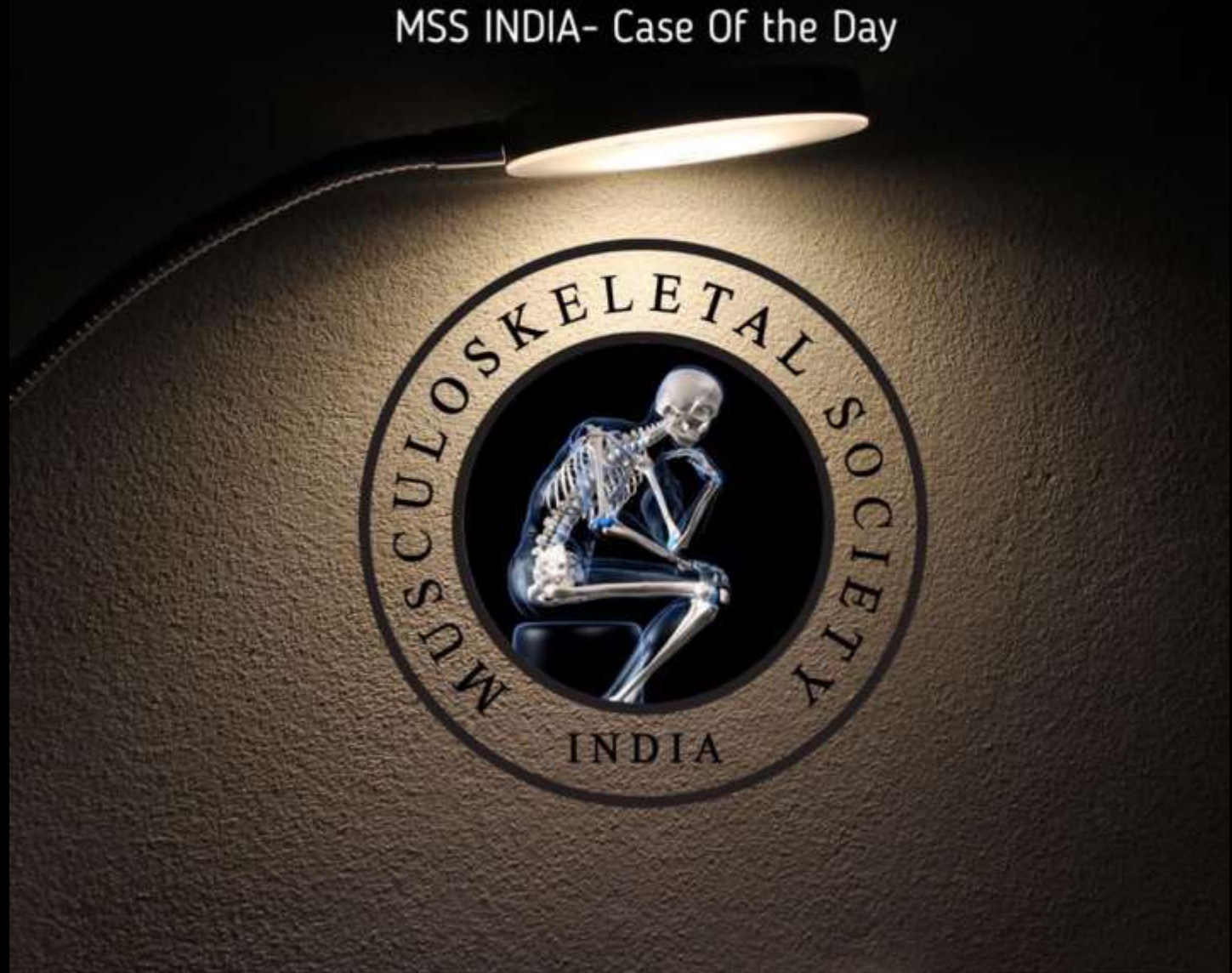
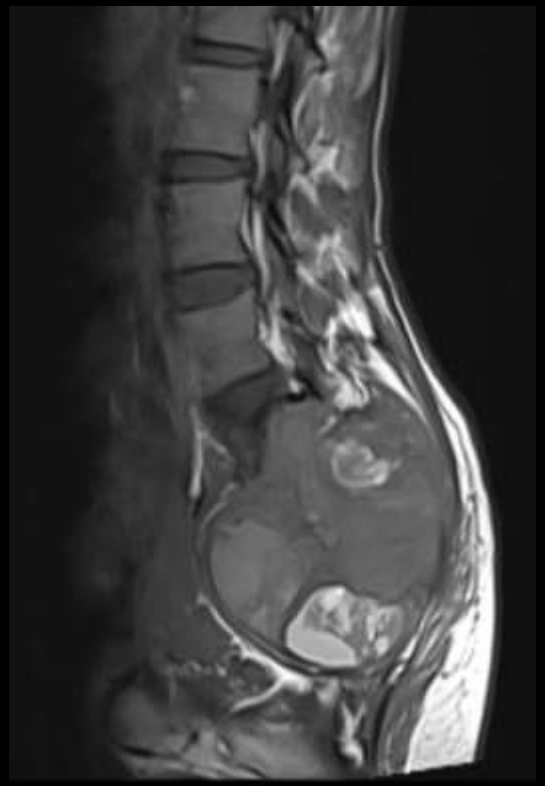
MICOD – 27/05/2024

Case contributor – Dr. Harmeet Kaur (AIIMS Bathinda)

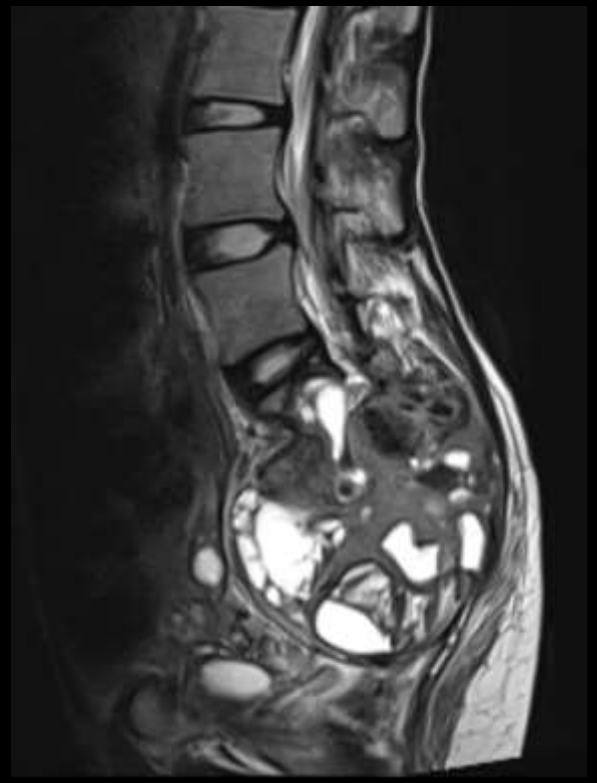


Chief complaints: A 25-year-old female presented with a progressively increasing radiculopathy in her right lower limb. No h/o trauma/Surgery in the past.

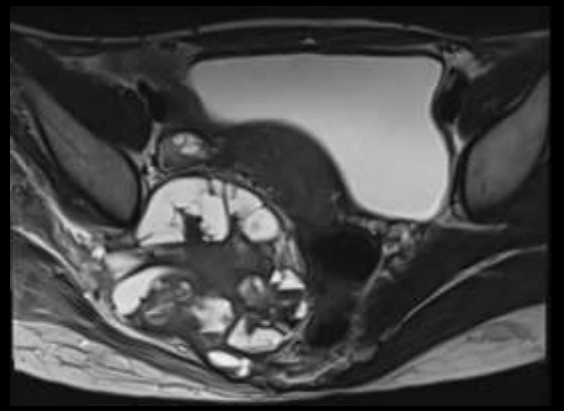
Plain MRI



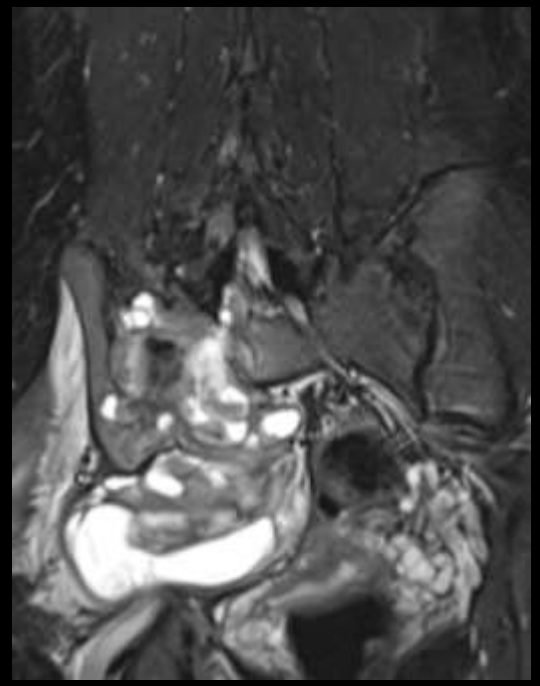
T1 (Sagittal)



Plain T1FS (Sagittal)

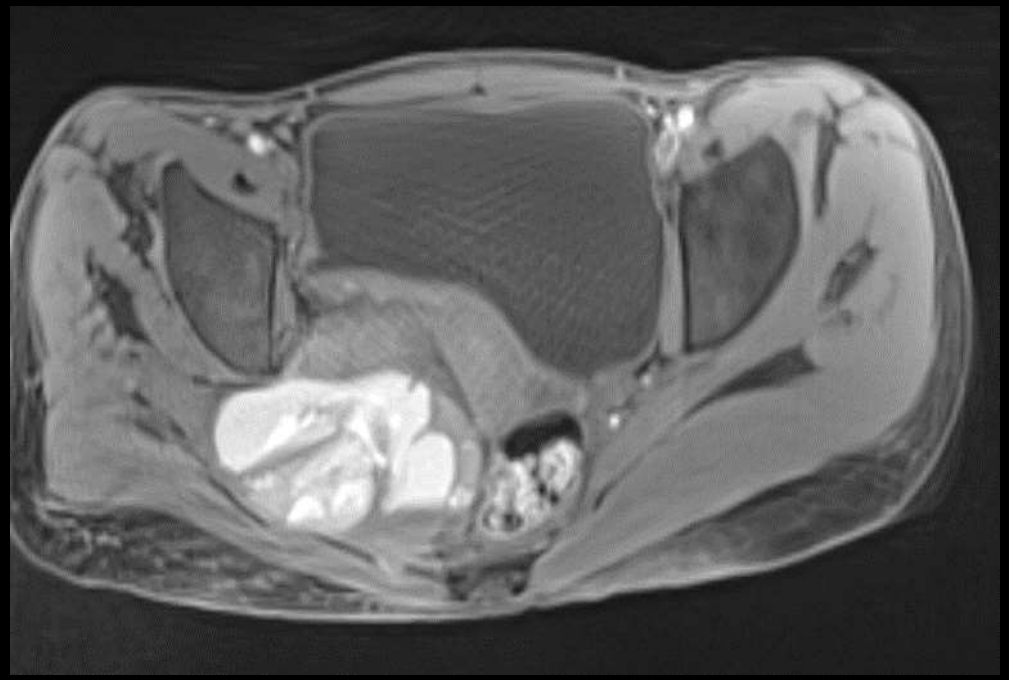


T2 (Axial)

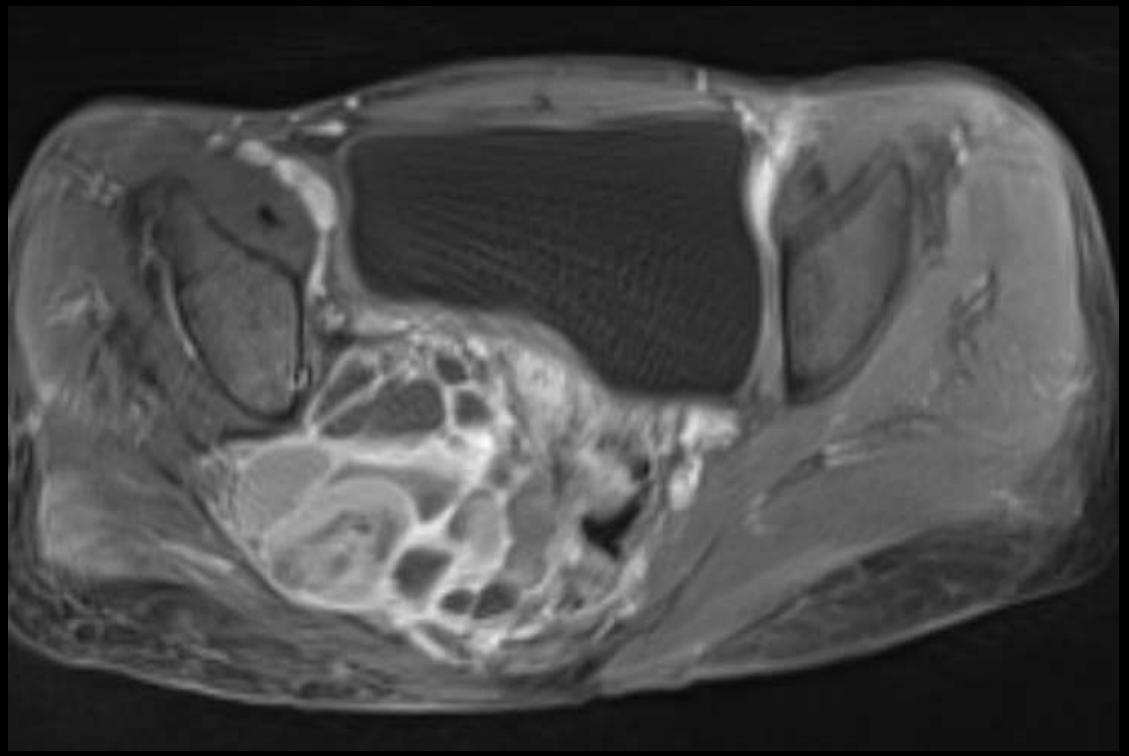


STIR Coronal

Pre & Post-Contrast MRI

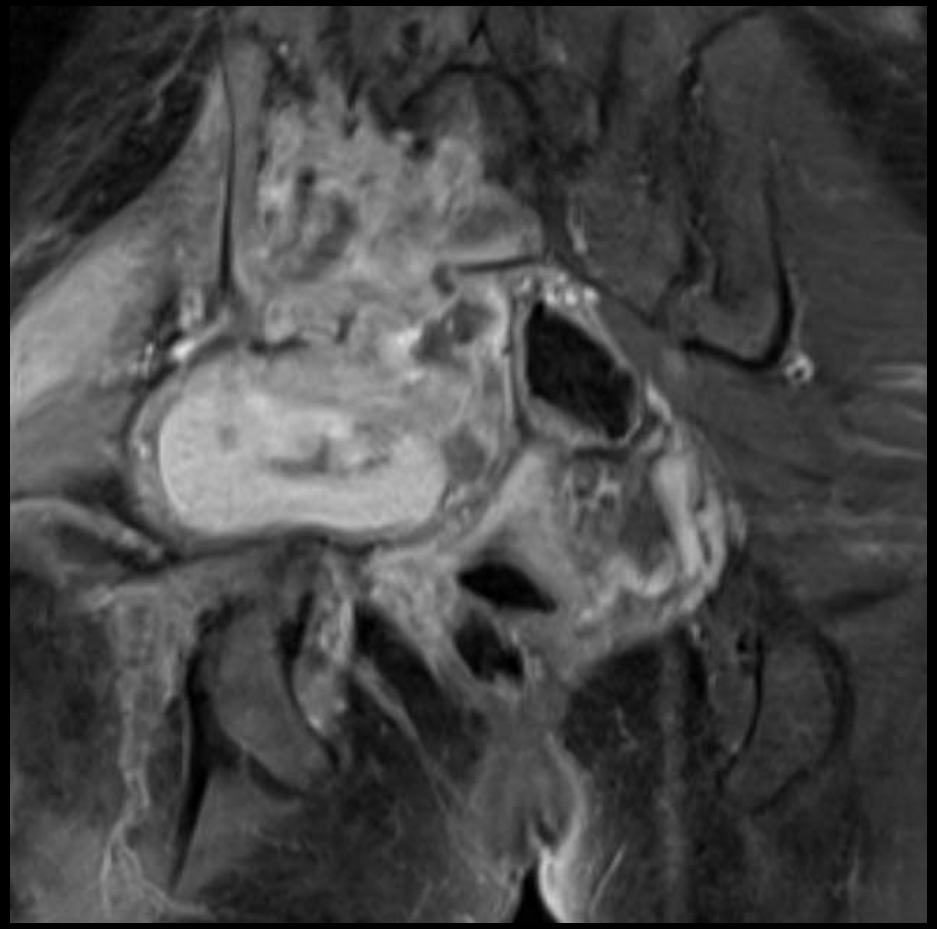


Plain T1FS (Axial)

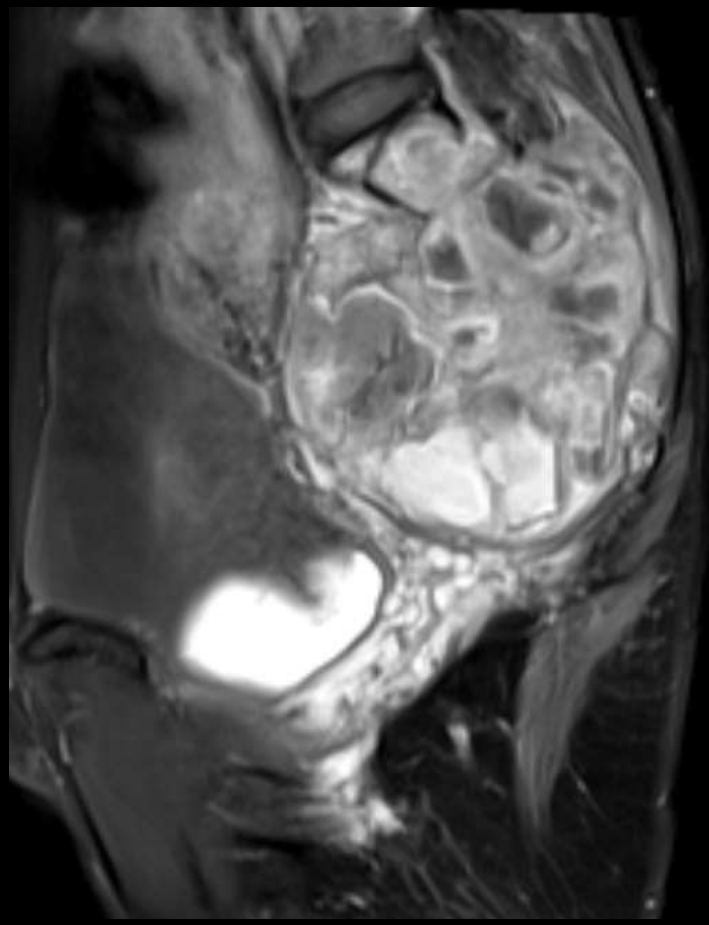


Post-contrast T1FS (Axial)

Contrast MRI

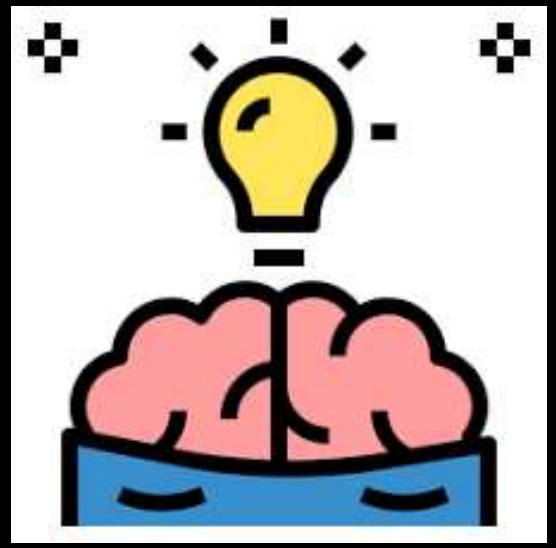


Coronal



Sagittal

ANSWER



Diagnosis

Ans: Sacral ABC

SACRAL ABC

- Aneurysmal bone cysts (ABCs) are relatively rare benign expansile bone lesions with blood-filled cystic spaces which, until relatively recently, were thought to represent a reactive process.
- When associated with an underlying tumor, as secondary ABC, giant cell tumor of the bone and chondroblastoma are the most common lesions on the differential diagnosis.
- However, they can be associated with other benign and malignant tumors.
- The spine is involved in 12–30% of cases of ABC. Of spinal cases, 13% occur in the sacrum .
- Although, usually, the lesion is comprised of blood-filled cystic cavities with thin vascular septations between the cysts, a “solid variant” has been described and is more common in the spine.
- Spinal ABCs may cross the disk space or SI joint, similar to chordoma and GCT.

- Treatment depends on lesion size and region of involvement.
- Options include curettage with or without bone graft and en bloc resection.
- Curettage is the standard of care, but it has a variable recurrence rate.
- En bloc resection is associated with lower rates of recurrence but also with higher morbidity; thus, it is primarily reserved for cases where it will not compromise function.
- Since ABCs are highly vascular structures, preoperative selective arterial embolization with catheter angiography can minimize the risk of intraoperative hemorrhaging of larger lesions, as well as serve as an alternative treatment for those that are difficult to access surgically.

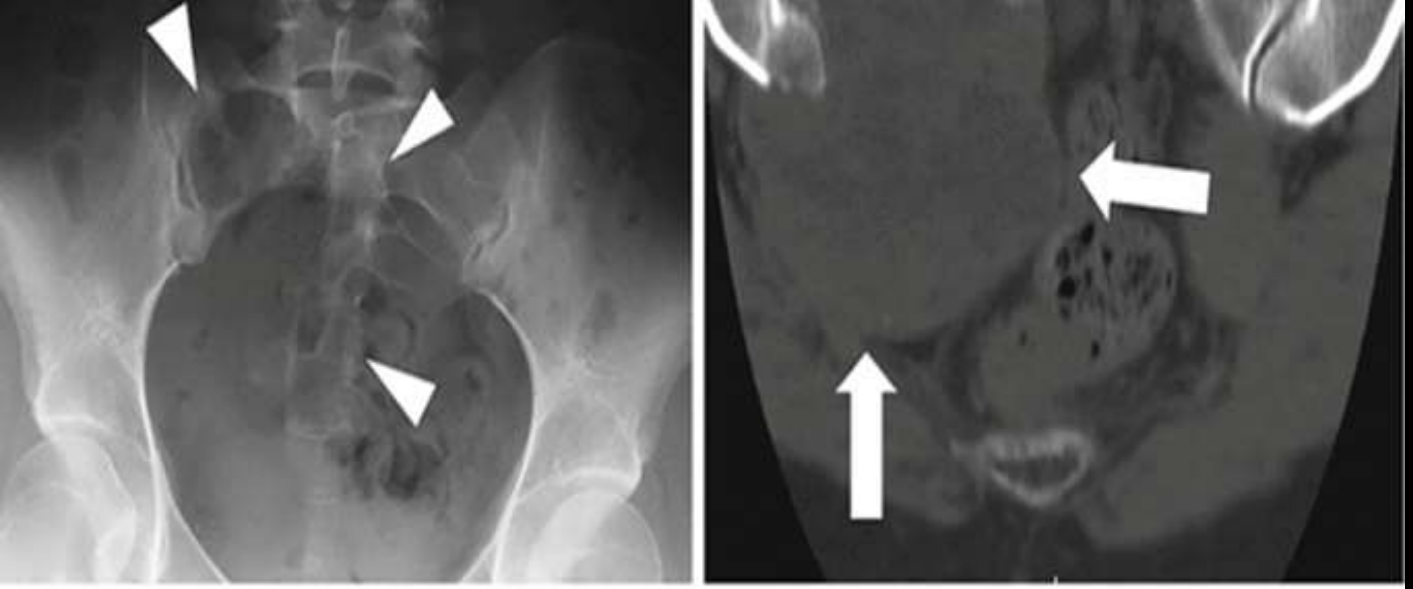
DIFFERENTIAL DIAGNOSIS

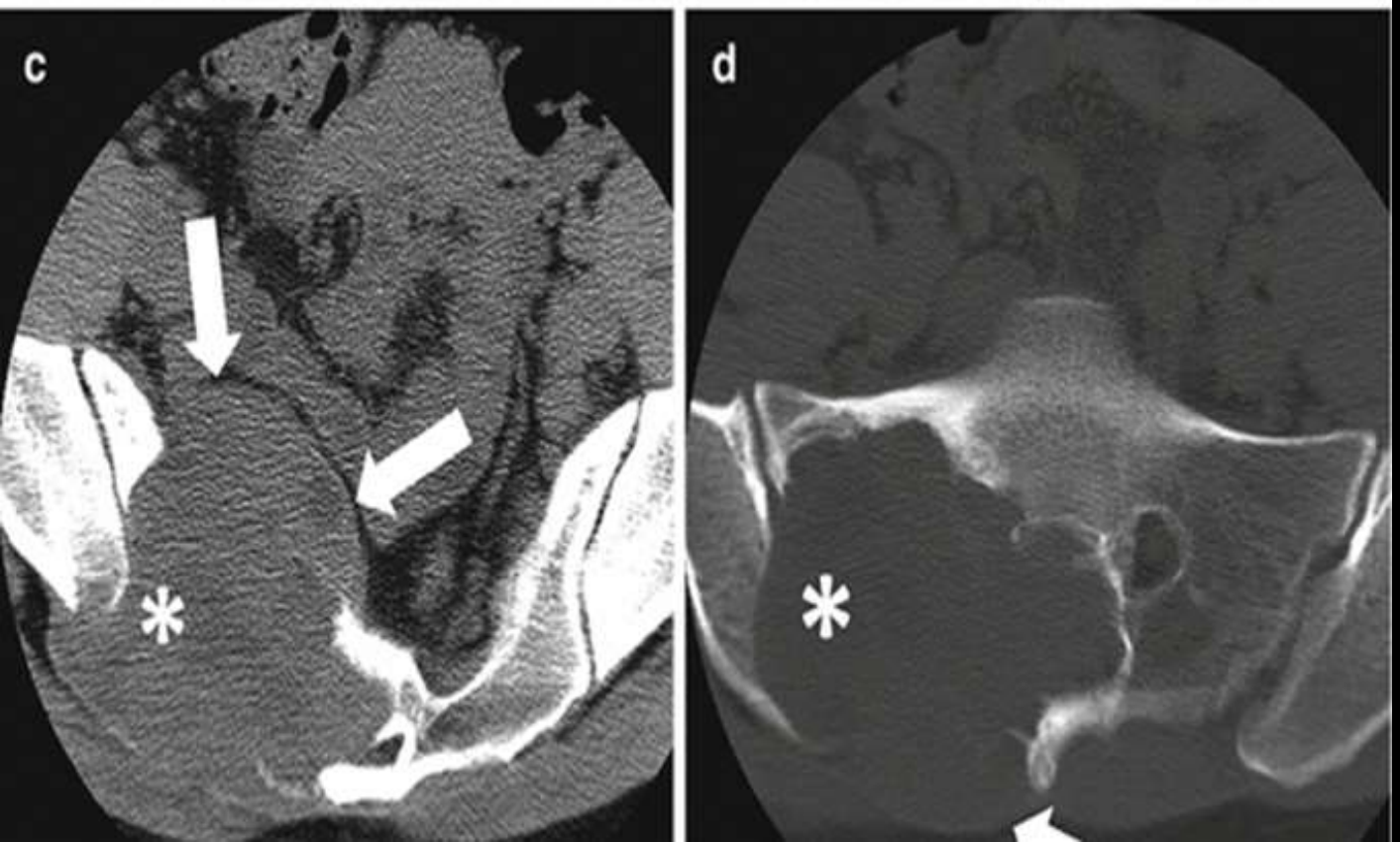
- Telangiectatic osteosarcoma (TOS)- *Wider transition zone, external soft tissue component, smooth septal rim enhancement, osteoid matrix mineralisation, cortical destruction and infiltration into surrounding tissues.*
- Giant cell tumor
- Chordoma
- Metastatic disease- *No fluid levels.*
- Chondroblastoma- *Ring and Arc calcification.*

GCT

- The majority of giant cell tumors (GCT) of the bone are benign, they can be locally aggressive and may recur after resection.
- Giant cell tumor (GCT) of the bone is most commonly found in the ends of long bones of skeletally mature patients, manifesting as a well-defined eccentrically located lytic lesion, usually without a sclerotic margin, extending to the subchondral bone of the articular surface.
- However, 15% of GCT involve flat bones and up to 7% of cases of GCT have been reported in the spine.
- Of the cases occurring in the spine, 90% occur in the sacrum.
- GCT is the second most common primary bone tumor of the sacrum after chordoma.

  https://radiologykey.com/imaging-of-sacral-tumors-and-tumor-simulators-experience-of-the-mayo-clinic/





When GCT involves the sacrum, they most commonly occur in the upper sacrum and often involve both sides of midline but are usually eccentrically located, lateralizing to one of the sacral alae.

In the sacrum, radiographic and CT findings are also of a lytic lesion but may be more destructive than typically seen in long bones, often destroying the cortex of the sacral neural foramina and frequently extending across the sacroiliac joint.

Large soft tissue masses may also be present/.

CHORDOMA

- Chordomas are rare tumors, accounting for 2–4% of all primary malignant bone tumors. However, excluding lymphoproliferative malignancies, it is the most common primary tumor of the sacrum, accounting for 40% of all primary sacral neoplasms.

- Chordomas are malignant neoplasms that develop from remnants of the primitive notochord.

- The most common locations for chordomas with 30–35% occurring in the spheno-occipital region and 50–60% in the sacrococcygeal region. In the sacrum, chordomas are more common in the fourth and fifth sacral segments.

- Chordomas occur in all age groups but occur most commonly in the fourth to seventh decades of life.

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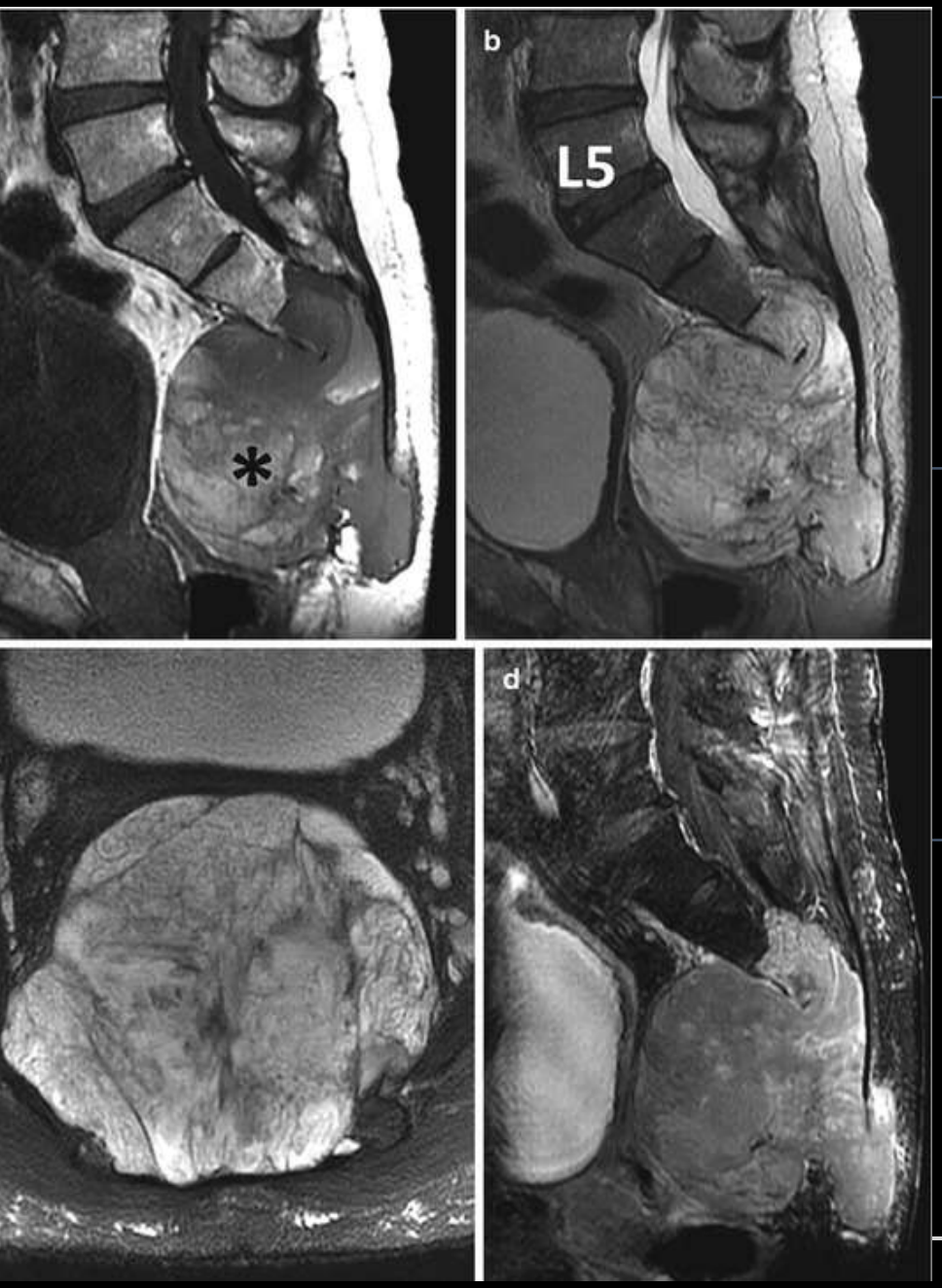

CT will show a destructive lytic lesion, typically in the midline or paramidline, extending into the sacral spinal with a large lobulated midline exophytic presacral soft tissue mass.

Internal calcifications are frequently seen, occurring in approximately 50–70% of cases, with some series reporting detectable calcifications within the mass in up to 90% of cases on CT.

The calcifications can be related to chronic areas of hemorrhage and necrosis as well as chondroid matrix.