

Case Report

Adrenal Myelolipoma

Nidhi Priya¹, Raunak Singh²

¹Assistant Professor, Department of Pathology, ²MBBS student,
RUHS College of Medical Sciences, Jaipur

ABSTRACT

Myelolipoma is a rare benign adrenal tumour. Usually it is small, asymptomatic and unilateral. It is mostly discovered as an incidentaloma during autopsy. Incidental detection of this tumour is increasing in frequency with widespread use of cross-sectional imaging such as ultrasonography (USG) and computed tomography (CT). The most consistent complaint is abdominal pain or flank pain. This case is reported as it is rare with a considerable size having symptomatic adrenal myelolipoma. We investigated and evaluated a 32 year old female who presented with chronic, intermittent backache with slightly palpable lump of unilateral myelolipoma. The pathological study revealed adrenal mass consisting of adipocytes associated with hematopoietic elements and blood clots.

INTRODUCTION

Adrenal Myelolipoma (AM) is a rare, benign and usually an asymptomatic tumour of adrenal gland. In the majority of cases they are unilateral, clinically and hormonally silent, only require periodic follow-up.¹ The tumour affects men and women equally and is most commonly found between the fifth and seventh decades of life, with a mean age of 62 years.² They are also called "Incidentalomas" since their diagnosis is based on autopsy or imaging modalities which are performed for reasons usually unrelated to adrenal diseases. Incidence ranges from 0.08% to 0.4%, and less than 300 cases were reported in the literature before year 2000.³ However, in recent times, as a result of widespread use of non-invasive cross-sectional imaging modalities such as ultrasonography (USG), computed tomography (CT) and magnetic resonance imaging (MRI), incidental detection is more common.² These lesions are often smaller than 4 cm in diameter, and the largest reported in the literature was 31x24.5x11.5 cm and weighed 6 kg.⁴ They are generally non-secreting in nature and only one case of secreting myelolipoma has been reported so far.⁴

Occasionally there are clinical symptoms such as abdominal pain or flank pain as observed in the present case. Spontaneous acute retroperitoneal haemorrhage of larger lesion associated with myelolipoma has been described in literature.⁵ Several case series have reported the predominance of the tumour in the right adrenal gland⁶, which is yet to be explained. Treatment generally consists of surgery (open or laparoscopic) as it is cost effective and safer. Elective surgery can prevent a more severe symptom presentation and life threatening progression while also allowing accurate diagnosis in patients with tumours larger than 6 cm.⁷

Case Description: This is a case of a 32 year-old female who was admitted in RDBP Jaipuria Hospital, Jaipur, Rajasthan. She presented with chronic, intermittent backache with a slightly palpable lump on the right side of the flank. Ultrasonography (USG) of the whole abdomen was performed and confirmed the presence of a right supra-renal mass. CT scan analysis confirmed the presence of adrenal myelolipoma. Left adrenal gland was found to be normal. Complete blood count (CBC), erythrocytic sedimentation rate (ESR), blood sugar, blood pressure, glomerular filtration rate (GFR), serum creatinine were normal in this patient. Right adrenalectomy was performed with a smooth and uneventful recovery. Biopsy of the excised tissue was done in the Department of Pathology, RUHS College of Medical Sciences, Jaipur, Rajasthan.

Gross Histopathology: Excised mass is a single capsulated, grey-brown to grey-yellow adrenal mass measuring 6.0x5.0x3.5 cm (Figure 1). Cut section showed a variegated surface with a peripheral rim of haemorrhagic dark-brown appearance (Figure 2). Central area was tan-yellow indicating presence of adipose tissue (Figure 2). Haematoxylin and Eosin stained sections were prepared and studied under microscope at 4x (Figure 3), 10x (Figure 4), 40x (Figure 5) magnifications.



Figure 1: Gross picture showing right adrenal mass.



Figure 2: Cut section showing adrenal gland with, A; yellowish adipose tissue and B; dark brown hemorrhagic periphery.

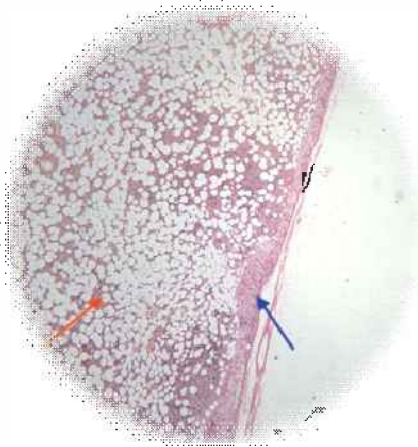


Figure 3: H and E stained microphotograph (10x) showing, A marrow tissue (Red arrow), B cortical tissue (Blue arrow).



Figure 4: H and E stained microphotograph (40x) showing, A marrow tissue (Red arrow), B cortical tissue (Blue arrow).

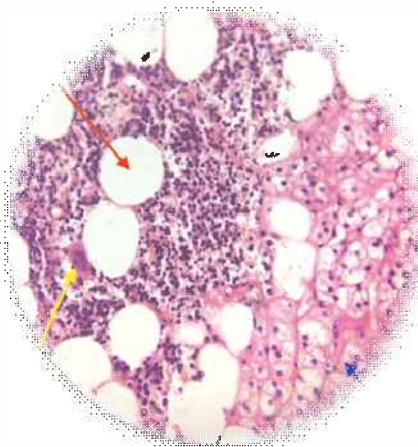


Figure 5: H and E stained microphotograph (100x) showing, 100x) Adrenal cortex (Blue arrow), B; adipocytes (Red arrow) and C Megakaryocytes (Yellow arrow).

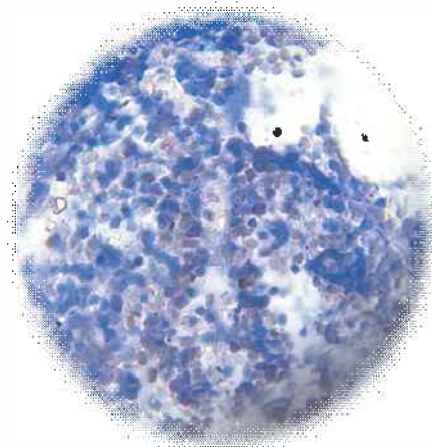


Figure 6: Microphotograph (oil immersion). showing MPO Positivity (presence of myeloid series of cells).

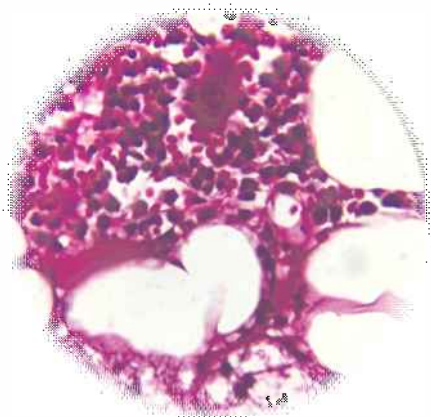


Figure 7: Microphotograph (oil immersion 100x) showing PAS stain positivity showing presence of erythroid series, myeloid series and megakaryocytes.

Microscopy revealed predominantly mature adipose tissue with scattered islands of haematopoietic tissue, with the periphery showing presence of thin rim of normal adreno-cortical tissue (Figures 3, 4, 5). Myeloperoxidase test was done and was found positive for myeloid series of cells (Figure 6). Periodic Acid-Schiff test was also positive, confirming the presence of erythroid, megakaryocytic and lymphocytic lines of cell (Figure 7).

DISCUSSION

Characteristic findings in the pathology of this lesion involve mature adipocytes with fat-laden vacuoles, peripheral nuclei and haematopoietic series of cells along with normal marrow tissue. Large adrenal lumps of such dimensions present with pressure symptoms on adjacent structures leading to chronic, vague, intermittent abdominal pain. Only symptomatic lesions demand excision. The extra-medullary hematopoietic tissue component is often the predominant finding in these cases and therefore the most characteristic feature under microscopy. In general, these tumours were earlier discovered accidentally on autopsy with a low incidence⁷. With advancement in non-invasive imaging modalities, these tumours are found more frequently.⁸ It is suggested that symptomatic tumours or myelolipomas larger than 7 cm should be surgically excised², so as to prevent a urological emergency since there are reports of spontaneous rupture and haemorrhage of the mass presenting with life-threatening cardiovascular shock.⁹ Additionally, myelolipomas have been reported to grow significantly during observation and there are number of case reports where spontaneous bleeding occurred even with minor trauma.^{10,11} It has been

proposed that formation of AM may be precipitated by adrenocortical metaplasia of the reticulo-endothelial cells of blood capillaries secondary to infection, stress, or necrosis.^{6,12} Various other conditions often associated with adrenal myelolipomas include Cushing's disease, obesity, hypertension, and diabetes which can be characterized as major adrenal stimuli.¹³ Present case, however, had normal adrenal hormonal levels. The only other abnormal finding was of florid lymphocytic thyroiditis. There is increasing number of myelolipomas reported with endocrine abnormalities which necessitate the use of thorough pre-operative work up including biochemical studies. Although, it is a benign tumour, surgery plays an important role in treatment of symptomatic cases and in those in which malignancy cannot be distinguished reliably. After excision, AM does not recur, with recurrence-free survival rates of up to 12 years being reported.¹⁴ The management plan has to be decided on case to case basis.

Acknowledgement: Sincere thanks to Dr. Gajendra for help given in the case report.

REFERENCES

1. Chakraborty PP, Bhattacharjee R, Mukhopadhyay P, Chowdhury S. Bilateral adrenal myelolipoma in Cushing's disease: a relook into the role of corticotropin in adrenal tumourigenesis. *BMJ Case Rep.* 2016 Jun 15.
2. S Daneshmand and M L Quek. Adrenal myelolipoma: diagnosis and management. *Journal of Urology* 2006;3:71-74.
3. J Settakorn, C Sirivanichai, S Rangdaeng, and B Chaiwun. Fine-needle aspiration cytology of adrenal myelolipoma: case report and review of the literature. *Diagnostic Cytopathology* 1999;21:409-412.
4. A Brogna, G Scalisi, R Ferrara, and A M Bucceri. Giant secreting adrenal myelolipoma in a man: a case report. *Journal of Medical Case Reports* 2011;5:article 298.
5. Bradbury R, Lambrianides AL, O'Loughlin B, Manawwar S. Image of the month. *Arch Surg* 2011;146:1445-1446.
6. P J Kenney, B J Wagner, P Rao, and C S Heffess. Myelolipoma: CT and pathologic features. *Radiology* 1998;208(1):87-95.

7. Sen R, Gupta S, Parmar P, Brar K, Gilotra M, Gupta V. Giant adrenal myelolipoma: A rare case report and review of literature. *J Integr Nephrol Androl* 2017;4:60-2.
8. Nabi J, Rafiq D, Authoy FN, Sofi GN. Incidental detection of adrenal myelolipoma: A case report and review of literature. *Case Rep Urol* 2013;789481.
9. C Russell, B W Goodacre, E Van Sonnenberg, E Orihuela. Spontaneous rupture of adrenal myelolipoma: spiral CT appearance. *Abdominal Imaging* 2000;25(4):431-434.
10. Albala DM, Chung CJ, Sueoka BL, Memoli VA, Heaney JA. Hemorrhagic myelolipoma of adrenal gland after blunt trauma. *Urology* 1991 Dec;38(6):559-62.
11. Russell C, Goodacre BW, vanSonnenberg E, Orihuela E. Spontaneous rupture of adrenal myelolipoma: spiral CT appearance. *Abdom Imaging* 2000 Jul-Aug;25(4):431-4.
12. Plaut A. Myelolipoma in the adrenal cortex; myeloidipose structures. *Am J Pathol* 1958;34:487-515.
13. SITYritzis, IAdamakis, VMigdalidis, DVlachodimitropoulos, and C A Constantinides. Giant adrenal myelolipoma, a rare urological issue with increasing incidence: a case report. *Cases Journal* 2009;2(9),article 8863.
14. Ioannidis O, Papaemmanoiul S, Chatzopoulos S, Paraskevas G, Konstantara A, Kotronis A. Giant bilateral symptomatic adrenal myelolipomas associated with congenital adrenal hyperplasia. *Pathol Oncol Res.* 2011 Sep;17(3):775-8. [Epub ahead of print]

Corresponding Author

Raunak Singh, Student 2nd year MBBS student, RUHS College of Medical Sciences, Jaipur.
email: raunaksingh201197@gmail.com