CASE REPORT J Pub Health Med Res 2013;1(1):55-57

Giant Degenerated Adrenal Adenoma-A Case Report

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[Received: 22/02/2013, Revised: 26/02/2013, Accepted: 04/03/2013]

Abstract

Adenomas of the adrenal cortex are common and usually asymptomatic with a diameter of 3–3.5 cm. However, adrenal tumors over 4 cm in diameter are diagnosed as malignant. In the present study, we present a case of non-functional large adrenal adenoma. An adenoma of the adrenal cortex with a size of 10x8 cm was sent to the department of Pathology following surgery. A detailed search of the literature revealed that a subgroup of adrenal adenomas is large and heterogeneous which calcify and shows areas of internal hemorrhage and necrotic components mimicking malignant lesion making Imaging modalities alone insufficient for diagnosis. This emphasizes the importance of surgical resection and histopathological examination.

Key words: Adrenal adenoma, Incidentaloma, Adrenocortical carcinoma

Introduction

Characterization of adrenal adenoma is an important clinical problem. They are frequently seen on imaging as the so called 'incidentaloma'. Incidence of adrenal masses is 2-9% as revealed by autopsy studies.1They present as sharply circumscribed masses that usually weigh less than 60g and measure 3 to 4 cm in average diameter. Tumors weighing more than 100 g should be examined carefully to rule out malignancy since evidence has revealed that the risk of malignancy increases with increasing tumor size[2, 3]. Further, malignancy is diagnosed in 45-100% of adrenal tumors that are over 4cm in diameter4. Adrenocortical carcinomas are typically large at diagnosis, ranging from 3 to 20 cm in diameter with distant metastases occurring in 20–50% of these cases.5These are rare tumors with incidence of approximately one to two cases per million population per year which accounts for only 0.05% and 0.2% of all malignancies.[2]

Case report

A 50 year old lady presented with vague, intermittent pain in left upper abdomen since 18 months which increased in intensity over four months. Clinical examination revealed tenderness in the left hypochondrium. The patient's medical history was insignificant and there had been no external trauma in the days prior to admission. Systemic examination was normal. First USG was inconclusive. A heteroechoic mass of 8.1x5.6 cm in left suprarenal region was reported. Further, irregular hypo echoic shadows were noted which were suspicious of necrosis or bleeding. There were no defined retroperitoneal nodes and renal vessels were found to be normal. Impression was left heteroechoic suprarenal mass suspicious of adrenal exophytic origin or upper pole renal exophytic malignant mass. Review USG by another radiologist showed lesion measuring about 6.3x5.5 cm in the left suprarenal area with solid and necrotic components in part of lesion. Left kidney appeared to be separate from the lesion. Impression was a mass lesion at left suprarenal fossa with necrotic areas probably of adrenal origin. Laboratory parameters including urine for vanillyl mandelic Acid (VMA was 3.1 mg/24 hrs, reference range-<13.6 mg/24 hrs) were all within the normal range.

Later, first MRI reported hypo intense signals with internal whorled appearance / floating lily appearance. Few small cystic lesions and wall calcification were noted which gave an impression of retroperitoneal hydatid cyst in left suprarenal region.

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Review MRI showed an encapsulated mass above left kidney with solid, necrotic and cystic areas indicating possibility of a malignant adrenal lesion. (Fig 1)

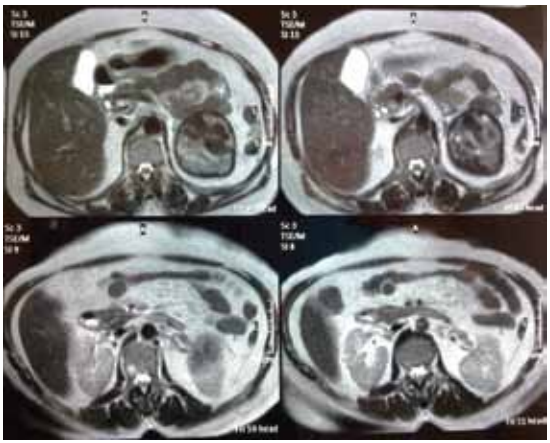

Fig 1. Well encapsulated left suprarenal mass lesion. Note the hypointense fibrous rim in the periphery. The lesion is predominantly solid with hypointense areas along with hypointense areas within the lesion. These appearances indicate presence of fat /cystic change/ hemorrhage: The left kidney is separate from the lesion. This indicates left adrenal solid benign lesion.

Surgical exploration was performed under general anaesthesia.The mass was excised by left lumbar retroperitoneal approach. Operative findings were a well encapsulated 10X8 cm mass present in upper pole of left kidney which is well separated from the kidney. Adrenal grand was not seen separately.It was mobilised and excised without much difficulty. Grossly the lesion measured 10x8 cm,was globular and cystic (Fig 2). Cut section showed well encapsulated lesion, predominantly showing hemorrhagic and necrotic areas. (Fig 3)

Microscopy revealed a partially encapsulated lesion,(fig 4) comprising of tumor cells resembling that of zona fasiculata with mild nuclear pleomorphism and abundant pale cytoplasm arranged in cords and trabeculae. Stroma showed hemorrhage, calcification and necrosis. Focally, there was an area of compressed adrenal cortical tissue.

Fig 2: Gross, globular and cystic mass(After fixation)

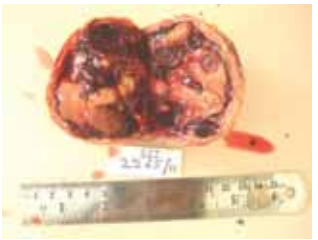

Fig 3 : Well encapsulated lesion with haemorrhagic and cystic areas

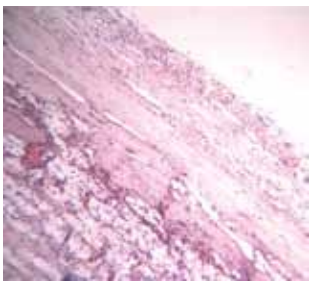

Fig 4:Capsule with clear cells (low power, H&E)

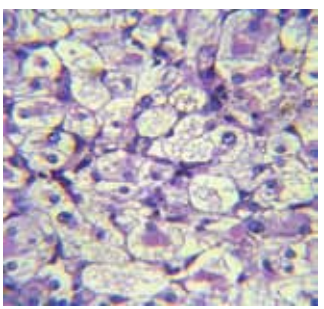

Fig 5: tumor cells resembling that of zona fasiculata with mild nuclear pleomorphism and abundant pale cytoplasm arranged in cords and trabeculae. (High power, H&E)

Discussion

The Incidence of adrenal adenomas is 2.86% and usually measures 3-3.5cm5. Color varies from yellow to brown and occasionally heavily pigmented lesions (black) are seen. They contain intracellular lipid and almost never liquefy.[2] Necrosis and calcification are rare but cystic change is relatively common. Fasiculata type of cells arranged in small nests, cords or alveolar arrangement are found predominantly[1].

Malignant and benign tumors of the adrenal cortex are difficult to distinguish before surgery and by imaging modalities. On imaging, an adrenal adenoma is typically small (usually <5 cm), well-circumscribed, homogeneous mass with near fluid attenuation values on precontrast CT and uniform contrast enhancement with rapid washout of iodinated or gadolinium-based contrast material1. Malignancy is identified based on distant metastases and local invasion. However, carcinomas are usually larger and occur at any age, including in children5 .The risk of malignancy increases with increasing tumor size and the majority of tumors of above 4 cm in diameter were diagnosed as malignant6. In the present case, the malignancy was suspected due to the large size of the tumor. However, in 1984, Weiss proposed that the presence of three or more of the following features was significant criteria for malignant clinical behavior: nuclear grade III or IV, mitotic rate >45/50 high-power fields, atypical mitoses, clear cells constituting <25%, more than 1/3 diffuse architecture, necrosis, sinusoidal, venous and capsular invasion7, 8. As per these criteria, the case we reported belongs to the benign category. Masugi et al reported a case of non-functional adrenocortical adenoma of 5.5 x 5.5 x 3.2 cm in size that had an unusual histopathological appearance.9 Denzinger et al reported an adenoma of the adrenal cortex with a diameter of 18 cm, which ruptured spontaneously.10 Baozhong etal also described a giant adenoma of the adrenal cortex with a diameter of 32 cm and a weight of 7500 g which is reported as the largest benign tumor of the adrenal cortex described to date.5 All the above studies agrees with our findings.

Conclusion

A subgroup of adrenal adenomas is large and heterogeneous. They calcify more frequently and have areas of internal hemorrhage and necrotic components. Imaging features alone cannot differentiate these lesions from adreno-cortical carcinoma and metastases .Thus surgical resection and histopathological examination is the gold standard for the diagnosis of adrenal masses.

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How to cite this article;

Shamila MA, Shashikala P, Manjula A, Nagaraj P, Bahgwat KA. Giant degenerated adrenal adenoma: A case report, J Pub Health Med Res 2013;1(1):55-57

Funding: Declared none
Conflict of intereset: Declared none