Reviewer’s report

Title: Hypercortisolism and primary aldosteronism caused by bilateral adrenocortical adenomas: a case report

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Reviewer: Warrick Inder

Reviewer's report:

Ren et al. describe a very interesting case of a patient with bilateral adrenal adenomas. While not clinically Cushingoid, the patient showed autonomous cortisol secretion with a suppressed ACTH, failure of cortisol to suppress with dexamethasone and a slight elevation in 24h urinary free cortisol. The aldosterone:renin ratio was initially normal due to a non-suppressed renin.

Adrenal vein sampling convincingly demonstrated cortisol secretion from the L adrenal lesion and aldosterone from the R adrenal lesion.

After selective partial L adrenalectomy, the cortisol normalised and plasma renin activity fell while the aldo:renin ratio became elevated. Hypertension resolved after selective partial R adrenalectomy.

Overall this is case has been very well investigated and managed - I have just a few comments which could enhance it further.

Specific comments:

1. Can the authors clarify if there was any suppression of plasma cortisol following the first partial adrenalectomy? The column headings in Table 3 need some explanation - does PTC-24 mean the day 1 (24h) cortisol and PTC-8 mean Day 8?? Were any peri-operative glucocorticoids used? It appears that if interpreted correctly the post-op day 1 cortisol was 63 nmol/L so low but recovered quickly over the first week.

2. Please round up or down the plasma cortisol to whole numbers - 62.77 nmol/L should read 63 mol/L.

3. The authors have not really explained why the plasma renin activity was not suppressed initially when the patient clearly did have primary aldosteronism. In line 151-2, high plasma cortisol can indeed bind the MR if the inactivating enzyme 11 beta hydroxysteroid dehydrogenase 2 is overwhelmed, but this also suppresses renin. The answer may lie in an old paper by Krakoff J Clin Endocrinol Metab. 1973 Jul;37(1):110-7 - glucocorticoids
increase "renin substrate" - angiotensinogen - and this may be enough to elevate plasma renin activity above the expected level.

4. Overall the English is good, but the manuscript could do with another proof read, eg line 168 - gold standard rather than golden standard and line 170-1 the aldosterone to cortisol ratio is the most widely used measure rather than wildly.

5. The authors should cite the original work of Young et al. World J Surg. 2008; 32:856-62 regarding the interpretation of the AVS (controlled for epinephrine) in the setting of cortisol excess.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

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