pureesha*, *manda cheshta*, irritability, dullness and excessive nasal discharges. The principle treatment approach involves normalization of *kapha* and *vata dosa* along with nutritional supply.¹⁻⁶ more in poor socioeconomic condition with low vit D in diet. The area in which lack of exposure of sunlight. Nutritional rickets usually presents in infancy or preschool age, usually as widened wrists or bowing of legs. Presentation in early infancy and finding of seizures or tetany suggest a defect in vitamin D metabolism⁷

AIM AND OBJECTIVES

To Review the study of *Phakka* According to Ayurvedic Science.

To Review the study of *Phakka* According to modern Science.

MATERIAL AND METHODS

The materials were collected from classical *Samhita*, Modern books, research journals and Articles.

CLASSIFICATION

Phakka roga is mainly classified into three groups on the basis of their causes.

- a. Kshiraja Phakka
- b. Garbhaja Phakka
- c. Vyadhija Phakka Kshiraja Phakka⁸

a. KSHEERAJ PHAKKA: -

It occurs due to kaphajstanya sevan by the child (balak) and child (balak) become krusha.

b. GARBHAJ PHAKKA: -

If lactating mother becomes pregnant. Then Quantity of milk secretion becomes less in that mother. There are less nutritional content in milk which is required for growth and development of child. Because most of the part of nutrition is used for growth of foetus in mother so child does not get sufficient nutrition from milk of mother and there is no proper growth and development in child. Then gradually child becomes retarding growth (krusha). This is known as Garbhaj Phakka.

c. VYADHIJ PHAKKA: -

In this Vyadhija Phakka child suffer from nij and agantujadi roga (disease), hence child suffers from ksheenata of mansa, bal becomes emaciated, abdomen becomes protuberant, head and face becomes more dominant, wasting of muscles.

ACCORDING TO MODERN SCIENCE:

Etiology of Rickets⁹

1. Nutritional rickets.

2. Malabsorption states:

- Cystic fibrosis
- Biliary atresia
- chronic diarrhoea and vomiting
- Liver disease
- Excessive destruction of intestinal mucosa Malabsorption

3. Refractory rickets:

- a) Renal tubular dysfunction (hypophosphatemic Vit D resistant rickets.
- b) Renal tubular acidosis.

4. Prolonged anticonvulsant therapy induces rickets by interfering vit D metabolism.

5. Inadequate dietary intake of vit D and lack of sunlight. Functions of Vitamin 'D':

- 1) Vitamin D is required for normal growth in Bone's is related to its role in calcium and phosphorus absorption which is needed for bone development.
- 2) Vitamin D increases calcium and phosphorus absorption in intestine.
- 3) Vitamin D increases the reabsorption of phosphate by renal tubular cells and raise the level of phosphate in the blood.
- 4) In normal growth of bones, the bone forming cell's appears as cartilage cells which degenerate and disappear and calcium and phosphorus are deposited in

vitamin D deficiency cartilage cell do not degenerate but continue the grow.

Metabolic

5) Changes In Rickets: Deficiency of vit D

Decreased calcium and phosphate absorption from intestine Decreased level of calcium and phosphate Compensatory mechanism by parathormone

a) Reduced calcium excretion by kidney

b) Calcium released from bones

c) Decreased Renal tubular reabsorption of phosphate Sr. calcium return to normal but phosphate level falls.

Prolonged vit D deficiency Even parathormone cannot sustained it's action

Sr. calcium and phosphate both level decreased Interfere with calcification of osteoid tissue Cartilage cells of bone cannot be disappears Increase osteoblastic activity

Clinical Features Of Rickets:

Rickets commonly present at 6 months to 2 years of age with bony deformities and hypotonia of supporting ligaments / muscles.

IMPORTANT CHANGES IN RICKETS:

A) Craniofacial changes:

1) Craniotables: thinning softening of skull bones with pin-pong ball like resilience on pressure over parietal bones.

2) Frontal bossing: Prominence of frontal bones.

3) Delayed closure of anterior fontanel.

4) Delayed dentition.

B) Thoracic Changes:

1) Rachitic rosary: Round, non-tender bending due to widening of costochondral junction's.

2) Harrison sulcus: A groove / depression along the lower costal margins.

3) Sternal Deformities like pectus excavatum i.e. depression of sternum. Pigeon Chest deformity.

C) Limb Deformities:

1) Widening of wrist ankles due to widened epiphysis and metaphysis

2) Gait abnormalities e.g. Knock-Knee, Bow legs and Coxa -Vera.

3) Green stick pathological fractures of long bones.

D) Spinal Deformities:

1) Kyphosis or scoliosis due to lax ligament.

2) Short stature due to deformed spinal curvature.

1) Pot -belly due to abdominal muscle hypotonia.

2) Visceroptosis due to ligamental laxity.

3) Hyper- extensible joints (acrobratic rickets).

TREATMENT OF

PHAKKA:

According to Ayurveda ¹⁰⁻¹³

A) ABHYANTAR**CHIKITSA**

Dipana and *pachana* dravya like; *vacha*, *Ativisha* and *panchmula Ghana kwatha* should also be used to relief pathological progression. Ayurveda also described disease management at *Balaka* level (diseased child) and suggested use of *Raja taila* and *Abhyantar Snehana*.

Oral use of *amruta ghrita*, *kalyanaka ghrita*, *shatpala ghrita* and *bramhighrita* followed by *virechana* with *trivrutta sheeram basti* which pacify *vata* dosha and *mamsa*.

The *dipana* and *pachana* dravya like as *raasna*, *madhuka siddha ghrita*, milk *bruhana dravya* also indicated. Approaches used to *stroto shodhana (udavartanam)* play significant relief in disease management.

Abhyanga with *Raj-taila* consisted of *earanda*, *shaliparnni&bilva* offer beneficial effects in disease, oil siddha with *mamsa&yusa* also useful in *Phakka*. *Sudhavarga Ausadhi dravyas* like *Sudhasatak* is helpful for nourishment of *Asthidhatu*.

MANAGEMENT OF PHAKKA**A) KSHEERAJ PHAKKA**

The condition may occur due to *kaphaja stanya sevana* which leads *krusha* and finally *Phakka*. The milk medicated with *deepaneeya dravya* help in disease

management. *Rasna*, *madhuka*, *punarnava*, *ekaparni*, *earanda* and *Shatapushpa* also offer relief in disease symptoms.

B) Management of GARBHAJA PHAKKA

The condition involve *balshosha* in which *shosha* leads *kshiraj Phakka*, *parigarbhik* then *Garbhaj Phakka*, this condition require use of *agnidipan Chikitsa* which help to control *parigarbhik*. *Dipan* and *pachan dravya siddha* with *vidari*, *yava*, *godhum&pippali* in *ghrita* may be recommended. *Anupana* rich in milk with *honey* and *sugar* help to manage *Phakka* associated with *vitamin deficiency*.

C) Management of VYADHIJ PHAKKA

Dosh-dushya samprapti mainly involve in *vyadhij Phakka (rickets)* associated with *nija roga* and *agantuj roga*. The nourishment of tissue decreases due to the *mandagni* and *dushta grahani* which further leads *Sara sanhanan deterioration*. The treatment approaches involve consideration of *Hetu & its management*. Consumption of nutritious food, *kshirapeya*, *lehya dravya* and *kalpas* should be recommended. *Samvardhan Ghrita* also possesses relief in disease symptoms¹⁴.

1) Orally use of *Kalyanak ghrita*, *Amruta ghrita*, *Shatpal ghrita*, *Sanvardhanghrita*.

2) Asthiposhak vati, Kukkutandatwak bhasma, kumarikalpa.

BAHYACHIKITSA: -

1) Sarvang Snehan: Bala tail, Chandanbalalakshadi tail, Rajtail

2) Vedanashamak Tail: Narayan taila, Dhanvantar Taila, Vishgarbha Taila, Dashmooladi Talia for Abhyang

3) Sarvang Swedan:

• Bashpa swedana with Dashmool Bharad churna

• Nadi Sweda with Vatagnadravya.

• Swedan with shalishastik panda sweda.

TREATMENT OF RICKETS (According to modern science):

• Vit D is administered orally either in a single dose of 600,000 IU or over 10 days (60,000IU daily for 10 days) followed by a maintenance dose of 400-800IU/day and oral calcium supplement 30 -75 mg/kg/day for 2 months.

• 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.

• Include whole grains and beans like oats, Barley, Rice, Black beans, Lentils etc. in the diet regularly.

• Consume more of green leafy vegetables like Spinach, Methi etc.

• Consume dry fruits like Almond, Walnuts, Cashews, Raisins in diet

• Include fresh fruits like Oranges, Figs, Bananas etc. in your diet

CONCLUSION

We can say that Phakka Roga is Growth and Development deficiency. It can be correlated with protein energy malnutrition, Rickets, or chronic malabsorption conditions. Most of the characters are correlating with Rickets disease child. *Kshiraja* and *Garbhaja Phakka* can be classified as acute malnutrition, while *Vyadhija Phakka* is a state of chronic malnutrition with general and reversible motor disability owing to malnourish state.

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