

## PRECOCIOUS PUBERTY: PREVENTIVE ASPECT THROUGH AYURVEDA

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### ABSTRACT

Puberty is the transitional phase of growth and development which links childhood to adulthood. Today's precocious puberty is rapidly growing health hazard of pubertal age. It is the early appearance of secondary sexual characteristics before age 8 yrs in girls (or menarche before age 9 yrs) and before 9 yrs in boys. Overall incidence of precocious puberty is estimated to be 1:5,000 to 1:10,000 children. It is more common in girls, female: male ratio ranging from 3:1 to 23:1. According *Ayurveda classics*, *Prakrita-Kapha* is primarily responsible for the maintenance of *Balyavshtha* and *Prakrita-Pitta* is responsible for proper *Dhatupaka*. The precocious puberty is not described word to word in *Ayurveda* but it can be better understand with the help of basic principle "*Vikaro dhatu vaishamyam samyam prakritiruchyate*" which

is given by *Acharya Charak*. Precocious puberty is a condition of *Kapha-Prakopa* with *Pitta-Chaya*. Possible prevention is stipulated with *Aahar-Vihar* regimen and *Yoga* therapy.

**KEYWORDS:** Precocious puberty, *Kapha-Prakopa*, *Pitta-Chaya*.

### INTRODUCTION

Puberty is the transitional phase of growth and development which links childhood to adulthood. During this period, some morphological, physiological and psychological changes take place in body that leads to gradual development of secondary sexual characteristics therefore full sexual maturity and accordingly fertility. According to Tanner and Marshall, five important physical changes (growth spurt, breast budding, pubic and axillary hair

growth, peak growth in height and menstruation in orderly) are manifested during puberty.<sup>[1]</sup> Some research suggested that body odor is one of the earliest sign of puberty (an individual begins to sweat profusely as their sweat glands start pumping out more moisture due to hormonal changes).<sup>[2]</sup> All these changes are often completed between the ages of ten to sixteen years.

Characteristics of *Balyavstha* (according *Acharya charak*) such as-

- *Aparipakava-dhatum* (immature *Dhatus*/tissues),
- *Ajatv-yanjanam* (absence of secondary sexual characters),
- *Sukumaram* (very sensitive in nature),
- *Aklesa-saham* (unable to tolerate afflictions),
- *Asampurna-balam* (improper strength and ability of body) and
- *Kapha-dhatu pradhan* till the age of sixteen years.
- than *Vivardhamana Dhatugunam* (gradual development and maturation of *Dhatus*/tissues) and
- *Anavsthitha-satva* (unstable mental status) till the age of thirty years.<sup>[3]</sup>

In *Ayurveda classics* has been also described that “*Aaharsambhava Vastu Rogashcha Aaharsambhava*” means growth and development of our body depends on our *Aahara* (diet) and *Rogashch* (diseases) also depends on diet.<sup>[4]</sup> *Prakrita Pitta* has five types where *Pachak pitta* denotes *Agni* which is responsible for proper *Dhatupak* (further origin of *Dhatus*, *Updhatu* and *Malas* from *Aahara*).<sup>[5]</sup>

According *Ayurveda classics*, these 7 *Dhatus* (tissues) are originated from *Aahara* in our body such as-

- *Rasadhatu* (nutritional fluids),
- *Raktadhatu* (blood cells),
- *Mamsadhatu* (muscular tissue),
- *Medadhatu* (fatty tissue),
- *Asthidhatu* (bone tissue),
- *Majjadhatu* (bone marrow) and
- *Shukradhatu* (semen) are present in our body.<sup>[6]</sup>
- *Stanya* (breast milk) and *Aartava* (menstrual blood or ovum or ovarian hormones) is the *Updhatu* of *Rasadhatu* and

- *Prakrita Kapha* is the *Mala* of *Rashadhatu*.<sup>[6]</sup>

Each *Dhatu* have two parts such as *Kitta* part and *Prasada* part.

So according Ayurveda classics, we can understand the puberty is a *Vaya Sandhi Kala* of *Balyavstha* (childhood) and *Yuvaavstha* (adulthood). Where the *Prakrita Kapha* (in balanced condition) is predominantly responsible for the maintenance of the *Balyavshtha* till the age of sixteen years and *Prakrita Pitta* denotes *Agni*, which is responsible for proper *Dhatupaka*. When proper *Dhatupaka* (particular morphological, physiological and psychological changes) will take place in body than secondary sexual characters and menarche will be present. Further *Rajaswala* state (real child bearing age) will starts.

Today's precocious puberty is rapidly growing health hazard of pubertal age. It is as early appearance of secondary sexual characteristics before age 8 yrs in girls (or menarche before age 9 yrs) and before 9 yrs in boys. Overall incidence of precocious puberty is estimated to be 1:5,000 to 1:10,000 children. It is more common in girls, female: male ratio ranging from 3:1 to 23:1. Precocious puberty is not described word to word in *Ayurveda* but it is not necessary all the time that a disease should be described by a particular name. *Acharya Charaka* has mentioned that diseases are *Aparisankheya* (uncountable) on the basis of *Sathan*, *Sansthan*, *Samuthan*, *Ruja*, *Varna* etc. in *Sutra sathana* 18/42-45. So one should not be hesitate to consider and treat unnamed disease. The *Ayurvedic* concept about *Doshapradhanya* at various age groups such as *Balavstha* is influenced by *Kapha*, *Rajaswala* is influenced by *Pitta* and *Vridhavstha* is influenced by *Vata*. The concerned responsible factors (*Doshas*) should be at normal state. If any other factors (*Doshas*) have more influence than the concerned factors (*Doshas*), related abnormality will be present there. In Ayurveda classics, word *Aartava* has been used extensively for menstrual blood, ovum and ovarian hormones. In *Ayurveda* classics, the age of first appearance of *Artava* (known as menarche) has been accepted by all the *Acharyas* as twelve years. According to *Acharya Kashyapa*, the age of sixteen years can be considered as the approximate age for conception and this age (*Kala*) can be influenced by specific *Ahara* (dietetics) and *Aarogya* (health). Along with *Kala* some other factors such as *Dhatuparipuranta*, *Karma*, *Svabhava*, *Vayu* etc. are also affects the appearance of *Artava* (menstruation) and *Romeraji* (secondary sexual characters).

- *Kala* is considered as an important factor for *Artava* appearance, it is always present in body in *Sukshma Roopa* but manifests at appropriate age.

- *Dhatuparipuranta* during *Balavashtha*, blood goes in whole body for circulation (due *Aparikavdhatuvstha*) and afterwards due to natural maturity (due to *Vivridhmandhatugnam*) same blood comes back to reproductive organs and is discharged as *Artava*.
- *Acharya Kashyapa* says about *Karma*, as the fruit situated inside the flower, being unaccomplished and minute, cannot be procured and as fire in spite of its presence in all over the wood cannot be obtained without efforts similarly appearance of *Artava* depend upon time and its own karma to manifest itself.
- On this earth everything is manifests in its own way, so *Artava* also manifested as *Svabhavat*.
- According to *Ayurveda* classics, all body functions are expressed under the control of *Vyana Vayu* and all excretory activities under the control of *Apana Vayu*. So *Vyana Vayu* and *Apana Vayu* are mainly responsible for *Artava Utpatti* (production) and *Niskramana* (excretion) from the body.

#### AIMS AND OBJECTIVES

- A. To study aetiopathogenesis of precocious puberty and establish its Ayurveda accordance.
- B. To find out possible Ayurveda approach for prevention and treatment of precocious puberty.

#### MATERIALS AND METHODS

Ayurveda classics, commentaries, modern literature, other recently published books and research journals were thoroughly studied and then an effort was made to understand the precocious puberty.

#### AETIOPATHOGENESIS OF PRECOCIOUS PUBERTY

The important responsible factors for onset of puberty are nutrition, bodyweight, genetic factor, psychological state, social & cultural background and exposure to light & others.<sup>[4]</sup> It is a common observation that the physiological state of a body does not remain uniform throughout the lifespan. As in our classics no specific aetiology is described, so general causative factors for any gynaecological disorders can be considered as –

- *Mithyacharan*: *Mithyaahara* (abnormal diet) and *Mithyavihar* (abnormal life style) both are include. According Ayurveda classics, amla, lavana and katu rasa pradhan diet (excessive use of pizza, burger, bread, cold drinks, spicy, oily and junk foods) responsible

for vitiation of kapha and pitta doshas. *Diwaswapna* and *Ratrijagrana* can be considered in faulty habits of sleep. *Diwaswapna* (sleeping after brahama muhurta) is also responsible for vitiation of kapha and pitta doshas. Excessive presence of *Mansikabhawa* like *Krodha*, *Irshya*, *Dwesh* (competition pressure) can produce stress. All conditions may cause *Kaphapprakopa* with *Pittachaya*.

- **Pradushtaartaven:** The word *Aartva* should be regard for ovarian hormones (estrogen and androgens).
- **Bijadoshat:** Various chromosomal and genetic abnormalities come under this heading.
- **Daivat:** Unknown or idiopathic causes comes under this heading.

Each cause has its own causative process, potential and mode of action. These factors can play a very important role to get the knowledge about this condition and early onset of secondary sexual characteristics and menstruation. The precocious puberty has unclear aetiology but it can be better understand with the help of basic principle “*Vikaro dhatu vaishamyam samyam prakritiruchyate*” that is given by *Acharya Charak*. Thus we can correlate precocious puberty with *Kaphapprakopa* including *Pittachaya*. The precocious puberty have two types, central precocious puberty (GnRH dependent) and peripheral precocious puberty (GnRH independent).<sup>[8]</sup> Central precocious puberty is due to premature activation of hypothalamo-pituitary-ovarian axis (premature release of GnRH, gonadotropins than estrogen and androgens) and peripheral precocious puberty is due to tumours of the ovaries, adrenal glands, pituitary gland and brain (which produces estrogen and androgens). Symptomatically it may be isosexual or heterosexual and in form of premature thelarche, premature pubarche and premature menarche. *Acharya Bhel* has been described, “*Shariraupachayo Buddhiraptyani Balam Tatha, Balasya yasya dusyante tam gataayushamaadishet*” that precocious puberty child, with rapid attainment of puberty, with body growth, just look like adults will die soon (over activity of endocrinal hormones of sex). Possible complications of precocious puberty include: short height and Sexual behaviour problems (developmentally inappropriate sexual acts that typically involve coercion or distress). Some research suggests that individuals having history of precocious puberty have high risk of depression and other mental health problems.

## DIAGNOSIS OF PRECOCIOUS PUBERTY

A meticulous history taking and minute observation during clinical examination is required for proper diagnosis. They might include:

- Physical examination (to evaluate any changes in the body)
- Family history (to find out if early puberty might run in the family)
- Blood tests (to check hormone and sometimes thyroid levels)
- X-rays, usually of the hands and wrist (to detect bone age)
- Ultrasounds of the ovaries (can be helpful in some cases)
- MRIs of the brain (use in some cases, not routinely)

### MANAGEMENT OF PRECOICIOUS PUBERTY

For this in modern system of medicine, central precocious puberty can be treated with GnRH analogue therapy, usually includes a monthly injection of a medication, such as leuprolide (Lupron depot), which delays further development and treatment for peripheral precocious puberty, might be necessary to remove a tumor or cyst (which producing hormones) from the origin site to stop the progress of puberty. Hormone therapy and surgery both are costly and having many side effects. Thus the management of precocious puberty is difficult and challenging task, faced by modern gynaecologists so that holistic approach is demanded. According Ayurveda precocious puberty is a condition of *Kaphaprakopa* with *Pittachaya* and *Aacharya Charak* has described that “*Doshadushyanidananam Vipritamhitam Dhruvam, Uktanuktangadan Sarvan Samyagyuktamniyachchhati*”. Possible management is stipulated with *Nidanaparivarjan*, *Samshodhan* and *Samshaman Chikitsa*.

#### *Nidanaparivarjana*

Eradication of *Nidana* (causative factors) is foremost treatment of any disease. According Ayurveda classics, *Nidana* of precocious puberty can be explained as *Mithyaahara* and *Mithyavihar*. So, *Mithaya Aahara* (faulty dietary habits) should be corrected for prevention and treatment of precocious puberty because excessive intake of *Aahar* can cause increasing rates of childhood overweight and obesity which, alters the level of hormones (insulin, leptin and estrogen) and accelerates early onset of precocious puberty. Several studies have suggested association between higher childhood BMI and precocious puberty in girls. Excessive intake of pizza, burger and cold drinks should be strictly stopped because high protein intake elevates IGF-1 and promotes growth further accelerates onset of puberty and high dairy consumption & soft drink consumption are associated with early menarche. Lower nutrient diets (tend to enter puberty earlier) should be avoided. *Mithaya Vihara* (abnormal life style) should be corrected. Daily practice of *Vyayama* (physical inactivity may decrease melatonin levels which can trigger pubertal development), *Yoga* and *Pranayama* (helps stress

management) will help in delay the early appearance of secondary sexual characteristics and hormonal regulation.

### ***Samshodhana chikitsa***

*Samshodhana* is a cleansing process by which harmful products or waste products thrown outside either by *Urdhwamarga* (by *Vamana Karma*) or *Adhomarga* (by *Virechana Karma*). *Acharya Charak* has described that *Vamana Karma* is the best for elimination of vitiated *Kapha Dosha*. According *Acharya Sharangdhara*, *Vamana Karma* can be done from birth but *Virechana Karma* indicated after age of 16 yrs.

### ***Samshamana chikitsha***

Here *Samshamana* means those measures which are useful for *Dosha Shamana*. According Ayurveda precocious puberty is a condition of *Kaphaprakopa* with *Pittachaya* so we can administer of *Madhura* and *Kashaya Rasa Pradhana Dravyas* like *Madhu*, *Duralabha* etc. (according *Acharya Charak* – *Madhu* and *Duralabha* best for *Kaphapittaprashamanam*)

**Classical Formulations** likes - *Kanchnara Guggulu*, *Aarogyavardhini Vati*.

## **PREVENTION OF PRECOCIOUS PUBERTY THROUGH AYURVEDA**

- Precocious puberty can be better prevented by *Nidanparivarjana Chikitsha* and using basic principles of Ayurveda, such as
- *Dincharya* - follow daily routine regimen (use dinner between 6 to 7 Pm because production of melatonin at 7 to 9 Pm in children's and 7:30 to 9:30 Pm in adults and melatonin is responsible factor for good sleep)
- *Ratrichrya* – helps for correction in sleep disturbances which affects the production of melatonin)
- *Ritucharya* – helps for balance between *doshas*.
- *Aachara Rasayan* and *Sadvritaniyama* - helps for stress management.
- Avoid *Divaswapana* and *Ratrijagrana* which are ultimately stabilize the normal functions of hypothalamo - pituitary - ovarian axis.
- Children's should avoid more contact with bright lights (melatonin secretion more in dim light and it is suppress the GnRH hormone further can delay the onset of puberty).
- Children's diet should rich whole plant foods rather than animal foods and minimum use of dairy products.

- Use of a teaspoon of raw honey before bed for good night's sleep (the sweet liquid will restock the liver with glycogen which needed to prevent the crisis trigger from the brain. Glycogen will accelerate melatonin secretion which put out body to sleep).
- Minimize use of fluoride contaminated water (public water supplies have fluoride in majority, which reduce the level of circulating melatonin and triggers early onset of puberty).
- Children's diet should include wide variety of natural plant foods such as green vegetables, squashes, corn, carrots, onions, tomatoes, mushrooms, nuts, seeds, beans, avocados, fruits and whole grains.
- Minimize children's exposure to BPA and phthalates (avoid use of polycarbonate plastics, do not microwave in plastic containers and avoid use of canned foods & canned infant formulas).
- Children's should encourage for exercise (body fat produce more insulin, leptin and estrogen hormones).

## CONCLUSION

Better senseful knowledge about any disease enables physician to treat it more proficiently. So, it is good idea to wind up this article with such understanding of precocious puberty in Ayurveda pretext. Precocious puberty not explained word to word in *Ayurveda* classics but unnamed disease should be understood by their *Dosha* and *Dushya* and treatment should be planned accordingly. All the abnormalities associated with precocious puberty can be seen in different pathological conditions of *Doshas*, *Dushya*, and *Agni*. Expanded meanings of *Kapha dhatu*, *Pitta dhatu*, *Dhatupaka*, *Rasadhatu*, *Stanya* and *Aartava* help to elaborate precocious puberty symptomatology in Ayurveda context and plan its line of treatment.

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