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A Case of Retroperitoneal Liposarcoma

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Abstract: ***A 47 year old male presented with lump in the abdomen since 3months, which is insidious in onset, gradually progressive in size. Not associated with pain/vomitings/bowel irregularities. On examination, a large mass of size 26x20cms is noted occupying entire abdomen. No local rise of temperature, non tender, firm in consistency with smooth surface and well defined borders, not moving with respiration. On USG abdomen, a large mass lesion of size 20x 19cm noted occupying the entire abdomen- ?retroperitoneal origin and causing left mild hydroureteronephrosis. On CECT, it showed large lipid containing heterogenous retroperitoneal mass measuring approx 25x23x20cms involving left ilio-psoas muscle, left ureter with mass effect and left hydroureteronephrosis- likely retroperitoneal liposarcoma. Biopsy confirmed it as liposarcoma.***

Keywords: Retroperitoneum, liposarcoma, USG, CECT scan

1. Introduction

- The retroperitoneum is a complex space that contains solid organs and hollow viscera and lymph nodes, major vascular structures, and stromal tissues of the retroperitoneum. Identification of a retroperitoneal mass at imaging is a difficult for radiologists.
- The presence of fat within a retroperitoneal lesion is helpful in narrowing the differential diagnosis. Because of its characteristic imaging appearance, fat is easily recognized.
- Liposarcoma is described as either the most common or second most common type of soft tissue sarcoma (STS) in adults (1, 2) . There is male predominance of cases (3, 4).
- Liposarcoma is a malignant tumor of mesenchymal origin. Liposarcoma is one of the most common primary neoplasms in the retropenitoneum, whereas primary mesenteric and primary peritoneal liposarcomas are rare (7, 8).
- Liposarcomas can develop in any where in the body. The most common sites are the thigh and retroperitoneum.
- Retroperitoneal liposarcoma most often presents as an asymptomatic abdominal mass, though infrequently patients will present with symptoms caused by the effect of the growing mass on adjacent structures (incomplete obstruction, gastrointestinal bleeding, and pain) (4).
- Histologically, liposarcomas are classified as well-differentiated, myxoid, pleomorphic, and round-cell subtypes (9).
- In addition, well-differentiated tumors are subdivided into four types: lipoma like, sclerosing, inflammatory, and de-differentiated.
- CT and MR imaging findings may provide clues about the particular histology of a lesion suggestive of liposarcoma (1, 4, 5, 6).
- The histological subtype is important in determining a patient's prognosis (3).
- The purpose of this case report is to describe how appropriate radiological workup of a patient who presented with a mass per abdomen led to the diagnosis of a large, retroperitoneal well-differentiated liposarcoma.

2. Case Report

History
A 47 year old male presented with lump in the abdomen since 3months, which is insidious in onset, gradually progressive in size. Not associated with pain/ vomitings/ bowel irregularities.

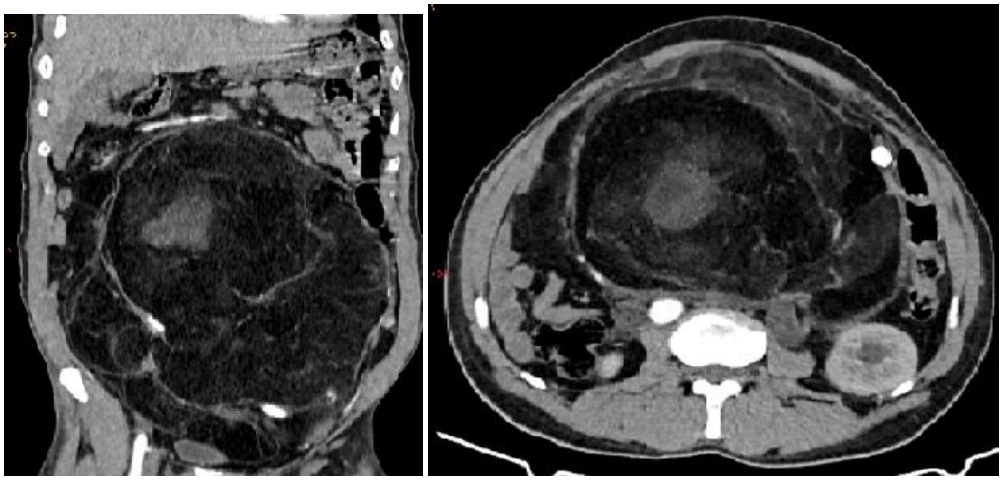
On Examination:
A large mass of size 26x20cms is noted occupying entire abdomen. No local rise of temperature, non tender, firm in consistency with smooth surface and well defined borders, not moving with respiration.
1) BP-136/90 mm hg
2) TEMPERATURE-38^0 C
3) RESPIRATORY RATE-22/minute

Investigations:
- USG ABDOMEN
- A large mass lesion of size 20x 19cm noted occupying the entire abdomen- ?retroperitoneal origin and causing left mild hydroureteronephrosis.

CECT Abdomen:
- A large well-defined heterogenous mass with predominently fat content(-70HU) noted in the retroperitoneum and left iliopsoas compartment measuring approx 25x23x20cms with multiple internal septae, few peripheral wall calcifications and few enhancing solid components.
- Mass is extending from the level of L1 vertebra extending into the pelvis indenting superior border of the urinary bladder (S2 vertebral level). Fat planes with the bladder could not be commented as the lesion contains fat.
- The lesion shows mass effect in the form of peripherally displaced small and large bowel loops, laterally displaced left ilio-psoas muscle.
- Mass is causing compression of the mid and lower one third of left ureter contributing to upstream dilatation of the upper third(5cms) and pelvi-calyceal system.
- Mass is causing displacement of aorta towards right side with complete encasement of left common iliac, left

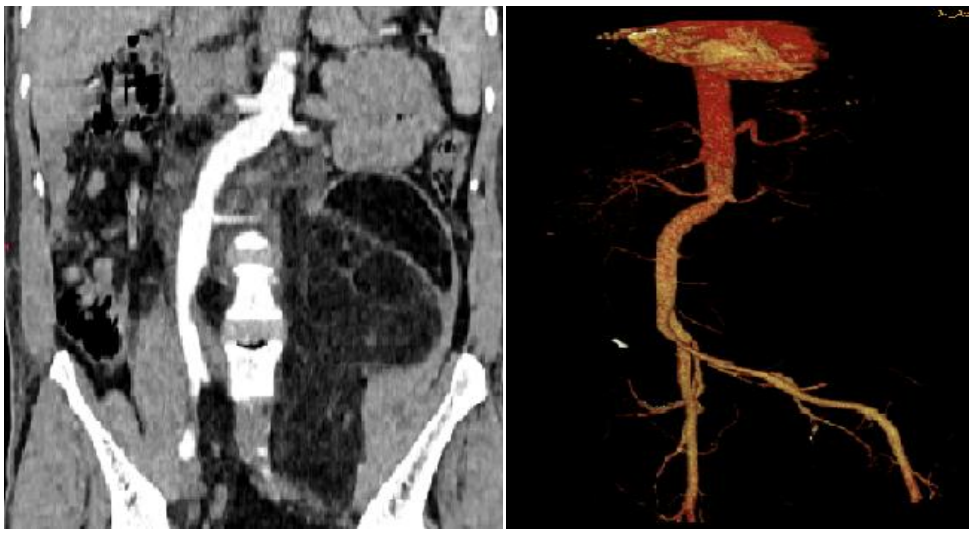
external and internal iliac arteries(>180^0).right common iliac and internal iliac appear normal.

- IVC: appears to be compressed by the aorta (at the level of common iliac vein) which is displaced to the right side by the mass rest of the IVC appears normal. There is no evidence of thrombosis in IVC, common iliac, external and internal iliac veins.
- BIOPSY: Well differentiated retro-peritoneal liposarcoma



Coronal & axial CECT images showing a large well-defined heterogenous mass with predominently fat content in the retroperitoneum and left iliopsoas compartment with multiple internal septae, few peripheral wall calcifications and few enhancing solid components.

Plain CT axial image shows, mass is causing compression of the mid and lower one third of left ureter contributing upstream dilatation of the upper third and pelvi-calyceal system.



Coronal & VRT images showing the mass is causing displacement of aorta towards right side.

3. Discussion

- Liposarcoma may arise in any region of the body that contains fat (7). Liposarcoma is one of the most common malignant tumors in the retroperitoneum but is rare in the mesentery and in the peritoneum.
- On CT and MR, well-differentiated liposarcoma appears as a predominantly adipose soft tissue mass with nonlipomatous components (1, 5). These nonlipomatous features include septa (often >2 mm) and/or small (<2 cm) foci of nodular or globular nonadipose tissue. Additionally, calcifications may be present within the lesion.
- Large size and nonlipomatous elements such as thick septa distinguish well-differentiated liposarcoma from lipoma on CT and MR (1, 5). Gadolinium contrast enhancement may also help clarify whether a lesion is lipoma or liposarcoma: the majority of lipomas demonstrate no contrast enhancement whereas the majority of liposarcomas demonstrate moderate to marked enhancement of septa (6).
- On ultrasound, liposarcoma appears as a well-defined, multilobulated soft tissue mass. Hyperechoic foci suggestive of fat may indicate that the mass is lipomatous in nature, but ultrasonography is a poor technique at distinguishing liposarcoma from lipoma (1).
- The large size of the nonlipomatous tissue foci suggested dedifferentiated liposarcoma. Because dedifferentiated liposarcoma arises within the context of well-differentiated liposarcoma, most of the radiological features are the same. However, nodules of nonlipomatous tissue >2 cm in size can indicate that the lesion is dedifferentiated liposarcoma, though this diagnosis must be confirmed histologically (1).
- Outcomes vary widely depending on the liposarcoma subtype: well-differentiated liposarcoma has the best prognosis with five-year survival rates of 90% or higher whereas pleomorphic liposarcoma has five-year survival rates reported to be as low as 30% (3).
- Patients with liposarcoma of the extremity have improved survival compared to patients with retroperitoneal liposarcoma (4).
- Risk of recurrence also depends on tumor histology and location. Retroperitoneal well-differentiated liposarcoma has a recurrence rate of over 90% versus 43% for an extremity lesion (1). Dedifferentiated liposarcoma in the retroperitoneum has a nearly 100% recurrent rate.
- Contributing to the high recurrence rate of tumors of the retroperitoneum is the difficulty in attaining negative surgical margins.

4. Conclusion

In conclusion, we emphasize that a clear understanding of the imaging appearances of histologic subtypes of liposarcoma should be helpful for diagnosis and for predicting the prognosis for a patient with liposarcoma because histologic subtypes affect the prognosis.

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