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The Masked Menace: Adrenal Tumor Unveiled Through Precocious Puberty And Virilization

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INTRODUCTION

Adrenal glands play a crucial role in producing hormones that regulate various bodily functions, including blood pressure, stress response and other body metabolic functions. Adrenal tumors are abnormal growths, located on top of each kidney. Adrenal tumors can be benign (non-cancerous) or malignant (cancerous) and can affect hormone production, leading to a range of symptoms depending on the type of tumor and its function. Adrenocortical carcinoma (ACC) is an aggressive childhood cancer.[1] Adrenocortical tumors are rare in childhood with an incidence of 0.3 to 0.5 cases per 1 million child – years,[2] comprising less than 0.2% of all pediatric neoplasms.[3] They most commonly occur in children younger than 6 years and more frequently in girls. The overall female-to-male ratio is 1.6:1, although it varies widely among age groups. [4] We present a rare case of an Adrenal tumor presented with virilization at our center.

CASE HISTORY

A 3 Years old female child came with complaints of excessive height and weight gain, associated with hyperpigmentation of skin, new onset hoarseness of voice, development of pubic hair (Image B), and hair growth over the body (Image A) for the past 2 months. The child also exhibited behavioral abnormalities, such as anger outbursts. Birth history and developmental milestones were normal for her age. On examination, the child had hypertrichosis over the face, chest, back, pubic area (Image B), and both upper and lower limbs, with hyperpigmentation (Image A & C). There was excessive acne over the face (Image C) and back. The child had clitoromegaly with a phallic length being 1.8 x 1.5cm. Blood pressure was >95th centile (120/76 mm Hg). Systemic examination was normal and no abdominal mass was palpated. Ultrasound of the abdomen revealed a well-defined bilobed, heterogeneous, hypoechoic lesion measuring 5 x 4.2 x 4.5 cm in the right suprarenal region with

cystic changes. Routine and hormonal investigations were normal except for elevated serum testosterone and serum DHEA-S levels (Table 1). PET – CT scan revealed FDG - avid Right suprarenal soft tissue mass measuring 5.1 x 4.1 x 3.5 cm with no locoregional adenopathy or distant metastasis (Image D). The child is being managed with a multidisciplinary approach and is planned for adrenalectomy, followed by adjuvant treatment based on histopathology.

TABLE 1

INVESTIGATIONS	21/06/2024	INVESTIGATIONS	21/06/2024
HEMOGLOBIN	12.2 gm/dl	**S. CALCIUM/ S. PHOSPHORUS (mg/dl)**	8.9/4.2
WBC	10200 per cu.mm	**S. ELECTROLYTES (Na/K) (mEq/L)**	136/4.1
P/L/M/B/E	69/27/01/00/03 (%)	**S. FSH**	<0.3 mIU/ml
PLATELETS	306000 per cu.mm	**S. LH**	<0.07 mIU/ml
FASTING BLOOD SUGAR	74 mg/dl	**SERUM T3/T4**	67.74 ng/ml/ 5.4 mcg/ml
SGOT/PT	32/16 U/L	**TSH**	1.91 mcIU/ml
ALKALINE PHOSPHATASE	307 U/L	**S. CORTISOL (8PM)**	19.8 mcg(4.3-22)
TOTAL PROTEIN	6.5 gm/dl	**S. TESTOSTERONE**	**407.28 ng/dL (7.21-79.31)**
ALBUMIN/GLOBULIN (gm/dl)	3.9/2.6 (1.5)	**HbA1C**	5.8%
S. CREATININE	0.85 mg/dl	**S. DHEA**	**3246 mcg/dl (145-395)**
S. URIC ACID	4.1 mg/dl	**S. PROGESTERONE**	0.6 ng/ml

IMAGES

(A) (B) (C)

(D)

DISCUSSION & CONCLUSION

Given its rarity and the complexity of diagnosis, adrenal tumors should be considered in the differential diagnosis of hypertension in young children. Treatment requires a multimodal approach involving a pediatrician, pediatric oncologist, and pediatric surgeon. Clinical, blood investigation and radiological parameters are all necessary to establish the diagnosis. Adrenocortical tumors are treated by total excision, which is generally satisfactory and without complications. The most critical aspect of therapy for adrenocortical tumors is early diagnosis, and total excision remains the treatment of choice.[5][6]

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