

## Adrenal Myelolipoma: A Case Report

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### Abstract

Adrenal myelolipoma is a rare benign tumor that is composed of hematopoietic cells and mature fat. Mostly, these nonfunctioning tumors are distinguished incidentally during autopsy or radiologic investigations. Here, we report a case of 46-year-old man presented with nonspecific abdominal pain for one year, who had right adrenal mass with fat density detected by radiologic investigation. Histopathological assessment of right adrenalectomy specimen revealed the diagnosis of adrenal myelolipoma.

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### Introduction

Myelolipoma is a tumor like lesion with two distinct elements, including adipose tissue and bone marrow hematopoietic cells (1). In 1905, for the first time the lesion was described by Gierke, but the term “Myelolipoma” was introduced by Obreling in 1929 (2). Mostly, the tumor identified in adrenal gland without malignant behavior or endocrine disturbance symptoms (3). It usually affects males and females equally in adult life (4, 5). Radiologic imaging like CT scan or MRI is the most common way of detecting myelolipoma in the adrenal gland (6). Myelolipomas account

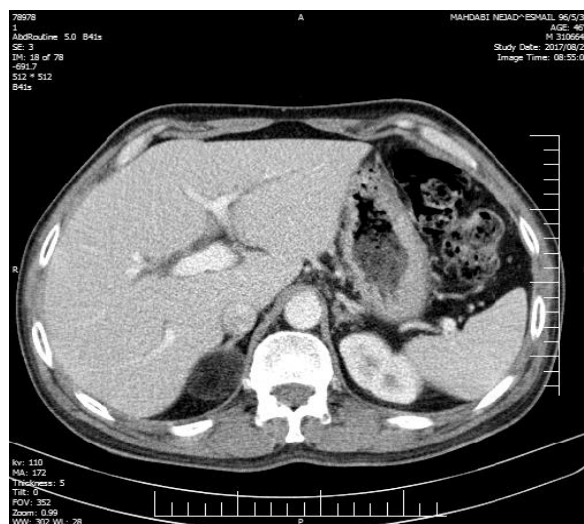
for 3-5% of all primary tumors of adrenals (7). In this paper, we report a case of adrenal Myelipoma with prominent megakaryocytes, detected incidentally by computed tomography scan.

### Case report

A 46-year-old man presented with chronic ambiguous abdominal pain since the previous year, at the Urology department. Abdominal ultrasonography showed a hyperechoic mass measuring 43 \* 34 mm in right adrenal suggesting lipoma or adenoma containing fat tissue.

Abdominopelvic spiral CT scan with and without contrast noted a 34 mm lipoma in the right adrenal gland (Figure 1). Laboratory findings including hormonal and urinary analysis

were unremarkable (tables 1&2). Laparoscopic right adrenalectomy was done at the next step, and the specimen was sent for histopathological evaluation.



**Figure 1.** Axial non-contrast CT scan

A well-margin rounded lesion containing fat components and soft tissue components was noted in the right suprarenal region

**Table 1.** Hormonal Assay findings

Hormonal assay	Patient's value	Reference range
Cortisol 8am	2.64	6.2-19.4 ug/dl
PTH	64	15-65 pg/ml
Aldosterone	12	15-133 pg/ml
17OH progesterone	1.9	0.2-2.9 ng/ml
DHEAs	0.83	0.44-3.31 mg/ml

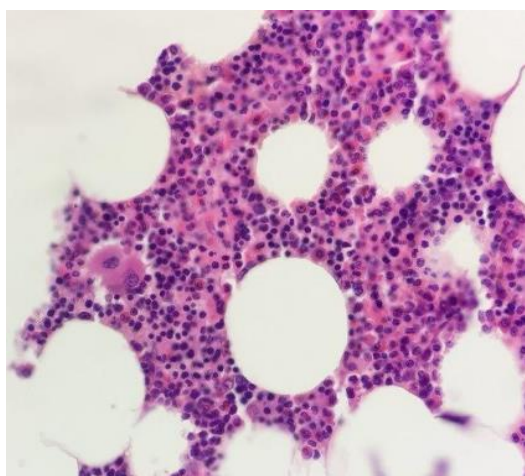
**Table 2.** Urine Analysis findings

	Patient's Value	Reference Range
Metanephrine	126	<350 mg/24h
Nor Metanephrine	568	Up to 600 mg/24h
VMA	4.3	Up to 68.66 mg/24h
Urine Volume	2220	600-1600 ml/24h

Received specimen in formalin container consisted of an encapsulated ovoid mass with adjacent fat, measuring 6.5\* 4.5 \*2.5 cm. On multiple cut sections, alternating brown and creamy areas were seen with hemorrhage (Figure2). After tissue fixation in formalin 10%, embedding in paraffin block, sectioning by microtome, mounting and staining of slides with H&E method, the prepared slides were assessed by light microscope. Microscopic examination revealed well-defined encapsulated neoplastic growth composed of mature adipose tissue along with normal hematopoietic elements including erythroid, myeloid, and megakaryocytic cells (figures 3 &4).

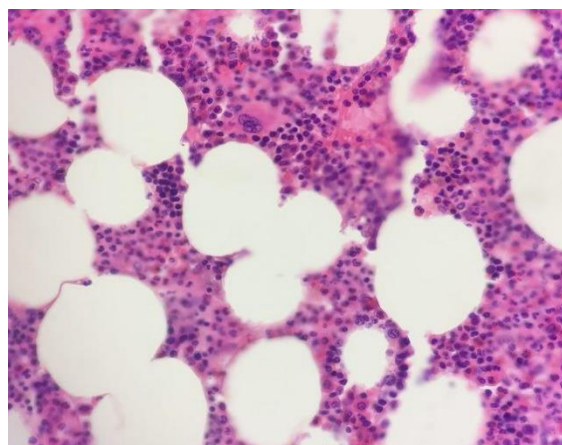


**Figure 2.** The encapsulated bright yellow adipose-like tissue with hemorrhagic foci (contains marrow tissue) obtained in adrenalectomy



**Figure 3.** Histopathology (H&E stain)

Islands of hematopoietic cells and mature fat are observed.



**Figure 4.** Histopathology (H&E stain)

Normal trilineage hematopoiesis with markedly increased megakaryocytes

### Discussion

Myelolipoma is a rare benign tumor found mostly in adrenal but less frequently in extra adrenal regions (1). Review of the past literature shows an incidence of 0.08 to 0.4% at autopsy (2). The tumor is typically asymptomatic and hormonally inactive, but large sized masses may cause abdominal or back pain (3). It is characterized by the presence of mature adipose tissue admixed with active bone marrow elements, from all three lineage hematopoietic cells (erythroid, myeloid, and megakaryocytic), but often with markedly increased megakaryocytes (4).

Most cases of adrenal myelolipomas are found at autopsy, incidentally or by radiological studies during abdominal pain management (5). With widespread use of ultrasonography, CT scan and MRI the incidental detection of myelolipoma has become more common (6). The tumor most commonly occurs between the fifth and seventh decades of life with no gender predilection (7).

Etiologic studies suggest the probable metaplastic changes in the reticuloendothelial cells in response to stimuli including

necrosis, infection or stress (V). Anita B Sanjjanar et al also proposed the prolonged stimulation with high level of adrenocorticotrophic hormone or adrenal androgen as a cause of this tumor development (A).

More than 90% of cases are detected by imaging techniques. Amongst all radiologic investigation modalities, CT scan is the most sensitive one based on the identification of fat (A). The differential diagnosis of such lesion includes renal angiomyolipoma, retroperitoneal lipoma or liposarcoma, and teratoma (V).

Histopathological examination is essential to confirm the diagnosis of adrenal myelolipoma and to rule out malignancy, after mass resection. Microscopic features like islands of hematopoietic cells with mature adipose tissue verify the diagnosis of this benign tumor. Larger tumors may have hemorrhage, necrosis, calcification, and cysts. Rarely, fibromyxoid degeneration resembling low grade fibromyxoid sarcoma may hinder the differentiation (V).

Despite the benign and asymptomatic nature of this tumor, large lesions may become complicated due to spontaneous

hemorrhage or abscess (A). On an individual basis, different managements should be considered. Traditionally, conservative therapy with follow up is recommended. Surgery plays an important role for complicated cases. Some studies suggest surgical intervention for symptomatic tumors, growing masses, tumors greater than 6 cm, and suspected lesions that could not be differentiated from malignant ones (E, 5). Laparoscopic approach can be used successfully for the surgical removal of adrenal tissue, with less postoperative morbidity compared to the traditional transabdominal procedures (V).

## Conclusion

The presented case illustrates leading diagnostic features of the rare adrenal myelolipoma tumor. Most tumors are not symptomatic until they get notable size, recognizable by radiologic approaches. This is actually due to their non-functioning nature. Histologically, myeloid tissue interspersed with adipocytes is the characteristic view.

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