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## Precocious puberty: An emerging concern and exploring homoeopathic perspective

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### Abstract

Precocious puberty denotes the early initiation of puberty and the emergence of secondary sexual characteristics in children. This leads to lot of concern among parents and children. Diagnosing this condition presents significant challenges due to wide range of potential causes, including benign variations and more serious conditions like malignancies. This discussion aims to emphasize the importance of early detection, assessment, treatment and management of precocious puberty, underscoring role of Homoeopathic medicine for comprehensive management to prevent potential complications.

**Keywords:** Gonadotropin hormone, growth, homoeopathy, precocious puberty

### Introduction

Puberty marks the period in one's life when secondary sexual traits develop and reach maturity, and the ability for reproduction is achieved. The onset of puberty is associated with a rise in the frequency and intensity of GnRH pulses, which precedes the increase in LH and FSH levels. Puberty, a phase marked by both physical and psychosocial growth, with the onset and progression influenced significantly by a combination of genetic, environmental, and nutritional factors. Precocious puberty known as early onset of puberty and secondary sexual characters.

### Physiology of puberty

Puberty is the result of the initiation and development of the hypothalamic-pituitary-gonadal axis. During early childhood up to 8 to 9 years of age the HPG axis remains dormant, which is known by the undetected levels of luteinizing hormone (LH) and sex hormones. Pulsatile secretion of Gonadotropin releasing hormone (GnRH) from the Hypothalamus is needed for enlargement and maturation of the gonads and production of follicle stimulating hormone (FSH) and LH from anterior pituitary gland.

FSH and LH trigger the onset of spermatogenesis and testosterone release in males, while in females, they stimulate oogenesis and the secretion of estradiol, respectively. In girls, onset of Puberty commences around 10 years (range 8-12 years). Thelarche, the development of breast occurs first followed by pubarche, the development of pubic hair and menarche. In boys, initial indications of puberty manifest as the enlargement of the testes and a reduction in scrotal thickness followed by the darkening of the scrotum, penis growth, and the onset of pubic hair development known as pubarche.

### Assessment of puberty

Evaluation of pubertal development typically employs Tanner's stages, referred to as Sexual Maturity Ratings (SMR). Tanner stage 1 indicates a prepubertal state, while Tanner stage 5 represents full adult maturity. For boys, this assessment includes the examination of penis and testis development and growth of pubic hair. In girls, breast development and pubic hair growth are assessed.

### Definition

Precocious puberty can be attributed to either stimulation of hypothalamic-pituitary axis (known as gonadotropin-dependent precocious puberty) or independent production of sex hormones (referred to as gonadotropin-independent). Precocious puberty is characterized by emergence of secondary sexual traits before 8 years in females and 9 in males.

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**Classified as**

- Central / true / gonadotropin dependent
- Peripheral / gonadotropin independent / precocious pseudo puberty.

**Central precocious puberty (CPP)**

Represents True pubertal development and is known by breast development before age 8 in females and testicular development before 9 years in males. This occurs because of early activation and maturation of HPG axis. The primary reason behind this condition in females is typically idiopathic, while in males, it almost always involves an underlying abnormality. In India, TB meningitis is the important cause of neurogenic CPP. Causes include:

- Idiopathic
- CNS tumors – Hamartoma, optic glioma, craniopharyngioma, pituitary adenoma.
- CNS injury- head trauma, cerebral palsy, cranial irradiation
- CNS infections – Neurotuberculosis, meningitis
- Genetics – Loss of function mutation encoding the MRF3 gene, a gain of function mutation encoding the kisspeptin (KISS1) and its receptor (KISSR) genes
- Syndromes – Neurofibromatosis type 1, Tuberous sclerosis, Sturge Weber syndrome
- Familial precocious puberty.

**Peripheral precocious puberty (PPP)**

Premature development of secondary sexual characteristics not dependent on pulsatile secretion of GnRH, defines PPP. Occurs because of adrenal or gonadal causes. Common in boys compared to girls. Causes include:

- **Autonomous gonadal activation:** Ovarian cysts, McCune-Albright syndrome, Familial male limited precocious puberty (testotoxicosis)
- **Tumors of the ovary or testis:** Granulosa cell tumors, androgen-producing ovarian tumors, Testicular Leydig cell tumors, hCG producing tumors.
- **Adrenal disorders:** Congenital adrenal hyperplasia, tumor
- Exogenous sex steroids exposure
- Untreated primary hypothyroidism

**Epidemiology**

CPP is more prevalent among females compared to Males. Early thelarche is linked to childhood obesity, intrauterine growth retardation, as well as parental obesity and diabetes. Children who have undergone cranial radiation therapy for malignancies face elevated risk of developing CPP.

**Clinical features**

The initial signs consist of breast development in females and an increase in testicular volume (greater than 4 ml) in males. Additional signs and symptoms encompass heightened linear growth, acne, alterations in muscle development, changes in body odor, as well as the growth of pubic and axillary hair. Rapid acceleration in height, weight, and height velocity is seen. This leads to premature closure of the epiphyses, potentially impacting final adult height. Emotional behaviour and mood swings are frequently observed.

**Evaluation**

Initially detailed history regarding the age of onset, pubertal

progression and family history about onset of puberty in parents and siblings should be taken. Should enquire about the neurological symptoms. And investigate for any related history of head injuries, brain infections, or the usage of unconventional creams, pills, or dietary habits that could potentially expose individuals to oestrogen or testosterone. Another important feature to evaluate is linear growth acceleration.

**Complication**

Precocious puberty typically results in a reduced height potential and can also trigger notable emotional and behavioural challenges. They have a increased chance of participating in risky behaviours such as substance misuse, conduct problems, social seclusion, absenteeism, and engaging in multiple sexual relationships. Additionally, they frequently experience heightened peer pressure and struggle with concerns related to their self-image.

**Homoeopathic management**

In terms of therapeutic options, numerous remedies exist for treating central precocious puberty, and the choice among them is made by considering the cause of the condition, the sensations experienced, and the specific modalities of the complaints. Some medicines with their indication to prescribing are:

**Rubrics related to****1. Kent's repertory of homoeopathic material medica**

GENITALIA FEMALE, Menses, before the proper age – Ambr., ANT-C., Bell., CALC-p., Canth., CAUST., CHAM., Chin., Coc-c., Cocc., Ferr., Hyos., Ip., Kali-c., Lyc., Merc., Nit-ac., PHOS., PULS., RHUS-t., SABIN., Sec., SIL., Sulph.

**2. Boger boenninghausen's characteristics and repertory:**

Menstruation, premature, in adolescence: Calc-c., Calc-p., Carb-v., Chin., Cocl, Sabi, Sil, Ver.a.

**3. Homoeopathic medical repertory by robin murphy**

PRECOCITY, children - Asar, Aur, Aur-m-n, Bell., Calc., Calc-f, Calc-p, Carc, Cina, Crot-h., Hyos., Ign, Iod, LACH., Lyc., Lyss, MED, Merc., Nat-m., Nux-v., Parot., Petr., Phos, Plat., Puls, Sep, Sil, Stroph, Sulph., Syph., Tub., Verat.

**4. Boericke's homoeopathic material medical with repertory**

MENSTRUATION- TYPE- Before the proper age – Calc-c., Calc- p., Carbo-v., Cinch., Cocc., Sab., Sil., Ver-a.

**5. A concise repertory of homoeopathic medicines**

MENSES, Puberty, before: Calc., Cina, Sabin, Sil.

**6. Synthesis repertory**

Female genitalia/sex, Menses, appear, proper age; before the – Ambr, Bell., Calc, Calc-p, Canth, Carb-v, Caust., Cham., Chin., Cina., Coc-c., Cocc., Ferr., Goss., Hyos., Ip., Kali-c., Kali-p., Lyc., Merc., Nit-ac., Phos., Puls., Rhus-t., Sabin., Sec., Sil., Sulph., Verat.

**7. Complete repertory**

Female Genitalia, Menses: Age, before the proper – Aloe, Ambr., ANT-C., Bac., Bell., CALC, CALC-P, Canth, Carb-

v., CAUST., CHAM., Chin., CINA., Cocc., Croc., FERR., Ferr-p., Goss., Hyos., Ip., Kali-c., Lach., Lyc., Merc., MURX., Nit-ac., Nux-v., Phos., Puls., Rhus-t., SABIN., SEC., SEP., SIL., Stram., SULPH., Verat.

### 8. Minton homoeopathic uterine therapeutic

Menstruation, Before the proper age – Amb, *Ant.c.*, Bell., *Calc.c*, *Calc.ph*, Canth, Carbo.v, *Cham*, Chin, Coc., Crocus, Ferr, Hyos., Ipec., Kali.c., Lyc., Merc., Nit. ac., *phos*, *Puls*, Rhus, *Sabina.*, Secale., *Sil.*, Sulph.

### Theurapeutics

- 1. Calcarea Phosphorica:** Menstruation starts early, is profuse and has a bright color. When it is delayed, the blood appears dark at first, then bright, accompanied by intense backache. Nymphomania with aching, pressing sensations or weakness in the uterine area. Leucorrhoea resembles the white of an egg. Symptoms worsen in the morning.
- 2. Calcarea Carb:** Subsequent amenorrhoea and chlorosis with menses scanty or suppressed. Menstruation starts too early and is excessively prolonged. The slightest mental excitement triggers a profuse return of menstrual flow. There is swelling and tenderness in the breasts before the onset of menstruation.
- 3. Sabina:** Menses profuse, bright. Uterine pains extend to thighs. Retained placenta, intense after pains. Discharge of blood between periods, associated with sexual excitement. Pain from sacrum to pubis and from below upwards shooting up vagina. Hemorrhage, partly clotted, worse from least motion.
- 4. Silicea Terra:** Discharge of blood occurs between menses. Menses is profuse with paroxysms of icy coldness throughout the body. There is discharge of blood from vagina each time the child is nursed.
- 5. Chamomilla:** Uterine hemorrhages. Spasmodic labor pains that press upwards. Patient is intolerant to pain. There is a profuse discharge of clotted, dark blood along with labor like pains. Nipples are inflamed and sensitive to touch.
- 6. Pulsatilla:** All complaints manifest during the period of puberty. Ailments on and from pubertal age. 'Has never been well since that time.' First menstruation is delayed. Menstruation is late and scanty, or suppressed particularly by feet wet. The menstrual flow is thick and varies in character. Blood flow starts, stops, and then starts again. It is an intermittent flow, sometimes mixed with clots or with a coagulable fluid.
- 7. Sepia:** Never well since puberty. Amenorrhoea. Menses late and scanty, irregular, early and profuse, sharp pains. Gripping, burning or sticking in uterus. Violent stitching pains shoot upward from the uterus to the umbilicus. Amenorrhoea at the age of puberty or later.
- 8. Lycopodium:** Menses suppressed. From fright - delay of first menses. Menses profuse, protracted; flow partly black and clotted, partly bright red or partly serum with labor-like pains, followed by swooning. Before menses, sad, chilly, abdomen bloated. Physometra; wind discharged from vagina.

### Conclusion

Precocious puberty is been a concern due to a variety of factors, including genetics, shifts in lifestyle and exposure to

chemicals that disrupts the endocrine system. The Homoeopathic system of medicine has a multidimensional approach by addressing each individual's unique characteristic, enabling us to restore a state of equilibrium considering physical, mental and emotional wellbeing. This approach aligns with WHO definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Homoeopathy relies on principle of individualization and holistic approach to remedy selection. This approach is crucial for achieving a state of overall well-being by alleviating all the signs and symptoms experienced by the patient. Homeopathy's objective is not solely to alleviate the symptoms of central precocious puberty but to delve into its root cause and the unique susceptibilities of each individual. Thus, assists in removing the negative consequences of early puberty and enhances health. Additional research is required to assess the Homoeopathic Medicine's efficacy in treating precocious puberty.

### Conflict of Interest

Not available

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