Incidental detection of bilateral adrenal myelolipoma

Clinical History:

A 45-year-old male patient presented to us with the complaint of mild bilateral flank pain and gastric burning for the past 4 months. He was on pain killers which were prescribed by his family physician. His physician advised him to undergo contrast-enhanced CT examination of the abdomen.

Imaging Findings:

CT abdomen reveals incidental findings of fairly well-circumscribed encapsulated masses in the left and right supra-renal regions, containing predominantly fat and few soft tissue strands which show enhancement (Fig. 3). The mass on the left side measures 18.9 x 12.8 x 17.6 cm, causing infero-medial displacement of the left kidney and left renal vein in the pelvis (Fig. 1). Great vessels are displaced towards mid-line by the mass. The mass is pushing the body and tail of the pancreas anteriorly and the spleen laterally (Fig. 2). It is also displacing the adjacent bowel loops. The mass on the right side is seen with similar properties. It measures 6.0 x 5.0 cm causing inferior displacement of the right kidney (Fig. 4).

On concomitant ultrasound abdomen, a hyperechoic mass is seen in the right and left supra-renal region with undefined margins (Fig. 5).

Discussion:

DISCUSSION

Adrenal myelolipomas are rare benign, non-secretory and usually asymptomatic tumours of the adrenal gland characterized by a variable amount of fat-containing components. These tumours account for 3–5% of all primary tumours of the adrenals and are identified as incidentalomas. There is no gender predilection. Typically, they are over 4 cm in size. If they are more than 4 cm in size, they present with mass-related symptoms like pain. Larger myelolipomas are at risk of localized tissue death and bleeding, which may cause a retro-peritoneal haemorrhage. [4]

IMAGING FINDINGS

Plain radiograph is non-specific and not an imaging modality for these lesions.

Sonographic appearances vary with the composition of the neoplasm. If the tumour contains predominantly fatty
components, it appears uniformly hyperechoic. If the tumour contains predominance myeloid cells, it appears heterogeneous or hypoechoic. The classic appearance is of an echogenic suprarenal mass.

The preferred imaging modality is computed tomography which predicts the presence of adrenal myelolipoma with 100% specificity. [1]
The typical adrenal myelolipoma appears as a fat-containing mass. The fatty component interspersed with higher-attenuation myeloid tissue is diagnostic. The attenuation values are low (-20 to -30 HU), reflecting the mixture of adipose and myeloid elements. The masses usually have a capsule and may contain calcification (20%). Calcification may be due to previous haemorrhage. After contrast administration, the mass shows enhancement.

On MRI
T1: Hyperintense due to fat content.
T2: Intermediate to hyperintense due to haematopoietic tissue
T1 (FS) sequence: Shows fat suppression of the mass, which further confirms the diagnosis.
T1 (GAD): Shows striking enhancement.

Differential diagnosis includes fat-containing adrenal carcinoma which is a malignant tumour containing areas of haemorrhage and necrosis with heterogeneous enhancement. Another differential would be of retroperitoneal liposarcoma which is malignant and appears hypertense on T2WI with delayed post-contrast enhancement.

TAKE HOME MASSAGE
Bilateral adrenal myelolipoma is a rare benign neoplasm and mostly discovered as an "incidentaloma". Imaging findings and histopathological features of bilateral adrenal myelolipomas will facilitate timely diagnosis and treatment of this condition.

OUTCOME
As adrenal myelolipomas are benign lesions, they have no malignant potential. If imaging features are characteristic and the lesion is small, no treatment is required. But if they are large enough to produce mass-related symptoms, then they are surgically removed and after surgical resection, these lesions do not tend to recur. [1]

Differential Diagnosis List: Bilateral adrenal myelolipoma, Retroperitoneal liposarcoma, Fat-containing adrenocortical carcinoma

Final Diagnosis: Bilateral adrenal myelolipoma

References:
Parvati Ramchandani (2015) Adrenal Myelolipoma Imaging. article ID 376700
Dr Yuranga Weerakkody et al. Adrenal-myelolipoma. radiopaedia.org
Description: The mass is displacing the left kidney and left renal vein inferomedially in the pelvis.
Origin: Jinnah Postgraduate medical Centre, Department of radiology, Karachi, Pakistan
Description: The mass lesion on the left side is displacing the body and tail of the pancreas anteriorly and indenting the surface of the spleen laterally. **Origin:** Jinnah Postgraduate medical Centre, Department of radiology, Karachi, Pakistan
**Description:** Predominantly fat and few soft tissue strands enhancement seen in mass lesion bilaterally. **Origin:** Jinnah Postgraduate medical Centre, Department of radiology, Karachi, Pakistan
Description: The mass on the right side is causing mild displacement of the right kidney inferiorly.

Origin: Jinnah Postgraduate medical Centre, Department of radiology, Karachi, Pakistan
Description: On concomitant ultrasound abdomen, there was presence of a hyperechoic mass in the right and left suprarenal region with undefined margins. Origin: Jinnah Postgraduate medical Centre, Department of radiology, Karachi, Pakistan