Adrenal Lipoma With Hemorrhage

A Cause of Abdominal Pain

Deepali Jain, Prem Chopra, Ajay Sharma

Departments of Pathology and Urology, Sir Ganga Ram Hospital, New Delhi, India

Corresponding Author:

Deepali Jain, MD; DNB
Department of Pathology, Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi, India 110060

Tel: +91 986 889 5112
Fax: +91 522 264 9389
E-mail: deepalijain76@gmail.com

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INTRODUCTION

Non-functional adrenal tumors are uncommon lesions; one of these is lipoma. Lipomas are benign mesenchymal tumors arise from the adrenal cortex. Only 16 cases have been described in the literature so far, to the best of authors' knowledge (Table 1).[1-13] Here, we describe a case of large adrenal lipoma, which presented with right-sided flank pain.

CASE REPORT

A 55-year-old postmenopausal woman presented with intermittent right flank pain for one month. The pain was of moderate intensity and non-radiating. There was no history of fever, nausea, or vomiting. No symptoms related to the lower urinary tract were present. The patient was diabetic and hypertensive. There was no history of headache, palpitation, or excessive sweating. Past history was noncontributory.

On examination, the patient was obese. Her vital signs were within normal limits. The abdomen was soft and there was no organomegaly. Ultrasonography revealed a hyperechoic well-circumscribed lesion on the upper pole of the right kidney. Computed tomography scan showed a large well-circumscribed right-sided mass measuring 12.8 × 10 × 10 cm with fat density. Internal areas of hemorrhage were seen (Figure 1). Features were suggestive of myelolipoma. Patient was planned for surgery. Laparoscopic removal of tumor was done.

Grossly, tumor was well circumscribed measuring 12 × 10 × 9.5 cm. The cut surface revealed a

Table 1. Summary of the reported cases of adrenal lipomas.

First Author	Age, y/ Gender	Diameter, cm	Side	Presentation	Treatment	Remarks
Lange [1]	54/M	2.5	Rt	Paroxysmal hypertension		
Prinz[2]	73/F	3.0	Rt	Incidental finding by computed axial tomography scan	Adrenalectomy	
Avinoach[3]	40/F	1.3	Rt	Incidental finding at laparotomy		
Sharma[4]	45/M	12.0	Rt	Abdominal pain, hypertension	Laparoscopic removal	1-year follow-up
Ghavamian[5]	50/F	8	Lt	Incidental finding by CT scan	Partial adrenalectomy	Bilateral adrenal tuberculosis, necrosis, and calcification
Lam[6]	64/F	8.0	Rt	Incidental finding by ultrasonography	Resection	Calcification and ossification
	78/M	4.5	Rt	Incidental finding at autopsy		
	65/M	2.0	Lt	Incidental finding at autopsy		
Milathianakis[7]	39/M	20 cm/2900 g	Rt	Incidental finding by ultrasonography	Transperitoneal resection	Giant, calcification on CT
Rodríguez-Calvo[8]	70/M	1 cm	Lt	Incidental finding at Autopsy		Pheochromocytoma
	45/M	2 cm/18 g	Rt	Incidental finding at Autopsy		in the contralateral gland
Büttner[9]	50/M	1.1	RT	Incidental finding at Autopsy		
Shumaker [10]	68/M	7.0	Lt	Incidental finding by CT scan	Laparoscopic left adrenalectomy	
Singaporewalla[11]	44/M	15.6	Lt	Acute abdomen	Resection	Reteroperitoneal bleeding
Shah[12]	35/M	5	Rt	Pain in right loin	Right adrenalectomy	
Gupta[13]	51/M	9	Rt	Incidental finding by CT scan	Laparoscopic removal	Detected 3 months after nephrolithotomy
Present case	55/F	12	Rt	Flank pain	Laparoscopic removal	With internal hemorrhage

M indicates male; F, female; Rt, right; Lt, left; and CT, computed tomography.

yellow colored mass with central areas of hemorrhage (Figure 2). No grossly identifiable adrenal tissue was seen. Histologic examination showed a well-demarcated lesion with a thin rim of the adrenal cortex in the periphery. The lesion was composed of lobules of mature adipose tissue with collection of foamy macrophages at places (Figures 3A and B). Large areas of hemorrhage were present throughout the tumor (Figure 3C) with few clusters of hemosiderin-laden macrophages signifying old hemorrhage (Figure 3D). However, no hematopoietic elements were evident despite thorough sampling of the tumor. No atypical cell, calcification, or necrosis was seen.

DISCUSSION

Adrenal lipomas are rare lesions. Review of the literature reveals only 16 cases described to date (Table 1).[1-13] Lam and Lo found 4.8% of the adrenal lipomatous tumors in the 30-year period, of which 0.7% were adrenal lipomas.[6]

There is male predominance (male-to-female ratio of 3:1); however, our case was a female patient. Age ranges from 35

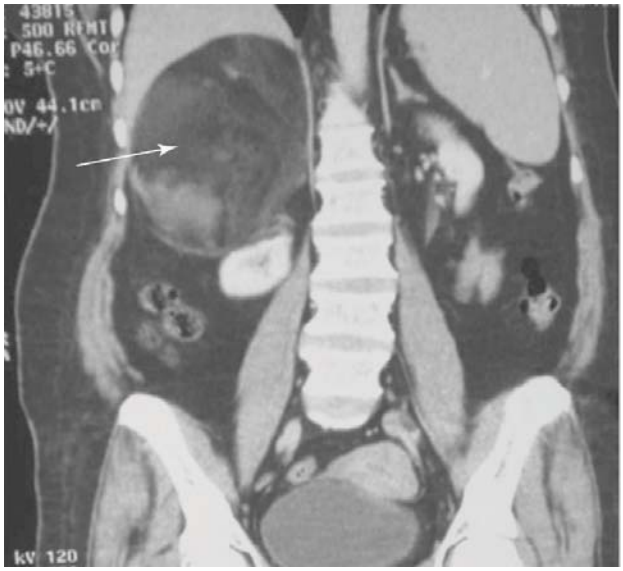

Figure 1. Computed tomography scan shows a large well-circumscribed fat density mass with internal areas of hemorrhage (White Arrow).

Figure 2. Well-circumscribed globular mass, cut surface of which is largely yellow with areas of hemorrhage.

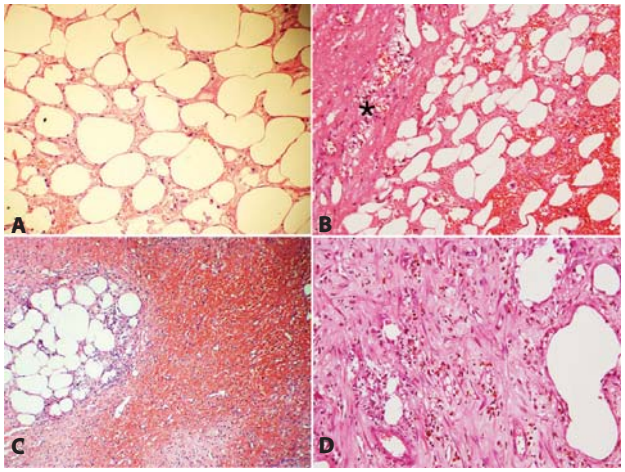

Figure 3. (A) Histology shows lobules of mature adipose tissue (Hematoxylin and Eosin stain ×200); (B) Rim of adrenal cortex (asterisk) is seen (Hematoxylin and Eosin stain ×200); (C) Areas of hemorrhage are evident (Hematoxylin and Eosin stain ×100); and (D) Few clusters of hemosiderin-laden macrophages focally signifying areas of old hemorrhage (Hematoxylin and Eosin stain ×200).

to 78 years. Most of the subjects have been reported from Eastern region of the world; however, real racial difference needs to be examined by more studies.

Right-side adrenal has been affected more commonly, including the present case.[6] Size of the tumor varies from 1 cm to 20 cm.[7] Most of the tumors have been detected incidentally. In other subjects, abdominal pain was the most frequently encountered symptom presumably due to their large size.[4] However, Milathianakis and colleagues described a case of giant lipoma of 20 cm, which was detected incidentally.[7] Our patient presented with abdominal pain presumably due to hemorrhage within the lesion. Patient may present with acute abdomen due to retroperitoneal bleeding.[11]

The origin of the adrenal lipomas is not well understood. These may arise from metaplasia of either stromal cells or adrenal cortical cells.[14] Histologically, they are similar to lipomas elsewhere in the body. These are well-demarcated lesions composed of lobules of mature adipose tissue. Focal areas of calcification can occur due to degenerative changes.[6]

Histopathologic differential diagnoses are described in Table 2. Radiological and clinical differential diagnoses include more common lesions, such as myelolipoma and adrenal cortical adenoma with myelolipomatous metaplasia. Computed tomography and magnetic resonance imaging help in accurate localization of the adrenal tumor and determining the extent of adipose and hematopoietic components.[15] However, in the present patient, it was difficult to distinguish lipoma from myelolipoma due to internal hemorrhage within the tumor. Furthermore, the lesion did not harbor hematopoietic elements despite thorough sampling. Twelve sections were taken from the 15-cm tumor to exclude the possibility of focal presence of hematopoietic elements.

Another differential diagnosis was well-differentiated liposarcoma due to large size of the tumor. The absence of lipoblasts and atypical cells excluded the possibility of liposarcoma.

Surgery is adopted for large tumors because of the risk of malignancy in large adrenal tumors and for the potential relief of symptoms in some patients. Currently laparoscopic surgery is the method of choice for removal of these tumors unless it is voluminous and complicated by rupture, bleeding, or sarcomatous changes.[16]

Table 2. Histopathologic differential diagnoses of adrenal lipoma.

Lesion	Pathology
Adrenal cortical adenoma with myelolipomatous metaplasia	**Gross:** Small encapsulated with solid homogeneous yellow cut surface **Micro:** Cells of adrenal cortex intermixed with myelolipomatous areas
Adrenal myelolipoma	**Gross:** Grayish-red, with a pseudocapsule **Micro:** Encapsulated, and composed of various proportions of mature adipose tissue and bone marrow elements; the myeloid component is best characterized by the large megakaryocytes
Well-differentiated liposarcoma	**Gross:** Yellow, soft, and greasy, and contains lobules with white septa **Micro:** Adipocytic tumor with widened fibrous septa and enlarged, hyperchromatic atypical lipocytes within both the septa and fat ; S-100 immunostains for lipoblasts
Adrenal pseudocyst	**Gross:** Fibrous, well-encapsulated cyst with or without hemorrhagic adrenal tissue and calcification **Micro:**Wide range of histological appearances and sometimes contains intracystic mature adipose tissue
Angiomyolipoma	**Gross:** Yellow to gray, with cysts if associated with tuberous sclerosis **Micro:** Mixture of adipose tissue, smooth muscle cells, epithelioid cells, and blood vessels, in varying proportions, and shows at least focal immunoreactivity for HMB-45
Teratoma	**Gross:** Solid and cystic components **Micro:** Various types of epithelium of ectodermal and endodermal origin, glial tissue, and mesodermal components

CONFLICT OF INTEREST

None declared.

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