



## African Journal of Urology

Official journal of the Pan African Urological Surgeon's Association  
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### Laparoscopy

#### Case report

# Laparoscopic excision of a large symptomatic and kidney-displacing adrenal myelolipoma: A case report



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Received 16 January 2017; received in revised form 15 July 2017; accepted 17 July 2017

Available online 21 February 2018

#### KEYWORDS

Laparoscopic  
adrenalectomy;  
Myeloid cells;  
Myelolipoma

#### Abstract

**Introduction:** Adrenal myelolipoma is a rare tumor. Traditionally, open surgical adrenalectomy was the standard treatment for symptomatic myelolipoma. However, laparoscopic excision is a promising alternative approach.

**Observation:** A 38-year-old obese male patient presented with right loin pain of many months duration. Imaging studies revealed a large well-defined high fat content right adrenal mass displacing the right kidney. Adrenal tumor markers were within normal suggesting a non-functioning lesion. In spite of some technical difficulties and adjustments, laparoscopic excision was done, successfully, with uneventful recovery and short convalescence. Histopathological examination described mature adipose tissue with myeloid cells and confirmed the diagnosis of adrenal myelolipoma.

**Conclusions:** Laparoscopic excision of large adrenal myelolipoma may indicate some technical adjustments, but it seems to be a feasible and advantageous approach even in obese patients.

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Peer review under responsibility of Pan African Urological Surgeons' Association.

<https://doi.org/10.1016/j.afju.2017.07.004>

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## Introduction

Adrenal myelolipoma is a rare adrenal tumor with a commonly reported very low frequency of 0.08%–0.2% [1]. However, this frequency seems to be progressively increasing in the last years to reach 10–15%. This increase is attributed to the advancement in imaging modalities [2,3]. Adrenal myelolipoma is usually of small size (<5 cm) and asymptomatic tumor. Also, large sizes may be discovered accidentally [4]. It is commonly diagnosed in old ages, and, mostly, without malignant potentials [1,3,5]. Biochemical activities and association with tumors in other organs of the body have been reported [6,7]. Here, we present a case of kidney displacing adrenal myelolipoma which was managed via the laparoscopic approach.

## Case report

A 38-year-old male patient presented with right loin pain of undetermined character for few months duration. On physical examination, he was obese with a body mass index of 32.8 kg/m<sup>2</sup>. Vital signs were within normal averages including a blood pressure of 130/80 mmHg and heart rate of 78 beats/min. Few abdominal skin striae were seen in the lumbar regions, but, there were no abdominal tenderness or palpable masses. Digital rectal examination was free. Abdominal ultrasound described a hyperechoic soft tissue mass above the upper pole of the right kidney. Computed tomography revealed a well-demarcated right adrenal mass with negative Hounsfield Unit values (Fig. 1). It was more or less heterogeneous with high adipose tissue contents. Its size was 8.6 cm × 6.3 cm at the widest dimensions. It was compressing the surrounding structures and resulted in inferior displacement of the right kidney and its rotation around the horizontal axis (Fig. 1). Laboratory adrenal tumor markers including urinary Vanillylmandelic Acid (VMA), metanephrines,



**Fig. 1** Computed tomography coronal cut: A large well-demarcated benign-featuring right adrenal mass which is inferiorly displacing the right kidney.

and serum cortisol level were within normal. Also, values of the routine laboratory investigations including blood urea, serum creatinine, electrolytes, and complete blood count were within normal.

The clinical diagnosis was mostly adrenal myelolipoma or angiomyolipoma. Routine work up for metastasis detection via abdominal computed tomography and chest X-ray was unremarkable.

The patient had laparoscopic adrenalectomy using transperitoneal approach. He was positioned in the left semi-lateral position with elevated kidney rest. Five ports were designated at the right side of the abdomen. Two 10-mm ports were created in the midline; one was just supra-umbilical (for the laparoscopic camera) and the other was just below the xiphi-sternum. Another two 10-mm ports were created for the main working trocars; the upper one was two inches below costal margin at the mid-clavicular line and the second one was at the anterior axillary line (two inches below the level of first one). One 5-mm port was put at the mid-axillary line at a lower level than the previous ports for insertion of a retractor or grasper.

The procedure steps were carried out as creation of pneumoperitoneum, introduction of the instruments, incision of the posterior peritoneum, and reflection of the intestine. Dissection of the mass was achieved, but, it was technically demanding, especially, medially for the adrenal vein along the inferior vena cava, superiorly from the liver, and posteriorly from the abdominal wall. Also, the instrumental reach to the upper border of the mass was demanding, owing to the patient's high body mass index. However, the matter was not so difficult and complete separation of the mass was amenable.

The mass was delivered through a 4 cm extended supra-umbilical port incision. The procedure was completed in about 120 min without significant blood loss (150 ml) or complications. Postoperative course was uneventful and the patient was discharged after 3 days postoperatively.

Grossly, the excised mass was about 8.5 cm × 6.5 cm with brownish yellow color. Its cut surface was solid and homogenous with a yellow color. Histopathological microscopic examination revealed high contents of mature adipose tissue and hematopoietic cells; eosinophils, polymorphs, and megakaryocytes (Fig. 2). So, the diagnosis of adrenal myelolipoma was confirmed.

## Discussion

Adrenal myelolipoma is a rare tumor reported usually in old ages with equal incidence among males and females [5]. Our patient was relatively younger correlating to the increasing trend of case presentation in relatively young ages [2,6,8].

Adrenal myelolipoma is usually a small-sized lesion [1]. However, some cases were reported with huge sizes leading to kidney displacement [4]. The current case was relatively large enough in size to displace the right kidney around its horizontal axis by compression of the upper pole. Also, this mechanical mass effect was illustrated by Tyriztis et al. [3] and it may be the cause of abdominal pain due traction on the renal pedicle.

Adrenal myelolipoma is usually asymptomatic and discovered accidentally on imaging for other purposes, where it is known as incidentaloma [5]. When symptoms occur, however, they commonly

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