Outcome of patients with adrenal incidentalomas: an analysis of 145 patients from a single centre

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BACKGROUND

Adrenal incidentalomas are a common clinical dilemma and are seen in 4% of abdominal CT scans (1), with incidence rising with increased utility of cross-sectional imaging (2, 3). Investigation of these lesions aims to exclude malignancy and hormonally active lesions. The current standard for management is the AACE guidelines as summarised in figure 1. 

Zeiger et al states that of all adrenal incidentalomas detected, 80% are non-functional adenomas, 6% functional adenomas, 5% phaeochromocytomas, <5% adrenocortical carcinomas and 2.5% metastases (2).

A literature review by Cawood et al suggested that the conversion rates of benign adenomas to functional or malignant lesions was <1% and 0.2% respectively (4).

OBJECTIVES

This study was performed to:
1. Review the incidence of malignant or hormonally active lesions detected as adrenal incidentalomas within this single centre, compared to the literature review.
2. Evaluate whether the current recommendations for investigating adrenal incidentalomas are appropriate given the low risk of progression to functional or malignant lesions.

RESULTS

Table 1 summarises the diagnoses and outcome in 145 adrenal incidentalomas. In figure 2, the incidence of each diagnosis in this study is compared to the literature review.

Radiology results:
- 65 (45%) of the initial scans were diagnostic of a benign adenoma (CT density <10HU)
- 43 (30%) were indeterminate on the original scan, but were deemed to be benign adenomas following further imaging (In and out of phase MRI, CT density <10HU, CT contrast washout >60% at 10 minutes).
- 7 (5%) had indeterminate detection scans with no repeat imaging (comorbidity or failure to attend).
- All malignant lesions, metastases and phaeochromocytomas had abnormal initial imaging.
- The single case of Conn’s syndrome, had an indeterminate initial and repeat scan.

Biochemical results:
- 135 (93%) of the cohort was hormonally inactive.
- All 5 phaeochromocytomas had raised urinary metanephrines.
- 7 (5%) had a 9am cortisol >100 following 1mg dexamethasone, none of whom had symptoms/signs consistent with cortisol excess.
- 3 (2%) had abnormal renin: aldosterone levels (>72).
- 1 diagnosed as Conn’s adenoma (also hypertensive and hypokalaemic).
- 2 on-going investigation/monitoring.
- 2 males had elevated DHEAS levels, both of whom had abnormal imaging.
- 1 was found to have a phaeochromocytoma.

CONCLUSION

None of those tumours considered to be benign adenomas on imaging proved to be hormonally active and endocrine screening may therefore not be necessary. All hormonally active and malignant lesions had abnormal or indeterminate imaging.

This study suggests that in patients who have a) no symptoms or signs, b) are normotensive, c) are normokalaemic and d) have imaging features consistent with a benign adrenal adenoma, further investigation is unwarranted.

REFERENCES

4. Cawood et al. Recommended evaluation of adrenal incidentalomas is costly, has high false-positive rates and confers a risk of fatal cancer that is similar to the risk of the adrenal lesion becoming malignant; time for a rethink? European J Endocrinology. 2009; 161: 513-527