

PRECOCIOUS PUBERTY

(A radiological appraisal)

by

N. SEHGAL,* M.B.,B.S., D.G.O., S. P. GANGULI,** M.B.,B.S., D.M.R.

and

V. N. SEHGAL,*** M.D.

Precocious puberty is defined as simple premature puberty. The patients have a short childhood or skip childhood entirely and go on from infancy to puberty (Herbut, 1953). There are several varieties of precocious puberty, but the constitutional variety is the commonest of all. Several reports on the subject have appeared in the literature, but an excellent review of the same has been brought out by Steiner and Hadawi (1964).

The present communication records a case in a child who started menstruating at the age of 9 months, highlighting the radiological features.

Case Report

R. D., four years old female, reported to the Municipal Corporation Maternity and Child Welfare Centre, Varanasi, with cyclic regular bleeding per vaginam since the age of 9 months and gradual enlargement of the breasts immediately afterwards. The mother had an uneventful normal delivery and the baby cried and breathed well at the

*Maternity & Child Welfare Centre, Beniabag, Varanasi, India.

**Dept. of Radiology, College of Medical Science, B. H. U. Varanasi, India.

***Section of Dermatology, J. N. Medical College, Aligarh Muslim University, Aligarh, India.

Received for publication on 2-7-1968.

time of birth. Her neonatal period was usual. Her infancy has been free from infection, acute fever or cerebral injury. The mother of the child first noticed the bleeding from vagina when the child was about 9 months old. The menstrual cycle since then has been regular lasting for three to four days at the interval of 28 to 30 days, the flow being normal. A few months later, the parents observed that the child was growing rapidly and putting on weight with the gradual development of the breasts. In the course of three years, the breasts acquired the size of a girl at puberty. There was no history of diabetes in the family.

On examination, the weight of the child was found to be 20 Kg. while the height was 114 cms. In general she was large for her stated age, well nourished, well advanced in her sexual development. The head was normocephalic, the breasts were enlarged and of adult contour and size, with slightly pigmented areoli (Fig. 1). No other abnormality was detected on neurological examination. The examination of the abdomen did not show any mass or an area of tenderness. Inspection of the region of pelvis revealed fine hair on mons pubis. The labia majora were well developed, fleshy and slightly pigmented. The clitoris was well developed to the size of puberty (Fig. 2). Bimanual rectal examination suggested uterus enlarged to the size of a girl at puberty. No mass incorporated with uterus or adnexae could be palpated.

Investigation: The blood, urine and stool examinations were found to be normal, so also were serum electrolytes ($\text{Na} = 140.0$ meq/lit., $\text{K} = 5.25$ meq/lit.). The urinary excretion of 17-ketosteroids and gonadotrophins were also normal.

Radiological examination

Pelvis: The lesser trochanter of both the femora has just appeared. The 'Y' shaped cartilage is still separate and not united (Fig. 3).

Ulna: The epiphysis at the upper end has appeared (Fig. 4).

Radius: The epiphysis of the head of radius has appeared (Fig. 4).

Lower end of humerus: The epiphysis of external epicondyle has just appeared but the capitalum and trochlea do not show any sign of union (Fig. 4).

Wrist: The appearance of the pisciform bone appears significant (Fig. 5).

Lower jaw: The first permanent molar has not yet completely erupted but on the verge of eruption (Fig. 6).

Skull: Skiagram of the skull was normal.

Exfoliative cytology: The vaginal smear showed predominantly superficial squamous cells mostly with acidophilic cytoplasm. Some transitional cells were seen. Basal cells, both inner and outer, are sparse. The picture is indicative of **adult-type ovarian** hormonal activity with marked oestrogenic excess.

Discussion

The interesting feature in the present case was the onset of precocious puberty at the age of nine months which to the best of our knowledge is the youngest case reported in the literature with a constitutional background. Novak (1944) reported nine cases, the youngest being fifteen months, in the constitutional variety. Steiner and Hadawi (1964) and Hain (1947) reported two cases at the age of seven weeks and twelve weeks respectively. These patients, however, revealed some associated pathology in the ovaries.

Laboratory investigations like excretion of 17-ketosteroids were normal, unlike the one reported by Lawery and Brown (1950).

Other interesting features were the radiological findings. Though the declared age of the patient was only four years and the unerupted first molar on either side supports the child's age below six years, yet the appearance of a secondary epicondyle of the lower end of the humerus, the olecranon process of ulna, the appearance and ossification of pisciform bone suggest the skeletal age to be around 10-13 years. The appearance of secondary epiphysis amongst Indians is on an average two years earlier as compared to foreign counterparts but, even then, the skeletal age could be about 11 years. Pneumoperitoniogram could not be done as the patient did not report for the same. No operative procedure could be possible either.

Summary

A case of precocious puberty in a child aged four years who started menstruating at the age of nine months is recorded, highlighting the radiological features. This patient seems to be the youngest described so far, having a constitutional background.

References

1. Hain, A. M.: *J. Clin. Endocr.* 7: 171, 1947.
2. Herbut, P. A.: *Gynaecological & Obstetrical Pathology*, ed. 1. Philadelphia, 1953, Lea and Febiger, p. 441.
3. Lowrey, G. H. and Brown, T. G.: *J. Pediat.* 38: 325, 1951.
4. Novak, E.: *Am. J. Obst. & Gynec.* 47: 20, 1944.
5. Steiner, M. M. and Hadawi, S. A.: *A. M. A. Dis. Child.* 108: 28, 1944.