females and is indicated for prevention of osteoporosis. Radiological testing with DXA scan should be included. Early proper endocrinological assessment and management is essential for adequate sexual development in these patients; this leads to improved overall quality of life along with prevention of serious morbidities, including bone demineralization (2).

1. Blake K D, Prasad C. CHARGE syndrome. Orphanet Journal of Rare Diseases 2006, 1:34.
2. Foppiani L, Maffe A. CHARGE syndrome as unusual cause of hypogonadism: endocrine and molecular evaluation. Andrologia (2010). 42: 326–330.

Adrenal

ADRENAL CASE REPORTS II

Adrenal Cortical Neoplasm with Progression to Metastatic Adrenal Cortical Carcinoma One Year After Adrenalectomy

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SUN-200

Background: Adrenal cortical carcinoma (ACC) is a rare and aggressive malignancy; diagnostic tools for a pathologic confirmation of ACC are currently limited to scoring systems such as the modified Weiss criteria, the Helsinki score, and criteria proposed by Bisceglia et al. There is lack of consensus on appropriate monitoring and therapeutic strategies for suspicious lesions that do not fulfill all criteria for malignancy or metastatic potential. This is a case of a previously resected localized adrenal neoplasm with progression to metastatic ACC 1 year later.

Clinical Case: A 63-year-old male with hypertension and type 2 diabetes was referred to Endocrinology due to fragility fractures, weight gain, and uncontrolled hypertension concerning for cortisol excess. Workup revealed a 24-hour urinary free cortisol of 283 µg [0–50 µg/24hr], a post-1 mg dexamethasone suppression cortisol of 24.6 µg/dL [<1.8 µg/dL], and a random ACTH of <1.1 pg/mL. CT adrenals revealed a left 3.3 cm nodule measuring 40 Hounsefield units and 27% washout. The patient underwent left adrenalectomy with clear margins. Pathology reported an oncocytic adrenal cortical neoplasm with a Ki-67 of 4.3%, an elevated mitotic activity of up to 12 mitoses per 50 high-power fields, and large nuclei with prominent nucleoli. There was no evidence of necrosis, capsular or vascular invasion. The final pathologic diagnosis was "adrenal cortical neoplasm with worrisome features", and close follow-up was recommended. 1 year later, the patient presented with recurrent Cushing's syndrome; he was found to have metastatic ACC with lesions in the adrenalectomy bed, liver, and lungs. Despite maximal medical therapy, the patient suffered severe sequelae of Cushing's and transitioned to palliative measures.

Clinical Lessons: There are several pathologic scoring systems used to diagnose and predict prognosis in ACC. The challenge of this case is balancing fulfilling the highly-sensitive Bisceglia criteria for ACC [1 "major criterion" of high mitotic rate favors oncocytic ACC] with the other aspects that suggest a more positive outcome: clear surgical margins and a Helsinki score of 7.3 [≥8.5 favors metastatic potential]. His diagnosis fell into an intermediate area of "neoplasm with worrisome features", and he did not receive adjunctive mitotane therapy. Current guidelines do not recommend adjuvant mitotane therapy for indeterminate lesions or for cases of confirmed ACC with Ki-67 <10% after complete resection, and there is limited guidance regarding monitoring of such lesions. Retrospectively, it is unclear if our patient would have had an improved outcome with adjunctive mitotane therapy or closer surveillance for recurrence.

Bisceglia M, Ludovico O, Di Mattia A, Ben-Dor D, Sandback J, Pasquinelli G, Lau SK, Weiss LM. Adrenocortical Oncocytic Tumors: Report of 10 Cases and Review of the Literature. Int J Surg Pathol. 2004 Jul; 12(3)231–43

Thyroid

THYROID AUTOIMMUNITY AND BENIGN THYROID DISEASE

Laser Ablation Versus Radiofrequency Ablation for Benign Non-Functioning Thyroid Nodules: Six-Month Results of a Randomised, Parallel, Open-Label, Trial (Lara Trial)

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OR18-07

ABSTRACT

Background: Up to now, there are no direct prospective studies comparing Laser (LA) and radiofrequency ablation (RFA). We aimed to compare, in a head- to-head clinical trial, the efficacy and safety of both techniques in a population affected by solid or predominantly solid benign non-functioning thyroid nodules (BNTN).

Methods. LARA is a six-month, single-use, randomized, superiority, open-label, parallel trial. We enrolled subjects with a solitary BNTN or dominant nodule characterized by pressure symptoms/cosmetic problems or patients without symptoms who experienced a volume increase >20% in one year. Nodules underwent core needle biopsy (CNB) to evaluate the histological architecture. Patients were randomly assigned (1:1) to receive treatment with either LA or RFA. The primary endpoint was to evaluate the difference in nodule volume reduction between the RF and the LA group at six months. Moreover, we aimed to assess the differences between groups in the rate of nodules with greater than 50% base volume reduction (successful rate) at six months after treatment. ClinicalTrials.gov: number NCT02714946.

Findings: From January 2016 to November 2018, 60 patients were randomly assigned (30 participants per group). In the whole study population, the average volume of nodules was 25 ml. The two groups were similar in terms of basal nodule volume, thyroid function, histology, symptoms/cosmetic score and procedure time. At six months, participants in the RFA group showed a reduction volume of 64·3% (95% CI: 57·5% - 71·2%) compared to 53·2% (95% CI: 47·2% - 59·2%) in the LA group (p= 0·015) and this difference was also confirmed in a linear regression model adjusted for age, baseline volume and proportion of cellular component (Laser vs. RFA percent change Delta= -12·8, P=0·018).We have not recorded any significant difference in terms of successful rate at six months after treatment between the two groups (86·7% in the RFA vs 66·7% in the LA, p=0·127). At six months, both symptoms and cosmetic scores improved (compressive symptom score: 2·13 vs 3·9 for RFA, p < 0·001; 2·4 vs. 3·87 for LA, p < 0·001; cosmetic score: 1·65 vs 2·2 for RFA p <0·001, 1·85 vs 2·2 for LA p <0·001) without any statistically significant difference between the two groups. No statistical difference between the two groups was detected at six months as regards the TSH level. High rate of cellularity negatively affects the volume reduction in RFA group (r coefficient -0·41, p=0·034) while histological features did not affect the efficacy of the LA. The adverse event rates were 37% and 43% for RFA and LA, respectively, with no requirement for hospitalization.
Interpretation: Both techniques are very effective in reducing the volume of thyroid nodules. RFA appears to be more effective than LA, but both techniques showed no difference in terms of success rate six months after treatment. The safety of the two techniques is very satisfactory.

Reproductive Endocrinology

OVARIAN FUNCTION — FROM OLIGOMENORRHEA TO AMENORRHEA

Diagnostic Criteria for Polycystic Ovary Syndrome in Adolescents: Impact on Prevalence and Longitudinal Body Mass Index Trajectories

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OR31-02

Background: Polycystic ovary syndrome (PCOS) is characterised by oligo-anovulation (OA), hyperandrogenism (HA) and polycystic ovary morphology (PCO). While the Rotterdam criteria (defined as 2 out of 3 features) are the most widely used criteria in adults, controversy remains for the diagnostic criteria in adolescents as many PCOS features overlap with normal pubertal physiological changes. The 2018 international evidence-based PCOS guideline recommends modified Rotterdam criteria (OA and HA) in adolescents based on expert consensus. We aimed to 1) compare the prevalence of PCOS using original and modified Rotterdam criteria in an unselected adolescent cohort and 2) explore the association between diagnostic phenotypes and long-term body mass index (BMI) trajectories. Methods: 227 adolescent females of the Western Australian Pregnancy Cohort (Raine) Study undertook detailed PCOS assessment at the mean age of 15.3 years (mean age of menarche 12.4 years). Detailed anthropometric measurements were collected from birth until age 22 years. T-test was used for group BMI comparisons and longitudinal BMI was analysed using Generalised Estimating Equations with PCOS by time and PCOS phenotypes by time as interaction terms. Results: PCOS was diagnosed in 66 (29.1%) participants using original Rotterdam criteria versus 37 (16.3%) participants using modified Rotterdam criteria. Using modified Rotterdam criteria, participants with PCOS had higher mean group BMI than participants without PCOS from age 5 years onwards. Significant interaction was detected between PCOS and time (p<0.001) on longitudinal BMI gain where higher BMI gain was observed in participants with PCOS from age 14 years onwards. Only the modified criteria phenotype was significantly associated wth long-term BMI gain whereas other PCOS phenotypes had similar BMI trajectories as participants without PCOS (p<0.001). Conclusions: Our findings validate the PCOS guideline recommendation as modified Rotterdam criteria reduce overdiagnosis of PCOS in adolescents and accurately identify the phenotype at risk of long-term weight gain. The BMI trajectories of females with and without PCOS diverge from early childhood suggesting that metabolic dysfunction in PCOS commences early in the pre-pubertal period. Disclosures: Nothing to disclose. Funding: PCOS CRE scholarship and Research Training Program Scholarship awarded to CT; NHMRC Medical Research Future fund awarded to HT; National Heart Foundation Future Leader Fellowship awarded to LM; NHMRC early career fellowship awarded to AJ.

Neuroendocrinology and Pituitary

CASE REPORTS IN CLASSICAL AND UNUSUAL CAUSES OF HYPOPITUITARISM

Congenital Nephrogenic Diabetes Insipidus with First Presentation as an Adult: A Case Report

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SAT-238

Congenital Nephrogenic Diabetes Insipidus with First Presentation as an Adult: A Case Report

Background:

Congenital nephrogenic diabetes insipidus (NDI) is a rare inherited condition, usually presenting during the first year of life. It is characterized by a renal insensitivity to arginine vasopressin. About 90% of patients are males with X-linked NDI who have mutations in the vasopressin V2 receptor (AVPR2) gene encoding the vasopressin V2 receptor. Females are typically asymptomatic. Here, we report