

## Peripheral precocious puberty due to an androgen-secreting lipid-poor adrenal adenoma in a 4-year-old boy: A rare case report

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### Abstract

**Background:** Peripheral precocious puberty in boys is uncommon and may result from autonomous adrenal androgen production. Androgen-secreting adrenal adenomas are particularly rare, and their presentation in early childhood can pose a diagnostic challenge.

**Case summary:** A 4-year-old boy presented with clinical features suggestive of precocious puberty. Biochemical evaluation demonstrated marked androgen excess, with serum testosterone of 314.32 ng/dL. Serum DHEA-S was markedly elevated at 307.30 µg/dL. In contrast, serum LH and FSH were low at 0.3 and 0.6 mIU/mL, respectively, supporting gonadotropin-independent peripheral precocious puberty. Serum 17-hydroxyprogesterone was elevated at 5.76 ng/mL, initially raising consideration of congenital adrenal hyperplasia. Thyroid function and random glucose were normal. Computed tomography revealed a well-defined 3.4 × 2.6 × 3.3 cm left adrenal mass with an unenhanced attenuation of 44 Hounsfield units, portal venous attenuation of 79 HU, and 15-minute delayed attenuation of 57 HU. The calculated absolute washout was 63%, with areas of necrosis and loss of the fat plane between the lesion and the upper pole of the left kidney. The contralateral adrenal gland was normal. The clinicoradiological findings were considered consistent with an androgen-secreting lipid-poor adrenal adenoma.

**Conclusion:** Androgen-secreting adrenal adenoma is a rare cause of peripheral precocious puberty in boys. Markedly elevated adrenal androgens with suppressed gonadotropins should prompt evaluation for an autonomous adrenal source. This case highlights the importance of integrating endocrine biochemical assessment with adrenal imaging when evaluating precocious puberty in young boys. [*J Assoc Clin Endocrinol Diabetol Bangladesh, 2026;5(Suppl 1): S72*]

**Keywords:** Peripheral precocious puberty, Adrenal adenoma, Androgen-secreting tumor, Lipid-poor adenoma, DHEA-S, Testosterone, Childhood.

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