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Case Report

Laparoscopic resection of adrenal myelolipoma: a case report

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ABSTRACT

Adrenal myelolipomas are rare, benign tumors comprising mature adipose tissue and hematopoietic elements. We report a case of a 55-year-old female who presented with abdominal pain and vomiting. Imaging revealed a 5.6×5.1×5.3 cm left adrenal mass suggestive of myelolipoma. Laboratory investigations showed elevated plasma non metanephrines. The patient underwent successful laparoscopic excision of left side adrenal myelolipoma. Histopathology confirmed adrenal myelolipoma. This case illustrates the role of imaging and laboratory studies in diagnosing these tumors preoperatively and demonstrates the feasibility of laparoscopic resection for symptomatic myelolipomas.

Keywords: Adrenal myelolipoma, Laparoscopy, Resection of myelolipomas

INTRODUCTION

Adrenal myelolipomas are rare, benign tumors composed of mature adipose tissue admixed with hematopoietic elements like myeloid, erythroid and megakaryocytic lines.[1] First described by Gierke in 1905, they represent incidental findings in 0.08-0.4% of autopsies.[2] With widespread use of imaging modalities like ultrasound (USG), computed tomography (CT) and magnetic resonance imaging (MRI), the detection rates have increased to about 3.3-3.6% of adrenal incidentalomas.[1] Most myelolipomas are asymptomatic and managed conservatively. However, large or symptomatic tumors warrant surgical resection, traditionally via open adrenalectomy. We report a case of adrenal myelolipoma in a 55-year-old female successfully resected laparoscopically.

CASE REPORT

A 55-year-old female presented with complaints of abdominal pain and vomiting for 6 days. She was a known case of type 2 diabetes mellitus and hypertension for 8 and 20 years respectively, on medications. There was no history of endocrine dysfunction. On examination, she was hemodynamically stable.

Abdominal examination revealed mild tenderness in left hypochondrium but no palpable mass. Routine blood investigations were normal.

USG abdomen detected a heterogeneous mass in the left suprarenal region. CECT abdomen showed a 5.6×5.1×5.3 cm well-defined fat density non-enhancing lesion arising from the left adrenal gland, indenting the tail of pancreas and upper pole of left kidney, suggestive of myelolipoma (Figure 1).

Hormonal workup revealed normal levels of serum cortisol, plasma ACTH, DHEA-S, metanephrines and catecholamines. However, plasma non metanephrines were elevated.

In view of symptomatic large left adrenal mass with hormonal evidence of excess non metanephrine secretion, laparoscopic excision of left side adrenal myelolipoma

was planned after optimization of comorbidities.

Table 1: Laboratory findings.

Parameters	Result
White blood cell count (WBC)	14,000 cells/µl
Red blood cell count (RBC)	4.7 million/µl
Hemoglobin (Hb or Hgb)	15 g/dl
Hematocrit (Hct)	42.4%
Mean corpuscular volume (MCV)	85 fl
Mean corpuscular hemoglobin (MCH)	31 pg
Mean corpuscular hemoglobin concentration (MCHC)	32 g/dl
Alanine aminotransferase (ALT)	30 U/l
Aspartate aminotransferase (AST)	25 U/l
Alkaline phosphatase (ALP)	50 U/l
Total bilirubin	1.2 mg/dl
Direct bilirubin	0.3 mg/dl
Albumin	3.5 g/dl
Prothrombin time (PT)	12 sec

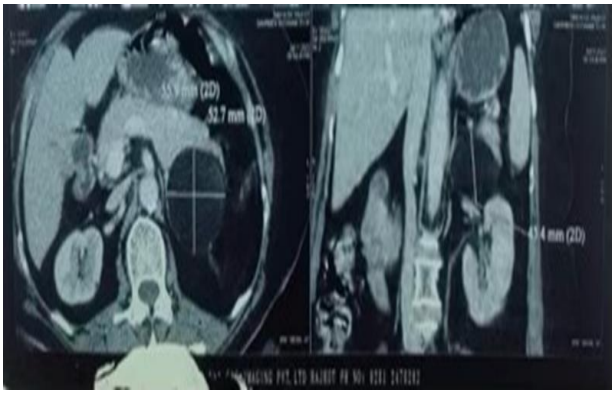

Figure 1: CECT abdomen showing a 5.6×5.1 cm left adrenal mass with fat density (-20HU) suggestive of myelolipoma.

Table 2: Hormonal findings.

Parameters	Result
ACTH	44.9 pg/ml
Normetanephrine free plasma	353.87 pg/ml
Metanephrine free plasma	<7 pg/ml
Cortisol	13.40 ug/dl
DHEA-S	46.3 ug/dl

The patient was placed supine with legs apart. Pneumoperitoneum was created using a Veress needle. Three ports were inserted-one 10 mm camera port at umbilicus, one 10 mm working port in left midclavicular line below costal margin and another 5 mm port in left anterior axillary line at level of umbilicus. On laparoscopy, a 7×6×2.5 cm yellowish mass was seen superior to left kidney, displacing pancreatic tail laterally specimen was retrieved in an endobag (Figure 2).

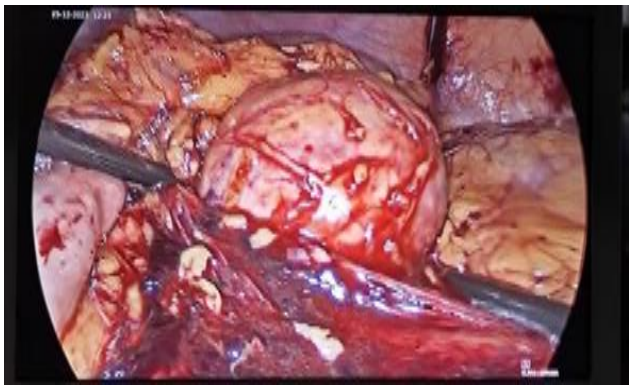

Figure 2: Specimen.

The patient experienced postoperative complaints of breathlessness and hypertension, with a blood pressure reading of 160/90 mmHg on the first postoperative day (POD 1). To address the breathlessness, the patient was placed on continuous positive airway pressure (C-PAP) for two days and then gradually weaned off by POD 6. For the management of hypertension, the patient was started on tablet prazosin (5 mg) once daily at bedtime.

During the postoperative course, the patient's condition improved, and they were discharged on POD 12. At time of discharge, the patient was prescribed tablet prazosin (5 mg) once daily at bedtime for hypertension management and tablet amlodipine (5 mg) once daily in morning as an additional antihypertensive medication.

Histopathology confirmed adrenal myelolipoma with islands of hematopoietic tissue comprising myeloid, erythroid and megakaryocytic precursors admixed with mature adipocytes (Figure 3).

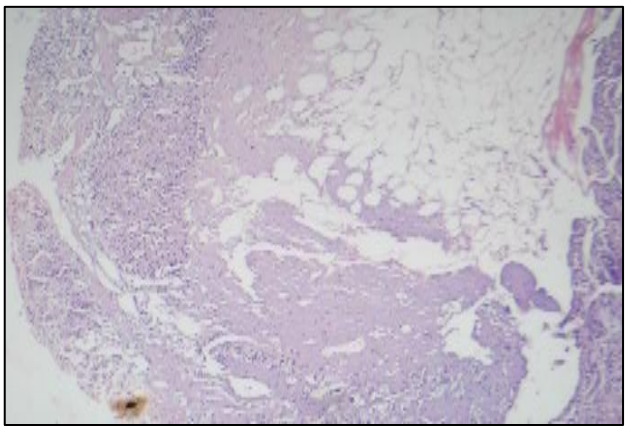

Figure 3: Histopathological specimen showing adrenal myelolipoma comprising mature adipocytes (thin arrow) and hematopoietic cells including myeloid and erythroid precursors (thick arrow) (H and E, 100X).

At 4 months follow-up, patient is doing well without recurrence.

DISCUSSION

Adrenal myelolipoma are benign tumors containing mature fat and hematopoietic cells. Though the etiology is unclear, proposed origins include metaplasia of reticuloendothelial cells in adrenal capillaries, embolization of bone marrow cells or adrenal embryonic rests.[1,3]

They occur equally among genders in 5th-7th decades, more commonly on right side.[3] Most are asymptomatic and about 60% are incidental findings.[4] Large tumors may cause nonspecific abdominal or back pain. Rarely, spontaneous rupture, hemorrhage and shock can occur.[4] Myelolipomas can coexist with adrenal adenomas, hyperplasia or adrenocortical carcinoma.[3]

On CT, myelolipomas appear as hypodense lesions with attenuations of -30 to -100 HU indicating fat. Interspersed soft tissue areas represent myeloid cells.[4]

Fine needle aspiration is controversial due to risk of bleeding.[3] Adrenal protocol CT or MRI coupled with hormonal workup usually helps in preoperative diagnosis of myelolipoma.[4] However, histopathological confirmation is definitive.

Small asymptomatic tumors can be followed up with imaging. Lesions larger than 4-7 cm or causing symptoms warrant adrenalectomy.[3] Open surgery was conventionally done for large myelolipomas. With advancements in minimal access techniques, laparoscopic adrenalectomy has become standard of care.[5] Compared to open surgery, it results in less blood loss, pain and hospital stay.[5] Both transperitoneal and retroperitoneal approaches have been used successfully.[6]

Our patient presented with abdominal pain and had a 5.6 cm myelolipoma with excess non metanephtine secretion, necessitating surgery. Availability of CT imaging and hormonal assays allowed preoperative diagnosis. Laparoscopic transperitoneal excision of left side adrenal myelolipoma was done safely with good outcome.

CONCLUSION

Adrenal myelolipomas are rare tumors occurring in midlife. Cross-sectional imaging and hormonal workup help in preoperative diagnosis. Symptomatic large lesions should be managed surgically. Laparoscopic adrenalectomy is feasible and efficacious for resection of these tumors.

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