Nothing to Disclose

A conservative approach to the management of endocrine neoplasia in Carney Complex in an adolescent male

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Background

Carney complex (CC) is a rare, dominantly inherited condition due to mutations of the tumour suppressor gene PRKAR1A. Endocrine manifestations include: Cushing's syndrome (CS) due to primary pigmented nodular adrenocorticol disease, pituitary adenomas, testicular neoplasms, thyroid tumours and ovarian cysts. The management of some of these tumours is controversial.

Case Presentation

The male patient presented age 7yrs with a painful tibial lesion (Fig. 1). This is thought to be an osteomyxoma.

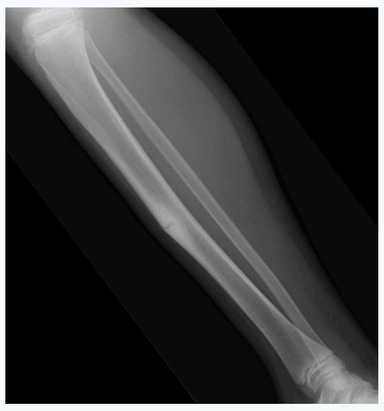


Figure 1: tibial lesion, thought to be an osteochondromyxoma

Age 10yrs a myxoma was excised from his neck. Genetic testing demonstrated a mutation of the PRKAR1A gene (frameshift mutation c.18delC.). The same mutation was identified in his mother, who was found to have multiple fibroadenomas, ovarian cysts and a cardiac myxoma. The maternal grandfather and two great uncles are thought to of been affected with a history of cardiac myxoma.

At referral age 12.5yrs height was 1.29 SD (target height 0.13 SD), BMI 2.08 SD, Tanner stage A2, G4, P3 and TV 8ml/8ml. The patient was noted to have multiple lentigines and café au lait pigmentation.

Results

Pituitary MRI, baseline pituitary profile, thyroid ultrasound (US) and echocardiogram were normal.

24 hour urinary cortisol: creatinine ratio on three consecutive days was modestly elevated: 30, 34, 35 nmol/mmol (NR 0-25), but then normalised.

Multiple, bilateral, large cell calcifying sertoli cell tumours were demonstrated (Fig.2) on testicular US age 13yrs and have been monitored by US every six months. Appearances are unchanged 1.5yrs later.

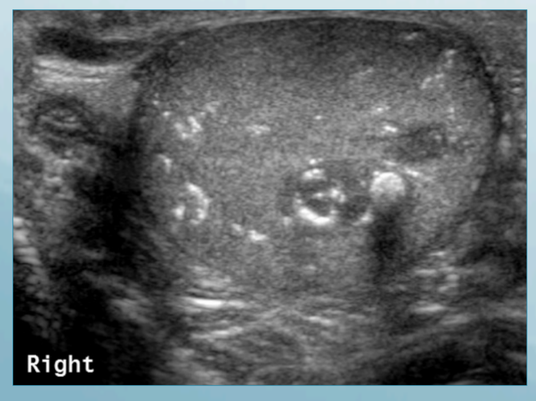


Figure 2: Ultrasound testis demonstrating multiple, bilateral, large cell calcifying sertoli cell tumours

Results

Age 14yrs he complained of symptoms of depression. BMI SDS increased 0.69 and height SDS decreased 0.25 over the preceding three months (Fig.3). Clinically he had Cushing's (Fig. 4)

Figure 3: Growth chart demonstrating change in BMI SDS and height SDS

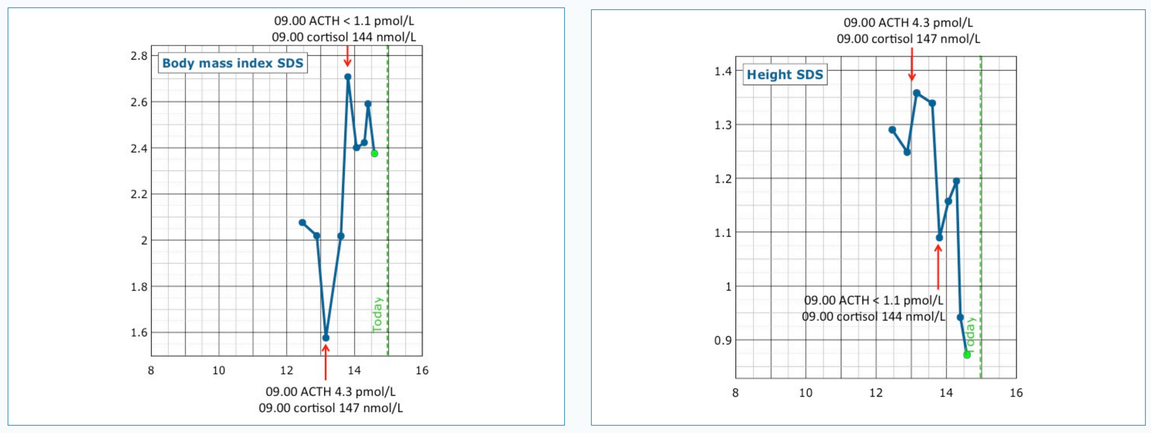
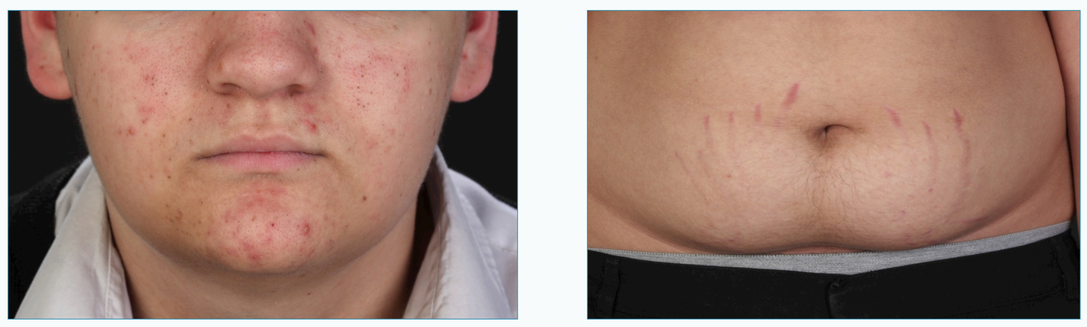


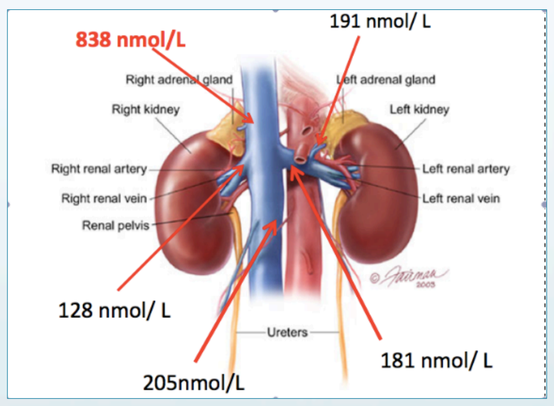
Figure 4: Patient with weight gain, acne and striae



Diurnal rhythm of cortisol secretion was lost: 09.00 239nmol/L, midnight 192nmol/L, 09.00 162nmol/L, midnight 179nmol/L. ACTH was undetectable. 09.00 cortisol was 144nmol/L following dexamethasone 2mg at 23.00.

Adrenal vein sampling indicated focal right-sided origin of cortisol excess (Fig.5).

Figure 5: Cortisol Levels detected during adrenal vein sampling



Right-sided retroperitoneoscopic adrenalectomy restored normal, diurnal patterns of ACTH and cortisol secretion.

Conclusions

This patient has been managed conservatively, in accordance with the family's wishes, to preserve testicular and adrenal function, with close surveillance of testicular appearances and cortisol profiles. This is approach is controversial, with bilateral orchidectomy and adrenalectomy being advocated by some.

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The patient and family consented to the use of photographs in this presentation

References

1. Stratakis C, Kirschner L, Carney A. Genetics of Endocrine Disease: Clinical Features and manifestations of Carney Complex: Diagnostic Criteria and Recommendations for Patient Evaluation. *J Clin EndocrinolMetab* 2001; 86:4041-4046