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Adrenal Myelolipoma: An Uncommon Urological Lesion of the Adrenal Gland

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Abstract:

Adrenal myelolipoma is a rare benign neoplasm consisting of mature fat and bone-marrow elements. Most lesions are small, unilateral and asymptomatic, discovered incidentally on imaging studies performed for other reasons or at autopsy. In recent years, larger, symptomatic myelolipomas have been successfully resected. They can be asymptomatic, even if their size is massive. Their low incidence seems to be increasing from 0.2% to 10% during the last decade. We report a case of huge adrenal myelolipoma weighing 600 gms which was diagnosed on radiology as well defined adrenal mass. This case is unusual in view of the large size and presence of haemorrhage in <10 cm mass.

Key words: Adrenal Gland Neoplasms, Autopsy, Bone Marrow, Myelolipoma.

Introduction

Myelolipomas are benign and clinically silent tumors as they are nonfunctioning but have also been reported to coexist with other hormonally active tumors of the adrenal gland [1]. Most adrenal myelolipomas are small (diameter <4 cm) and asymptomatic, but spontaneous rupture of larger tumors has also been reported [1,2]. Abdominal pain is the most common clinical symptom of large tumors. They occur usually in adults. The surgical treatment becomes necessary when the tumors size increases or it becomes symptomatic.

Case Report

A 58 year-old man was admitted with intermittent right abdominal pain. There was no significant past medical illness. Physical examination and laboratory tests were normal. Computerized tomography showed a large right retroperitoneal mass above the right kidney. A diagnosis of well-defined adrenal mass was considered [Fig.1]. A laparotomy was performed revealing a large mass above the upper pole of the right kidney. The tumor was separate from the right kidney so the kidney could be preserved.

Gross examination of the surgically excised specimen showed a 9x6x3 cm, well circumscribed thinly encapsulated solid tumor weighing 600 grams, which was yellow with a few brown areas on its external surface [Fig.1] expanding the adrenal medulla. On cutting, the tumor was bright yellow,

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greasy with a few irregular reddish - brown areas at the periphery. An occasional small bony spicule 0.5x0.4 cm was seen in the center of the tumor.

Microscopic examination revealed that the tumor was composed predominantly of mature adipocytes interspersed with haemopoietic tissue [Fig.2]. The hematopoietic tissue contained erythroid, granulocytic cell lines, few lymphoid cells and many megakaryocytes. A thin rim of normal adrenal tissue was seen in one of the sections [Fig.2]. A diagnosis of myelolipoma of the adrenal gland was made.

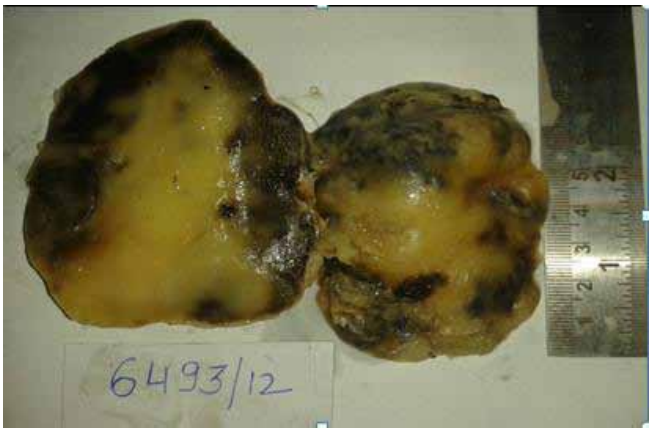

Fig.1: Cut surface of adrenal myelolipoma showing dark brown and yellowish areas.

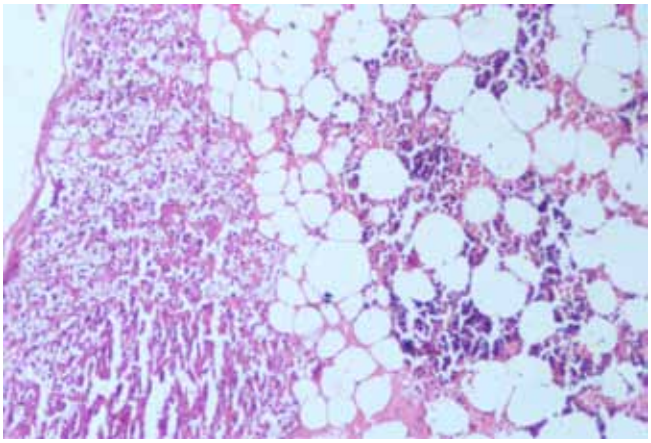

Fig.2: Microscopic appearance of adrenal myelolipoma. Typical histological features of myelolipoma comprising varying proportion of adipose tissue admixed with areas of hematopoietic tissue. To the left, adrenal tissue is seen.

Discussion

Myelolipoma first described by Gierke in 1905 and given the name "myelolipoma" by Oberling in 1929 [3]. Adrenal myelolipomas are also called incidentalomas, since their diagnosis is based on autopsy or imaging techniques performed for reasons unrelated to adrenal diseases. They are relatively rare, non-functioning benign tumors composed of mature fatty and active hematopoietic elements. Their incidence ranges from 0.01% to 0.2%. Nevertheless, their prevalence seems to be increasing up to 10%, due to novel and enhanced imaging techniques [4].

Our case is a 58 year male presented with dull aching pain abdomen probably because of large size of tumor. The cause of abdominal pain is usually hematuria, tumor necrosis or mechanical compression from the tumor. They are commonly discovered in fifth to seventh decade with male is to female ratio is 1:1 [5]. On imaging various differential diagnosis considered were adrenal myelipoma, adrenal adenoma, lipoma, liposarcoma and renal angiomyelolipoma. The most well recognized complication of adrenal myelolipoma is spontaneous retroperitoneal haemorrhage. No potential of malignancy for adrenal myelolipoma has been proved. Multiple theories have been proposed for the etiology and natural course of the adrenal myelolipoma [6]. The most widely accepted theory is of adrenocortical cell metaplasia in response to stimuli, such as, necrosis, inflammation, infection, or stress [7]. Cushing's disease, hypertension, diabetes and obesity are often related to adrenal myelolipomas and could be characterized as major adrenal stimuli. Imbalanced diet and stressful lifestyle could be implicated to

the pathogenesis of this tumor [8]. Another unusual and unexplained observation is the predominance of the tumor in the right adrenal gland, as reported in several series [9] as also in our case.

Conclusion

Adrenal myelolipoma is a relatively rare tumor. Cross sectional imaging is helpful in making a pre-operative diagnosis. In order to prevent serious morbidity or exclude malignancy, criteria for surgical intervention should include size of more than 4 cm at presentation or change in appearance. No endocrinal evaluation is needed since myelolipomas are nonfunctioning tumors.

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