



## Oncology

# Incidental Finding of Adrenal Oncocytoma After Right Robotic Adrenalectomy: Case Report and Literature Review



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## ABSTRACT

Oncocytic neoplasms occur in several organs and are most commonly found in the thyroid, kidneys and salivary glands. Oncocytic neoplasms of the adrenal cortex are extremely rare and are usually non-functioning, benign and incidentally detected. However, histologically, they are characterized by cells with eosinophilic granular cytoplasm and numerous packed mitochondria. We report a case of 33 year old lady medically free complain of right flank pain radiated to the lower abdomen, not associated with any aggravating or relieving factor or any other symptom there was no evidence of hypertension symptom, by the Magnetic resonance imaging (MRI) showed that she has large heterogeneous mass seen at the right adrenal gland, and it was managed successfully by Robot-Assisted Right Adrenalectomy.

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## Introduction

Adrenocortical oncocytoma is a very uncommon neoplasm, usually considered as benign and non-functional.<sup>1</sup> Oncocytic tumors are composed of eosinophilic cells (oncocytes) containing a high number of mitochondria. Oncocytoma is, in the majority of cases, a benign tumor originating in the kidneys, thyroid, parathyroid, and salivary or pituitary glands, and it is very rare to see it in the adrenal gland,<sup>1</sup> so, for unusual occurrences of oncocytoma tumor in the adrenal gland we love to report this case.

## Case report

A 33 year old lady married medically free, came with right flank pain since 12/2015. The pain radiated to the lower abdomen, she did not having complication of any other symptom like dysuria or hematuria or any other urinary symptoms, and had no previous history of hypertension or any other signs or symptoms of high blood pressure such as dizziness, headache, palpitation and visual disturbance, also no history of weight loss. On examination, the patient looks well with stable vital signs, the abdomen soft and lax there was no tenderness on palpation and the mass was not felt upon physical examination. She accidentally diagnosed with large right adrenal mass when she performed computed tomography

(CT) scan of abdomen and pelvic, the right adrenal fossa measuring  $4.5 \times 4 \times 3.8$  cm (Fig. 1).

Magnetic resonance imaging (MRI) was also performed, revealing  $4.7 \times 4$  cm mass with heterogeneous enhancement in the post-contrast administration phase (Fig. 2). The MRI result also shows no lymph node enlargement and absent of primary malignancy.

The lab investigation of serum potassium, VMA, the metanephrine levels and the dexamethasone suppression test were all within the normal range.

The patient then underwent Robot-Assisted Right Adrenalectomy in 08/3/2016. It was done successfully without any complication, with minimal blood loss of 20 mL, the sample specimen was sent to the histopathological lab for the result (Fig. 3), also the pain was tolerated by morphine and paracetamol (PRN). She was vitally stable, tolerating oral diet, passing urine and stool normally after the procedure. The lab result post-OP all was in normal range. The patient discharged from the hospital after 2 day post-operation with 2 week follow up.

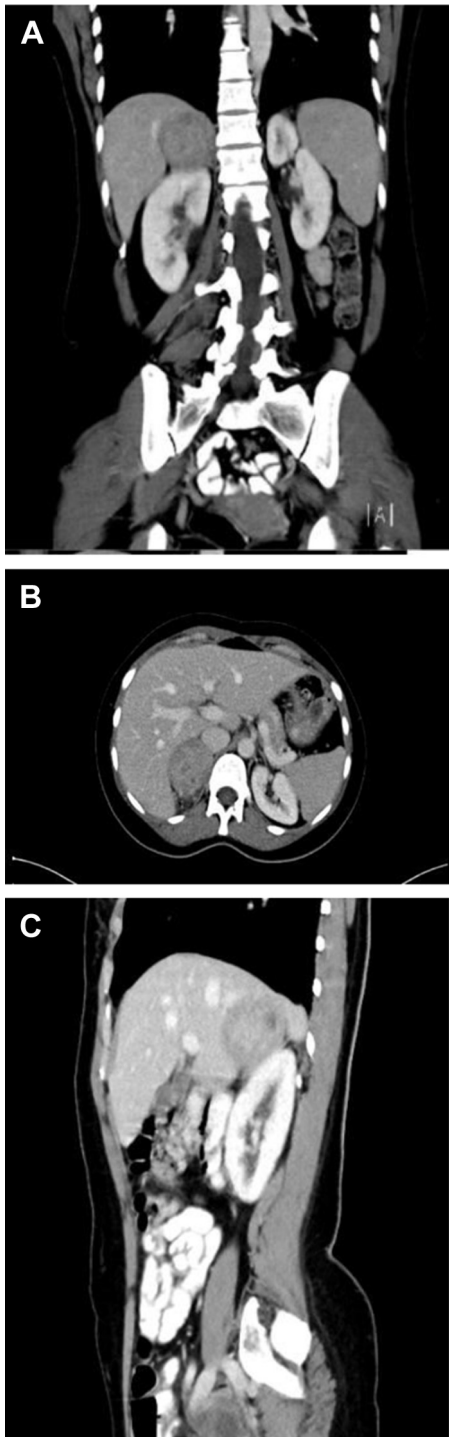
The restricted specimen shows adrenal gland measuring  $6 \times 4 \times 3$  cm and weight 65.8 g, the outer surface is smooth. Also shows, well circumscribed mass with yellowish tan fiber cut surface measuring  $4 \times 3.2$  cm and within 0.1 cm from capsule.

## Discussion

Adrenal gland masses are best visualized on CT or MRI but still no definitive features can differentiate benign from malignant adrenal oncocytic neoplasm on imaging. In addition to size, presence

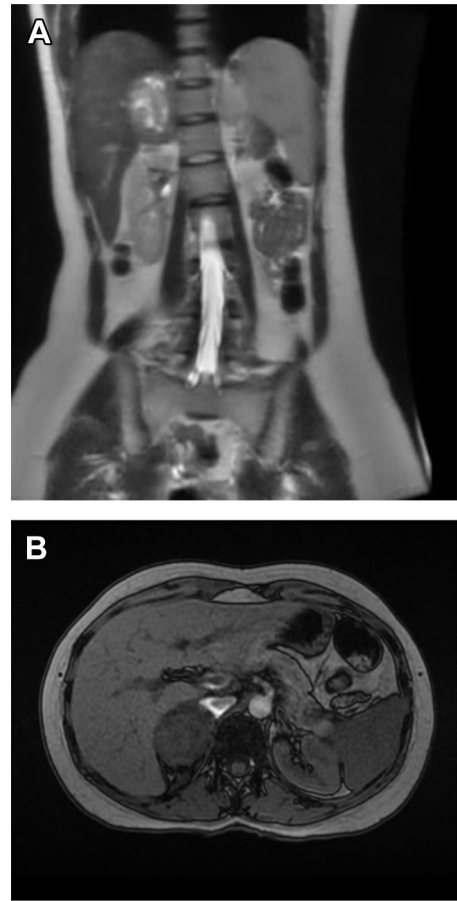
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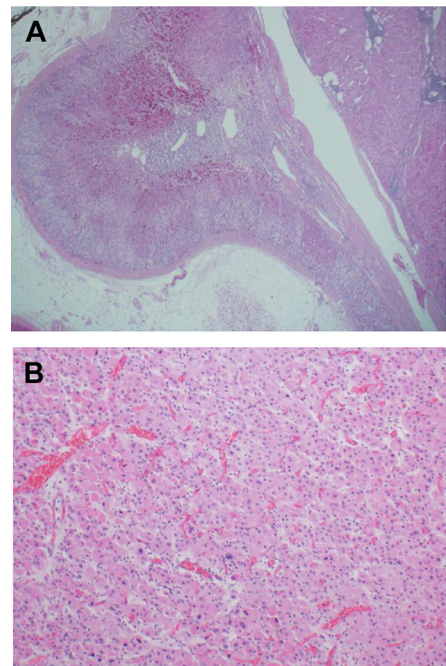


**Figure 1.** (A, B, C) Slightly heterogeneous mass lesion identified in the right adrenal fossa measuring  $4.5 \times 4 \times 3.8$  cm. Its Hounsfield unit on the porto-venous enhancement is about 100. No obvious calcification. No obvious fat contents.

of necrosis, absence of fat, and chemical shift MRI are other important radiographic metrics used to distinguish benign adenoma from adrenocortical carcinoma ACC. However, there are no reliable CT or MRI findings that will distinguish oncocytic adrenocortical neoplasm DAN from other adenomas. Definitive diagnosis of oncocytoma can be made pre-operatively by fine needle aspiration cytology after careful exclusion of functionality of tumor and when the tumor outline is preserved along with no invasion to surrounding structure.<sup>2</sup>



**Figure 2.** (A, B) There is large heterogeneous mass seen at the right adrenal gland that shows heterogeneous enhancement with areas of microscopic fat content that showing drop signal in the out of phase and shows heterogeneous enhancement in the post-contrast administration phase. It measures  $4.7 \times 4$  cm.



**Figure 3.** (A) Low power view (2 $\times$ ) of the adrenal gland. (B) High power view (10 $\times$ ) of the proliferating oncocytic cell with no necrosis or mitosis.

The Lin–Weiss–Bisceglia criteria define malignancy by the presence of any one of the following microscopic features: 1: mitotic rate greater than 5 mitotic figures per 50 high-power fields, 2: atypical mitoses, or 3: invasion of venous structures. If no criteria of frank malignancy are present, the minor criteria for borderline malignancy must be assessed. The criteria for tumors of borderline malignant potential include the following: 1: increased size (>10 cm and/or >200 g), 2: necrosis, 3: capsular invasion or 4: sinusoidal invasion. A diagnosis of a benign tumor (oncocytoma) can only be given in the absence of all of afore mentioned criteria for frank or borderline malignancy.<sup>3</sup>

In the case of benign DAN, prognosis after surgical resection is considered to be good. If adrenocortical carcinoma is found, adjacent or distant organ involvement at the time of diagnosis is common and associated with a 20–35% 5 year survival.<sup>4</sup>

Robotic vs Laparoscopic adrenalectomy is the procedure of choice from small as well as large functioning and non-functioning adrenal masses. Robotic and Laparoscopic surgery offers a safe alternative in confronting adrenocortical neoplasms, even when the biological behavior of the tumors cannot be pre-operatively evaluated in a definite way.<sup>5</sup>

In our case the adrenal oncocytoma was benign and was managed successfully with robotic right adrenal gland resection.

It remains challenging, however, to distinguish between benign and malignant adrenal oncocytomas. A combination of biochemical, histopathologic, radiologic, and clinical features can

be used to guide appropriate management, but surgical resection remains the mainstay of treatment for lesions deemed to be malignant.<sup>5</sup>

## Conclusion

Adrenal cortical oncocytoma is very rare benign non-functioning tumor and robotic adrenalectomy is feasible and safe surgical mood of treatment in symptomatic patients.

## Conflict of interest

None.

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