# AMSER Case of the Month:

## 59 year old man with incidental large intra-abdominal mass found on physical examination


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# Patient Presentation

59-year-old male with a history of spina bifida and severe kyphoscoliosis was found to have a large abdominal mass on physical examination. The patient denied abdominal pain or distention. The patient has no personal history of cancer and no significant family history of cancer.

# What Imaging Should We Order?

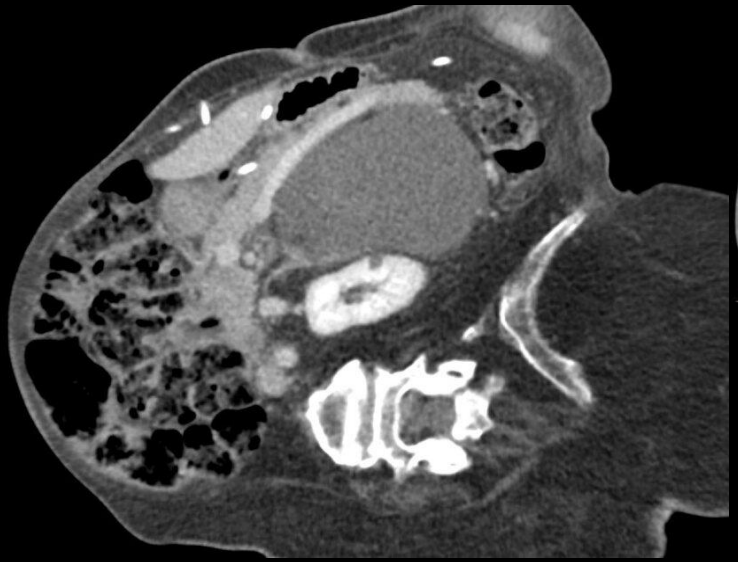
# ACR Appropriateness Criteria

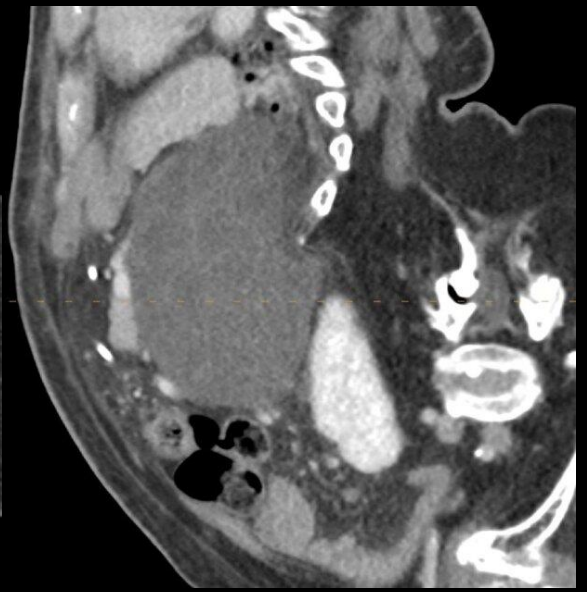
| Scenario | Scenario Id | Procedure | Adult RRL | Peds RRL | Appropriateness Category | |
|---|---|---|---|---|---|---|
| Abdominal mass, intra-abdominal neoplasm suspected | 3074207 | US abdomen | 0 mSv O | 0 mSv [ped] O | Usually appropriate | |
| | | CT abdomen with IV contrast | 1-10 mSv | 3-10 mSv [ped].. | Usually appropriate | |
| | | MRI abdomen without IV contrast | 0 mSv O | 0 mSv [ped] O | May be appropriate | |
| | | MRI abdomen without and with IV contrast | 0 mSv O | 0 mSv [ped] O | May be appropriate | |
| | | CT abdomen without IV contrast | 1-10 mSv | 3-10 mSv [ped].. | May be appropriate | |
| | | Radiography abdomen | 0.1-1mSv | 0.03-0.3 mSv [ped].. | Usually not appropriate | |
| | | Fluoroscopy contrast enema | 1-10 mSv | 3-10 mSv [ped].. | Usually not appropriate | |
| | | Fluoroscopy upper GI series | 1-10 mSv | 0.3-3 mSv [ped].. | Usually not appropriate | |
| | | Fluoroscopy upper GI series with small bowel follow-through | 1-10 mSv | 3-10 mSv [ped].. | Usually not appropriate | |
| | | CT abdomen without and with IV contrast | 10-30 mSv | 10-30 mSv [ped].. | Usually not appropriate | |
| | | FDG-PET/CT skull base to mid-thigh | 10-30 mSv | 3-10 mSv [ped].. | Usually not appropriate | |

Ordered first

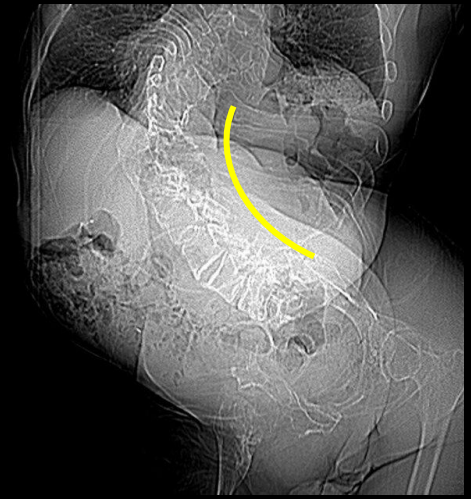
Ordered next

# CT Findings (unlabeled)

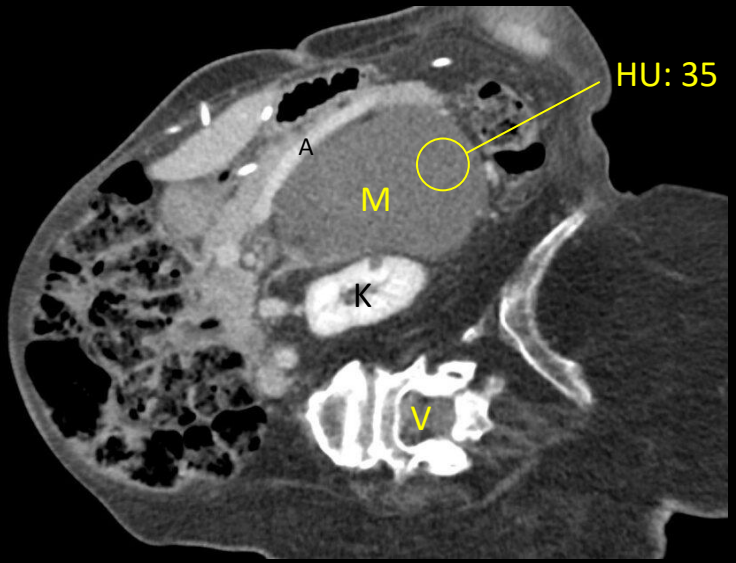




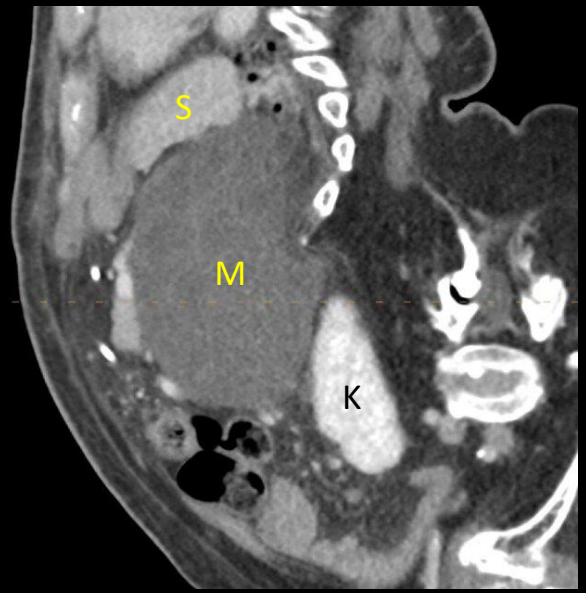
# CT Findings: (labeled)



Scout image showing severe kyphoscoliosis




Solid, soft tissue retroperitoneal mass (M) located anterior to the left kidney (K) and posterior to the splenic artery (A). Vertebrae (V)




The mass (M) is inferior to the spleen (S) and superior to the left kidney (K)

*MRI 12 years prior showed no evidence of mass.

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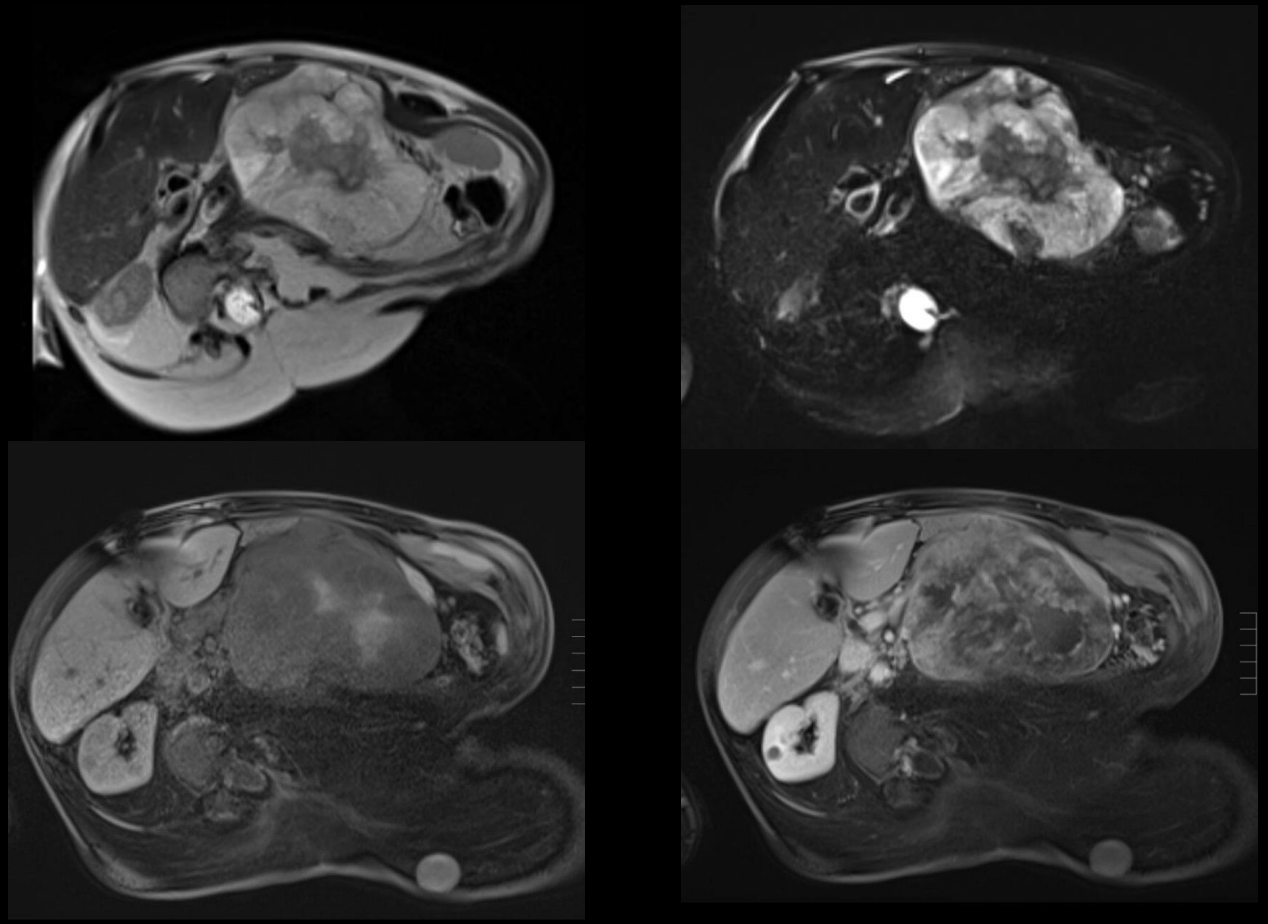
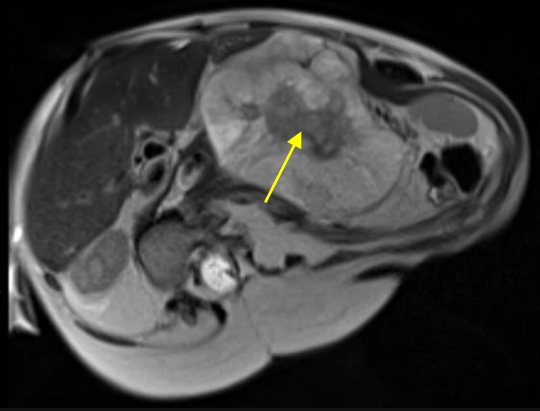
# MRI Findings: (unlabeled)

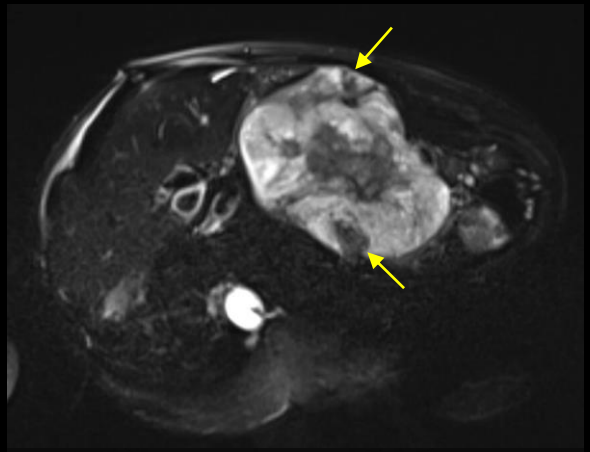


# MRI Findings: (labeled)

T2

The mass is slightly T2 hyperintense with a central focus of hypointensity (arrow)

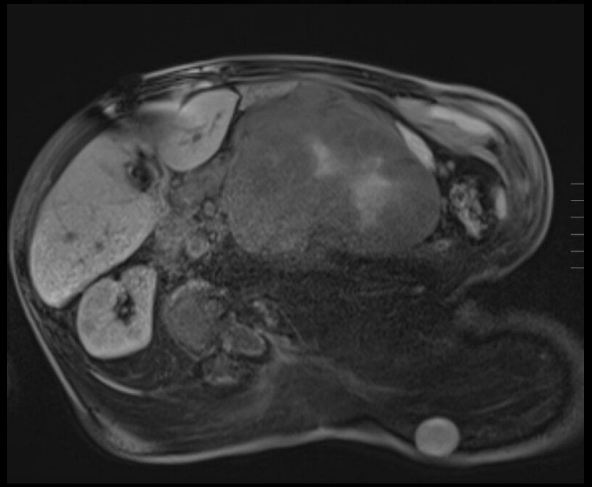


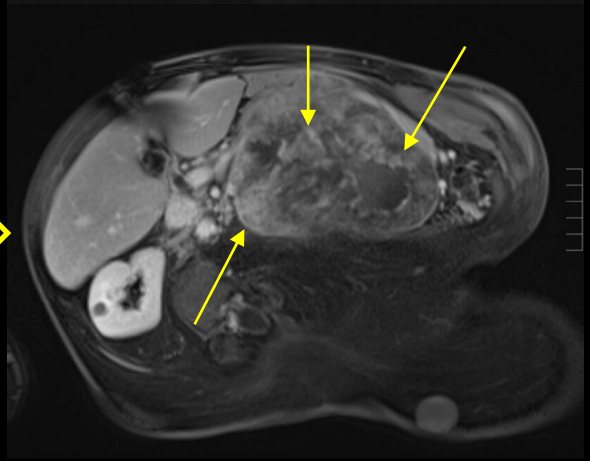


T2 fat saturated

Focal areas that lose signal on fat-saturated sequences (arrows) are suggestive of some fatty composition

T1 pre-contrast





T1 post-contrast

Showing heterogenous areas of enhancement (arrows)

# Differential Diagnosis

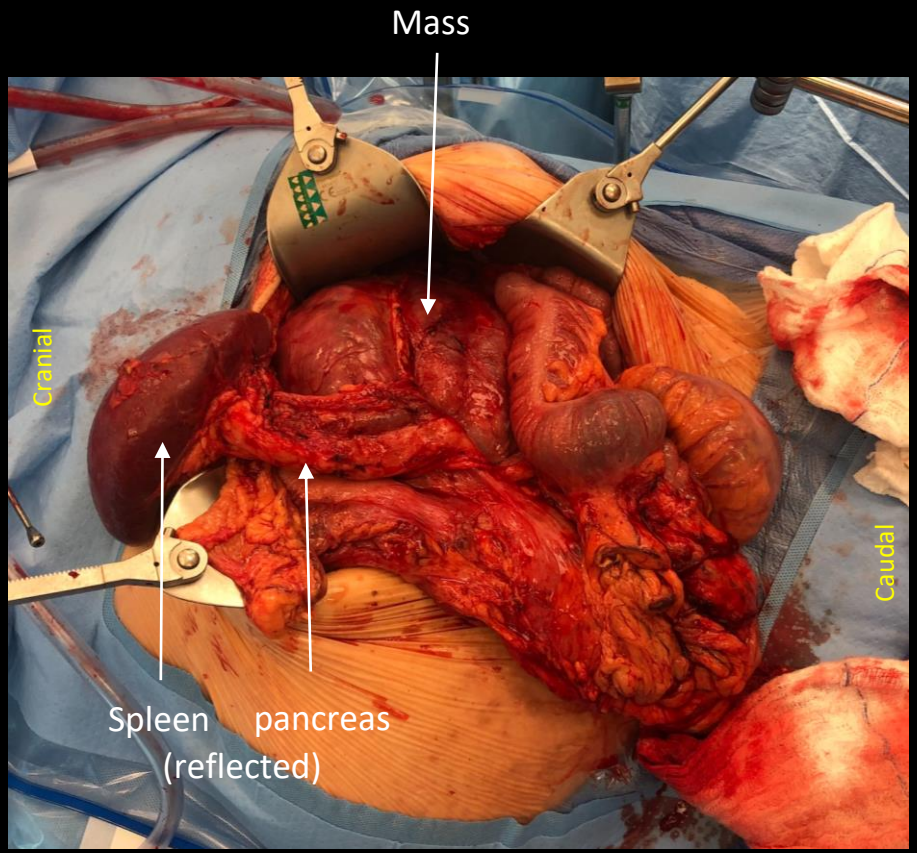
1. Liposarcoma

2. Metastasis

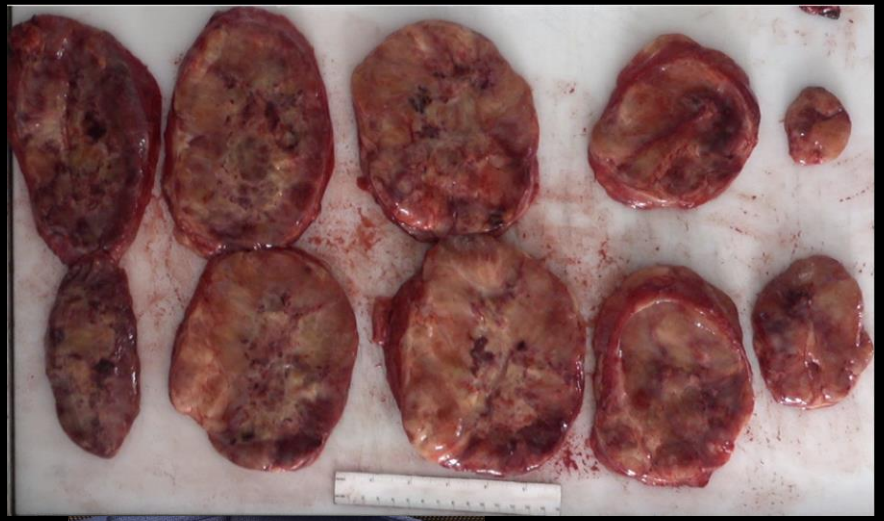
3. Lymphoma

4. Other sarcoma (leiomyosarcoma)

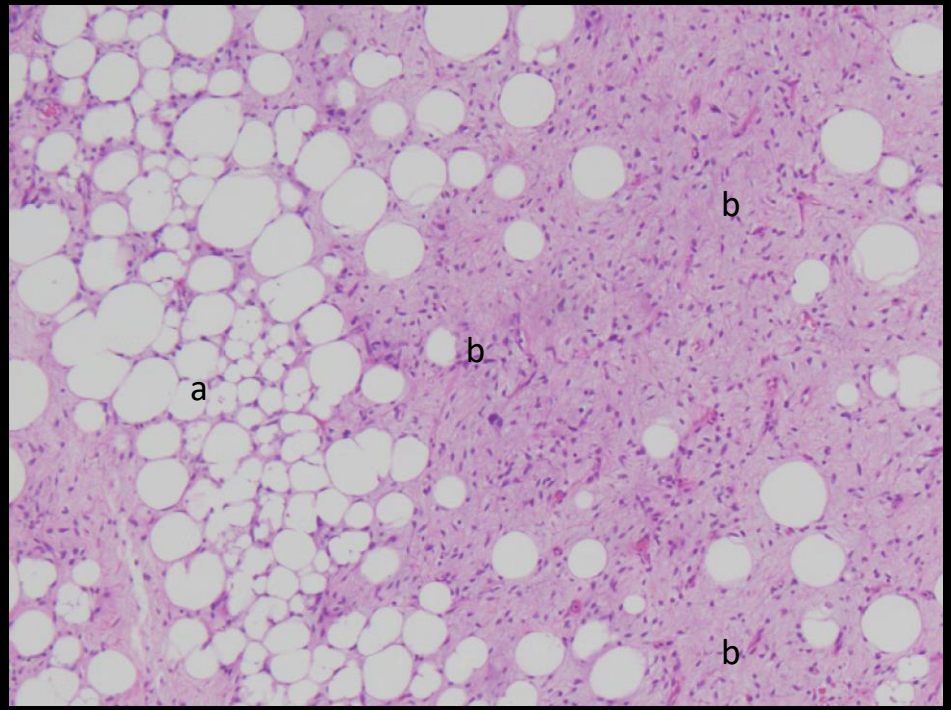
# Patient was taken for surgical resection

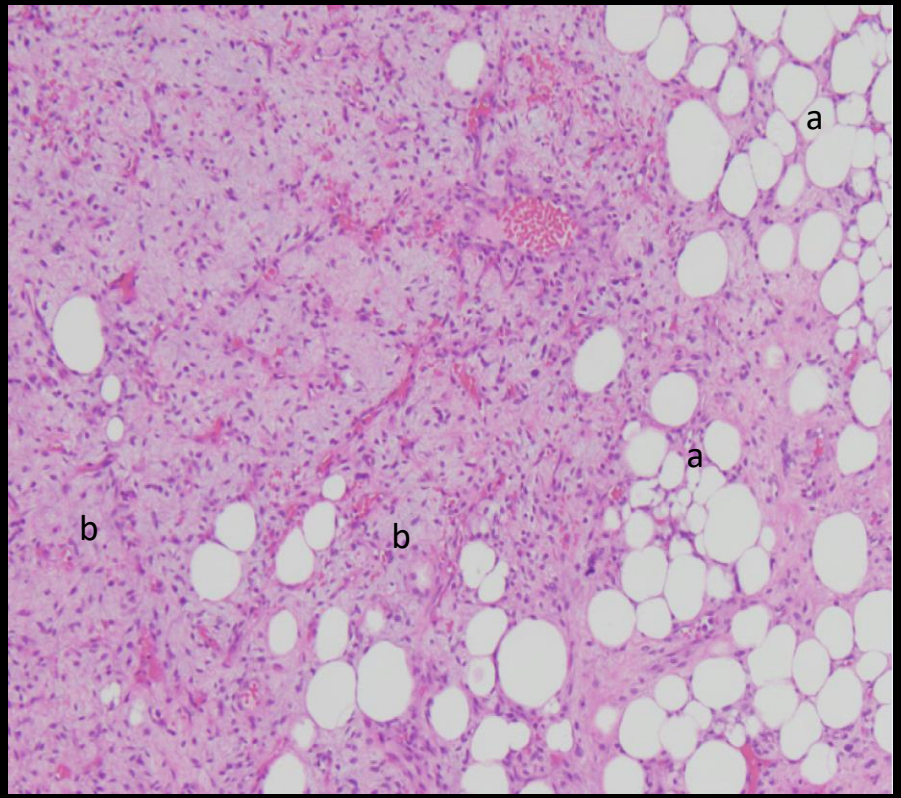



(sectioned)



# Pathology




Atypical lipoblasts (a) in a variably cellular myxoid stroma (b)

# Final Dx:

Dedifferentiated liposarcoma, with myxoid features

(MDM2+)

# Liposarcoma

Epidemiology:

- Most common soft tissue sarcoma in adults (average age of development is 50 years). M > F.

    > Most common locations: thigh, retroperitoneum, inguinal region

Clinical Presentation: slow-growing, painless mass

Treatment: Surgical resection +/- radiation/chemotherapy

Prognosis: Recurrence is likely (~40%), often higher grade at recurrence. The liver and lung are the most common sites of metastasis. Overall mortality ~30% due to local invasion

# Classification of Liposarcoma and Radiological Findings

Decreasing fat content

1. Well-differentiated liposarcoma: consists primarily of fat with small non-lipomatous components and septations. Septations may enhance on post-contrast imaging.

2. Dedifferentiated liposarcoma: nodular region of non-lipomatous content > 1cm is suggestive of dedifferentiation

3. Myxoid liposarcoma: similar appearance to dedifferentiated liposarcoma. Often contain very little (< 10%) fat. Subtle fat may be identified with MRI T1, T2, and fat-saturated images.

4. Pleomorphic liposarcoma: very little to no visible fat radiologically. Hemorrhage/necrosis more likely

# References:


Feger J., Sharma R., Foster T. (2020, December). Dedifferentiated liposarcoma. *Reference article, Radiopaedia.org* https://doi.org/10.53347/rID-85079

Khan, A.N., Chandramohan, M., Macdonald, S., Alkubaidan, F.O. (2019, April). Liposarcoma Imaging. *Medscape*. https://emedicine.medscape.com/article/391272-overview#a1

Murphy, M.D., Arcara, L.K., Fanburg-Smith, J. (2005, September). Imaging of Musculoskeletal Liposarcoma with Radiologic-Pathologic Correlation. *Radiographics.* 25(5). https://doi.org/10.1148/rg.255055106

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