Case Report

A rare case of adrenal hemangioma: A case report

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ABSTRACT

Adrenal hemangiomas are rare benign tumors arising from the endothelial cells lining the blood vessels, which are made up of angioblastic cells. They are usually identified incidentally on radiographic imaging and post-operative histopathology is usually the definitive diagnosis. Computed tomography and magnetic resonance imaging help in the detection of silent adrenal lesions. We present a case and outline the diagnostic work-up and treatment of incidentally detected adrenal hemangioma in a 66-year-old woman.

Key words: Adrenal hemangioma, Computed tomography scan, Incidentaloma, Peripheral nodular enhancement

Adrenal hemangiomas are rare benign tumors arising from the endothelial cells that line the blood vessels. Usually, they are identified incidentally on imaging and post-operative histopathological diagnosis is typically used to make a definitive diagnosis [1]. The first incidence of adrenal cavernous hemangioma was reported in the mid-1950s [2]. Although they can occur at any age, adrenal hemangiomas are most frequently found in people between the ages of 40 and 70 with a female: male ratio of approximately 2:1 [1,3]. Its incidence has increased in recent years with the widespread use of cross-sectional imaging modalities that detect silent adrenal lesions. Its significance lies in the challenge to differentiate it from other malignant adrenal lesions [4].

We present a case and outline the diagnostic work-up of adrenal hemangioma identified incidentally on a contrast-enhanced computed tomography (CECT) scan done for the workup for acute pancreatitis in a 66-year-old female.

CASE REPORT

A 66-year-old woman with no known comorbidities presented with the complaint of the right upper quadrant abdominal pain radiating to the back for 3 days. The pain was associated with nausea and vomiting.

On physical examination, she was afebrile, had a blood pressure of 140/80 mmHg, and a pulse rate of 120 bpm. Per abdominal examination revealed tenderness and guarding in the right hypochondrium and epigastric region. The rest of the examination findings were normal.

Her laboratory findings at the time of admission revealed an elevated white blood cell count at 16.7×10^3/uL with 81% neutrophils, hemoglobin level of 11.7 g/dl, and platelets of 106×10^3/uL. Liver and kidney function tests were within normal limits. Her serum amylase level was 447 IU/L and lipase was 953 IU/L. Her past medical records were unremarkable. There was no evidence of hypertension and no known primary malignancy. Serum dehydroepiandrosterone sulfate 420 µ/dl, 24-h urinary cortisol 20 µ/24 h, serum metanephrine 54 pg/mL, and normetanephrine 85 pg/mL were within normal limits suggestive of non-functional adrenal tumors.

CECT abdomen was advised to estimate the CT severity score for pancreatitis and referred to the radiodiagnosis and imaging department. The non-contrast scan revealed an incidental right suprarenal lesion, and hence, CECT abdomen with the adrenal protocol was done using a helical CT-128 slice to further characterize the mass lesion. On an axial non-contrast scan, a well-circumscribed soft-tissue attenuation (~22 HU) lesion measuring ~ 4×3.6×3.2 cm (AP×TR×CC) was seen in the right suprarenal region arising from the adrenal gland (Fig. 1). No areas of fatty attenuation or calcific foci were seen within the lesion. On contrast imaging, discontinuous peripheral nodular enhancement was seen in the arterial phase (Fig. 2a) with gradual centripetal filling in the subsequent phases (Fig. 2b and c). The lesion revealed homogeneous post-contrast enhancement on

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15 min delayed scan and appeared isodense to the blood pool of aorta in all phases. Fat planes with the adjacent organs were well-maintained. No enlarged lymph nodes were detected. The left adrenal gland was normal.

She was managed conservatively for pancreatitis (CT severity index for pancreatitis was 4/10). She was treated with intravenous fluid, antiemetics, and analgesics. Her symptoms continued to improve during the course of the hospitalization with the resolution of leukocytosis without the use of antibiotics. She was discharged after 5 days with complete resolution of the symptoms of pancreatitis. Since the imaging features of the mass lesion were characteristic of adrenal hemangioma, she was advised to follow-up by ultrasound abdomen to estimate any increase in the size of the lesion and rule out any complications. At the 6-month follow-up, the adrenal hemangioma was stable and showed no signs of complications.

DISCUSSION

Adrenal adenomas constitute ~80% of adrenal incidentalomas. However, the differential diagnosis of the incidental adrenal mass is broad. Other differentials of adrenal incidentaloma include adrenal cortical carcinoma, metastatic lesion from an extra-adrenal primary, pheochromocytoma, and benign lesions including adrenal cyst, myelolipoma, hematoma, ganglioneuroma, or cavernous hemangioma [3].

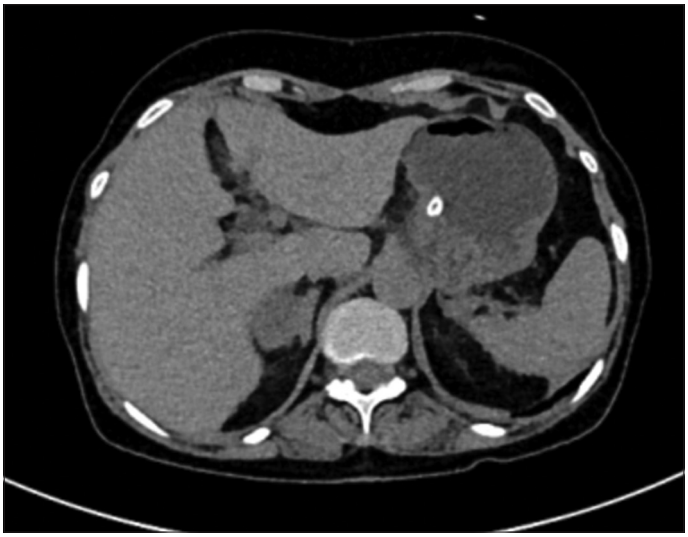

Figure 1: Axial NCCT abdomen shows a well-circumscribed soft-tissue lesion arising from the lateral limb of the right adrenal gland with no areas of calcification or fat attenuation within

Adrenal hemangiomas are generally non-functioning, asymptomatic, and unilateral tumors detected incidentally on imaging. Only a few secreting adrenal hemangiomas are reported in the literature [4,5]. Its exact etiology is not well understood but is thought to arise from the endothelial cells lining blood vessels. They are believed to be congenital with a natural history of vascular ectasia and subsequent enlargement over time [6]. They are usually asymptomatic or the patient may present with vague abdominal pain from pressure-related symptoms. Spontaneous life-threatening retroperitoneal hemorrhage is the most common complication associated with adrenal hemorrhage [7].

In the past two decades, its detection is relatively increased with the widespread use of cross-sectional imaging modalities. The cavernous hemangioma is crucial to take into account when making a differential diagnosis of an adrenal tumor as they may be mistaken with malignant tumors of the adrenal gland [8].

CECT abdomen is one of the reliable diagnostic tools for adrenal hemangiomas. Adrenal hemangioma is characterized by the presence of both peripheral, discontinuous nodular enhancement, and gradual centripetal filling of contrast and a highly dense peripheral rim [9]. The lesions may have calcific and hemorrhagic foci within. In our case, the lesion shows discontinuous and peripheral nodular enhancement that appears isodense to the blood pool of aorta in all phases. However, the diagnosis is difficult without centripetal enhancement as other adrenal tumors may exhibit peripheral enhancement and as a result, it is still challenging to make a pre-operative diagnosis of an adrenal hemangioma [10] and the confirmatory diagnosis mainly depends on the histopathological diagnosis by the pathologist.

Management defers depending on the size and associated complications. A follow-up scan or surgical excision with either open or laparoscopic adrenalectomy is recommended. According to Deckers *et al*., a conservative approach with follow-up by imaging is recommended for tumors <3.5 cm in size [10], while tumor excision is the definitive treatment in symptomatic patients and large lesions. Lesions that are less than 6–7 cm in diameter are considered for laparoscopic adrenalectomy [11]. However, the laparoscopic approach in established and specialized facilities is also suggested in larger tumors ≥8 cm for safe and effective treatment [12,13].

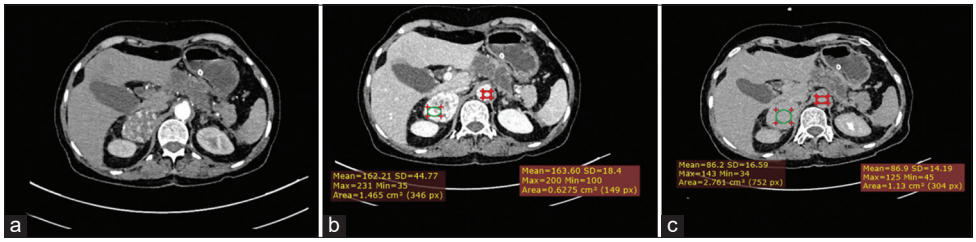

Figure 2: (a) Axial post-contrast arterial phase shows discontinuous peripheral nodular enhancement; (b) axial post-contrast venous phase image shows gradual centripetal filling with attenuation similar to the blood pool; and (c) axial post-contrast 15 min delayed phase image shows homogeneous enhancement isodense to the blood pool of aorta

CONCLUSION

Despite being an uncommon lesion, the differential diagnosis of adrenal neoplasms should include the possibility of an adrenal hemangioma. Based on the tumor size, surgery is indicated. It is an effective treatment method and is usually considered if the tumor changes in appearance or size, to relieve pressure-related symptoms, and prevent retroperitoneal hemorrhage. Diagnostic imaging often lacks certain details; however, laparoscopic adrenalectomy can be performed, if the lesion shows characteristic features of adrenal hemangioma and pre-operative diagnosis is established.

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