Short Stature

A 14 year 10 month old boy presented with failure to gain height from the age of 10 years. His was a full term breech delivery. His developmental milestones were normal.

On examination, his weight was 27 kg, height: 126 cm, Height SD Score < minus 3 SD, upper segment: 61 cm, lower segment: 65 cm, arm span: 126 cm, head circumference: 50 cm. Blood pressure was 100/80 mmHg. Genital staging was as follows:- pubic hair of Tanner’s stage 1, testicular volume of 1.5 ml bilaterally and stretched penile length of 5 cm. Systemic examination was normal. Investigations revealed a normal hemogram, electrolytes, renal function and liver functions. Hormonal analysis revealed evidence of panhypopituitarism: total thyroxine: 4.2 ug% (5-12 ug%), free thyroxine concentration: 0.55 ng% (0.8-2 ng%), TSH: 0.41µIU/ml (0.5-4.5 uIU/ml), 8 AM serum cortisol: 3.3µg% (7-25 ug%), FSH: 0.28 mIU/ml (1.7-11mIU/ml), LH: 0.07 (0.5-10 mIU/ml) and testosterone: < 0.2 ng/ml

Insulin hypoglycemic stress test revealed a peak value of growth hormone <0.5 ng/ml. Bone age corresponded to a chronological age of 10 years. T-1 weighted MRI images of brain (Figs. A and B) revealed the anterior pituitary gland and optic chiasm (thick and thin white arrow heads, respectively in Fig. A), the normal bright spot in the posterior sella, which represents the posterior pituitary gland, was not visualised, instead the bright spot was present at an ectopic site i.e., tubercinerium (thick black arrow heads in Figs. A and B).

A diagnosis of congenital panhypopituitarism was made. Congenital hypopituitarism is a cause for short stature of emerging importance. It may present with isolated growth hormone deficiency or multiple pituitary hormone deficiencies as in this patient. MRI imaging may show an ectopic posterior pituitary with or without a small anterior pituitary gland. This radiographic appearance has generally been considered as secondary to pituitary stalk transection during breech delivery; however, more recent evidence supports the hypothesis of a congenital defect - possibly related to the Pit-1 gene in the majority of cases.1


N Rao, N Thomas
Dept of Endocrinology, Christian Medical College Hospital, Vellore- 632004, India.