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Adrenal

ADRENAL CASE REPORTS

A Huge Adrenal Incidentaloma With Suspicious Features and a Complete Cure!

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Introduction: Adrenal hemangioma is an extremely rare benign vascular tumor occurring in adrenal glands (~0.01%). Its clinical presentation is usually vague and is frequently discovered as an incidentaloma. These tumors are mostly encountered at 40–70 years of age and are twice as common in women. We report a case of a nonfunctioning large adrenal incidentaloma with suspicious features on imaging. This in fact was an adrenal hemangioma diagnosed postoperatively with histopathology. **Case Description**: Our patient was 76 year old Hispanic male, active smoker, with medical history significant for well controlled Type 2 diabetes, hyperlipidemia and hypertension. He was seen for evaluation and management of an adrenal incidentaloma discovered on iv contrast enhanced CT performed to investigate recurrent hematuria. Imaging of the abdomen and pelvis revealed a posterior bladder mass measuring up to 2.6 cm and 20.1 cm x 17.1 cm x 20.5 cm left adrenal mass with few punctuate calcifications displacing the left kidney and spleen- findings concerning for adrenal cortical carcinoma. The right adrenal gland unremarkable. Given the size of mass and suspicious features hormonal workup was initiated in preparation for surgery. Workup was unremarkable for Pheochromocytoma {24 hour urine metanephrine 124 (nl: 0–300), normetanephrine 440 (nl: 0–400)}, Cushing syndrome {(negative 1 mg overnight dexamethasone suppression test), ACTH 22 (nl: 7—63)} and hyperaldosteronism (Aldosterone 5, renin 0.7). Patient underwent an uncomplicated total radical left adrenalectomy, he had no evidence of invasive disease. Pathology showed a large entirely encapsulated heterogenous adrenal mass weighing 2300 grams with largely solid (80%) and cystic components. There was hemorrhage and extensive infarcts-findings consistent with a Hemangioma. He recovered well. No evidence of adrenal insufficiency was noted on subsequent follow-ups. He had a normal surveillance CT scan at 6 months. **Discussion:** Adrenal hemangiomas are difficult to differentiate clinically and radiographically from adrenal cortical cancer. They must be evaluated to exclude hormonal hypersecretion and malignancy. Previous case reports hypothesized that adrenal hemangiomas may have functional hypersecretion due to mass effect on the adrenal parenchyma. There was no evidence of this in our patient. These tumors increase in size overtime. Surgical resection is often necessary to rule out any malignant potential and alleviate symptoms secondary to mass effect. Adrenal hemangiomas though rare and must be considered in the differential diagnosis.

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A Multifocal Paraganglioma in an African Male Due to an Underlying SDHB Mutation

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Pheochromocytomas and paragangliomas (PPGL) are rare neuroendocrine tumors arising from adrenal and extra-adrenal paraganglia. Up to forty percent are due to an underlying germline mutation. Mutations in the subunit B gene of the SDH complex (SDHB) are associated with PGL syndrome four. A 34-yr-old African man from Southern Africa presented with a two-year history of sustained hypertension associated with the classic triad of sweating, headaches and palpitations. Family history was contributory towards early unexpected deaths of his father (age 42) and two younger brothers (ages 13 and 14 respectively). On examination his blood pressure was persistently elevated measuring 146/87mmHg. In view of the classic presenting symptoms and hypertension onset at a young age, a PPGL was suspected. Biochemical investigations were positive with an elevated 24-hour urine normetanephrine level of 35807 (480-2424nmol/24hours), normal metanephrine level of 689 (264-1729nmol/24hours), an elevated normetanephrine:creatinine ratio of 3270 (28-158nmol/mmol creatinine) and an elevated methoxytyramine level 4941.69nmol/24 hours (<800nmol/24 hours). Computed tomography of the abdomen and neck revealed a homogenous soft tissue mass measuring 5.9cm x 3.6cm x 6.6cm anterior to the right kidney and separate from the right adrenal gland and a carotid body tumor measuring 3.6cm x 2.9cm x 4.1cm. Both were radio-avid on a [^{68}Gallium]-DOTATATE-Positron Emission Tomography (PET)-CT. There were no features to suggest metastatic disease. Genetic testing is not available in South Africa; therefore, testing was done at an international laboratory. This revealed a pathological SDHB mutation variant, c.724C>A p.(Arg242Ser) and hence PGL4 syndrome. The patient underwent staged surgery with successful removal of the intra-abdominal tumor. Unfortunately, due to peri-operative complications associated with the second surgery, the patient demised. Histopathological examination of both tumors was consistent with a paraganglioma. Genetic counselling and testing were offered to all living first-degree relatives. His sister tested positive for the same pathological variant. His 6-week-old son will be offered counselling and testing at a later stage. To the best of our knowledge, we are the first to describe the missense SDHB mutation (pathogenic variant c.724C>A p.[Arg242Ser]) and the occurrence of an SDHB associated PGL in a family of African ethnicity. This case highlights the importance of genetic counselling and testing in patients with a confirmed PPGL. Due to

resource limitation the African population remains under represented in genetic studies which limits the utility of precision medicine in this group. As such, our case is an important addition to the body of knowledge in this growing field and highlights the need for cost effective genetic screening tools in low resourced settings.

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ADRENAL CASE REPORTS

A Rare Case of Pseudohypoaldosteronism Type II or Gordon Syndrome

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Introduction: Pseudohypoaldosteronism type II (PHA II) or Gordon Syndrome is a rare, autosomally inherited disease with unknown prevalence. It is caused by mutations in the WNK1, WNK4, CUL3, or KLHL3 gene. It is characterized by hypertension, hyperkalemia, hyperchloremic metabolic acidosis and low plasma aldosterone levels, but otherwise normal kidney function. The age of onset of PHA2 is variable, ranging from infancy or childhood to adolescence and adultdood. The electrolyte and blood pressure abnormalities of PHA II is often managed with salt restriction and hydrochlorthiazide (HCTZ). Here we report a rare case of Pseudohypoaldosteronism type II in an adolescent patient.
Case Presentation: A 16-yo female with past medical history of asthma and anemia presented to the emergency department with acute severe abdominal/suprapubic pain, associated with diaphoresis, non bloody diarrhea and non bilious non bloody vomiting. The patient also reported daily headaches relieved with Tylenol. In the ED, she was found to be hypertensive at 190/118 mmHg. Blood count showed mild anemia but normal white count and platelets. Comprehensive metabolic panel showed sodium 140, potassium 6.6, chloride 115, bicarbonate 16, creatinine 0.5, and normal liver enzymes. Urine electrolytes were as follows: sodium 189, potassium 20.8 and chloride 140. Arterial Blood Gas ahowed pH of 7.32. Plasma renin activity was low normal at 0.34 and aldosterone level was 2. CT scan of abdomen and pelvis was unremarkable. The blood work was consistent with pseudohypoaldosteronism type II or Gordon syndrome. The patient was adopted so there was no family history. She was started on hydrochlorothiazide. Later, she developed severe itching reaction with hydrochlorthiazide. She is currently being treated with Indapamide, with well controlled blood pressure and normal electrolytes.
Conclusion: Pseudohypoaldosteronism type II or Gordon's Syndrome is a rare disease, with usually autosomal dominant inheritance, with no specific diagnostic criteria for diagnosis. It should be suspected in adolescent or adult patients with hyperkalemia with normal glomerular filtartion, accompanied by hypertension (can be absent), metabolic acidosis, hyperchloremia, decreased plasma renin, relatively suppressed aldosteronism and family history of similar findings.

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ADRENAL CASE REPORTS

A Rare Case of Resistant Pigmentation

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Introduction: Familial glucocorticoid deficiency (FGD) is characterised by ACTH resistance & isolated glucocorticoid deficiency, with typical biochemical findings of low serum cortisol & high plasma ACTH. Patients present with hyperpigmentation (due to stimulation of MC1R by POMC products) & hypoglycemia. Clinical presentation includes failure to thrive & susceptibility to infections.
Case Report: A 14 year old girl presented to us with generalised hyperpigmentation of the skin and oral mucosa- it started when she was 4 years of age. There was history of recurrent respiratory infections around the same time the hyperpigmentation appeared - the patient required multiple hospitalisations for the same (she was admitted 3 times in 6 months). Her random serum cortisol was measured – it came out to be 8.27nmol/L. Her serum Na+ was 140 mEq/L & K+ was 3.5 mEq/L. She was also diagnosed with subclinical hypothyroidism at that time (TSH- 7.3 mIU/L, anti TPO antibodies positive). There was no history of alacrimia or achalasia. Her 17-OHP was 2.20 nmol/L. A probable diagnosis of autoimmune polyendocrine syndrome was made & oral hydrocortisone (@ 12 mg/m^2) & levothyroxine (@25 mcg) was started. The patient was compliant with the treatment, but the mother complained that her hyperpigmentation improved only by 20–30 % despite continued treatment. There was no history of salt wasting crises or hospitalisations after the initiation of treatment. Her serum ACTH values were checked 2 times (2011 & 2015) and were > 2000 pg/ml on both the occasions. The hydrocortisone dose was increased to 20mg/m^2 for 1 year in between, without any improvement in hyperpigmentation. Patient presented to us with persistent hyperpigmentation in 2019. She was a product of consanguineous marriage. Non-compliance was ruled out. She had attained menarche at the age of 12 years. There was history of delayed pubarche (started @ age of 13 years) & axillary hair was absent. Again, her serum ACTH was > 2000 pg/ml and electrolytes and BP were normal. In view of normal electrolytes with low cortisol at the time of diagnosis & persistent hyperpigmentation even on supraphysiological doses of hydrocortisone, Familial Glucocorticoid Deficiency was considered. Genetic analysis showed mutation in Thioredoxin Reductase (TXNRD2) Gene. This gene mutation has recently been reported in FGD. (Prasad R et al, JCEM Aug 2014.)
Conclusion: In cases of primary adrenal insufficiency with normal electrolytes & resistant hyperpigmentation, familial glucocorticoid deficiency should be thought of. Treatment with standard glucocorticoid therapy should be given. Serum ACTH values should not be chased. The hyperpigmentation may not resolve completely. TXNRD2 deficiency leads to impaired redox homeostasis, highlights the important redox pathway in addition to defective ACTH signaling, giving us new insights in regard to steroidogenesis.