2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

CASE PRESENTATION

DR VIKAS B R

CASE 1

CLINICAL HISTORY

A 23-year young patient comes with a history of intermittent pain in left shoulder since 6 months with swelling in scapula since 2-3 months/.

The patient underwent physiotherapy for the same, but pain did not subside.

On examination

- There was painful swelling over infraspinatus
- There was no neurological deficit
- Restricted left shoulder abduction
- Restricted and reduced infraspinatus mobility. There was, however, no evidence of reduced power in bilateral infraspinatus

CASE –1

Differentials based on history :-

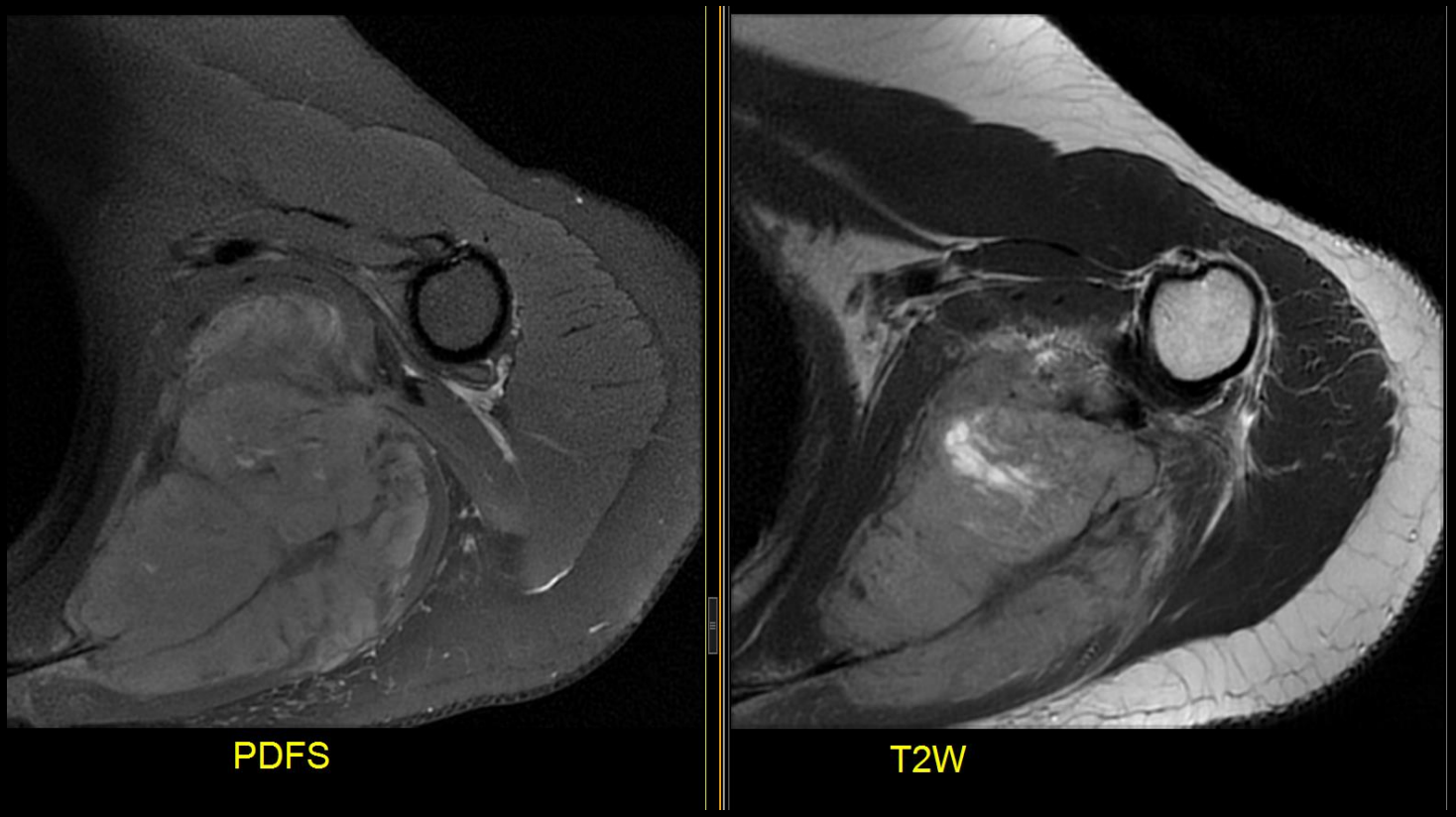
- Osseous lesion of shoulder – Osteosarcoma, Ewings sarcoma (why – long bone involvement ; age ; hard , non-mobile lesion ; aggressive lesion)
- Cartilaginous origin lesion – chondroblastoma, chondrosarcoma (why – age ; long bone involvement; hard , non-mobile lesion ; aggressive lesion)
- Soft tissue lesion like rhabdomyosarcoma.

EXAMINATION

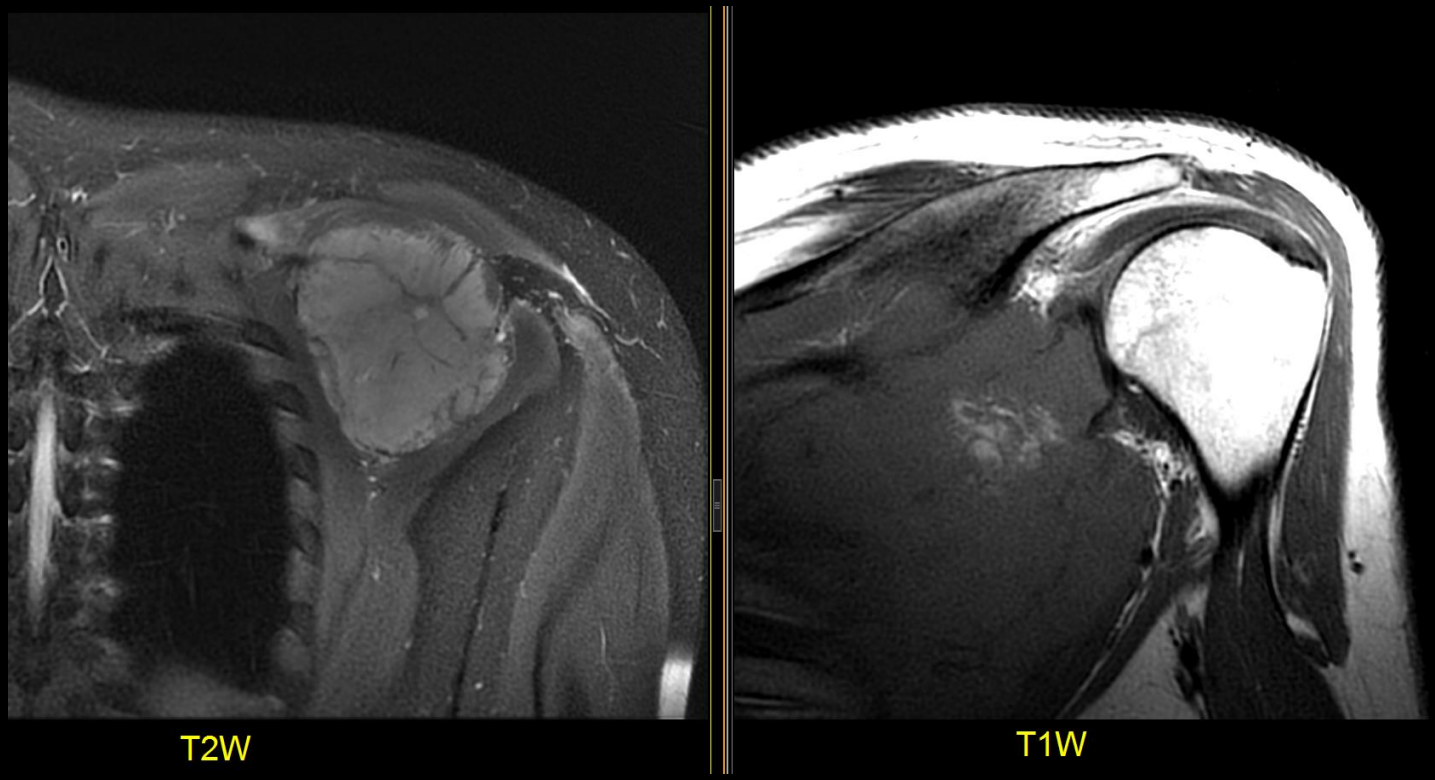
On examination,

- There was painful swelling over infraspinatus
- There was no neurological deficit
- Restricted left shoulder abduction
- Restricted and reduced infraspinatus mobility. There was however, no evidence of reduced power in bilateral infraspinatus

MRI – 01/01/2023



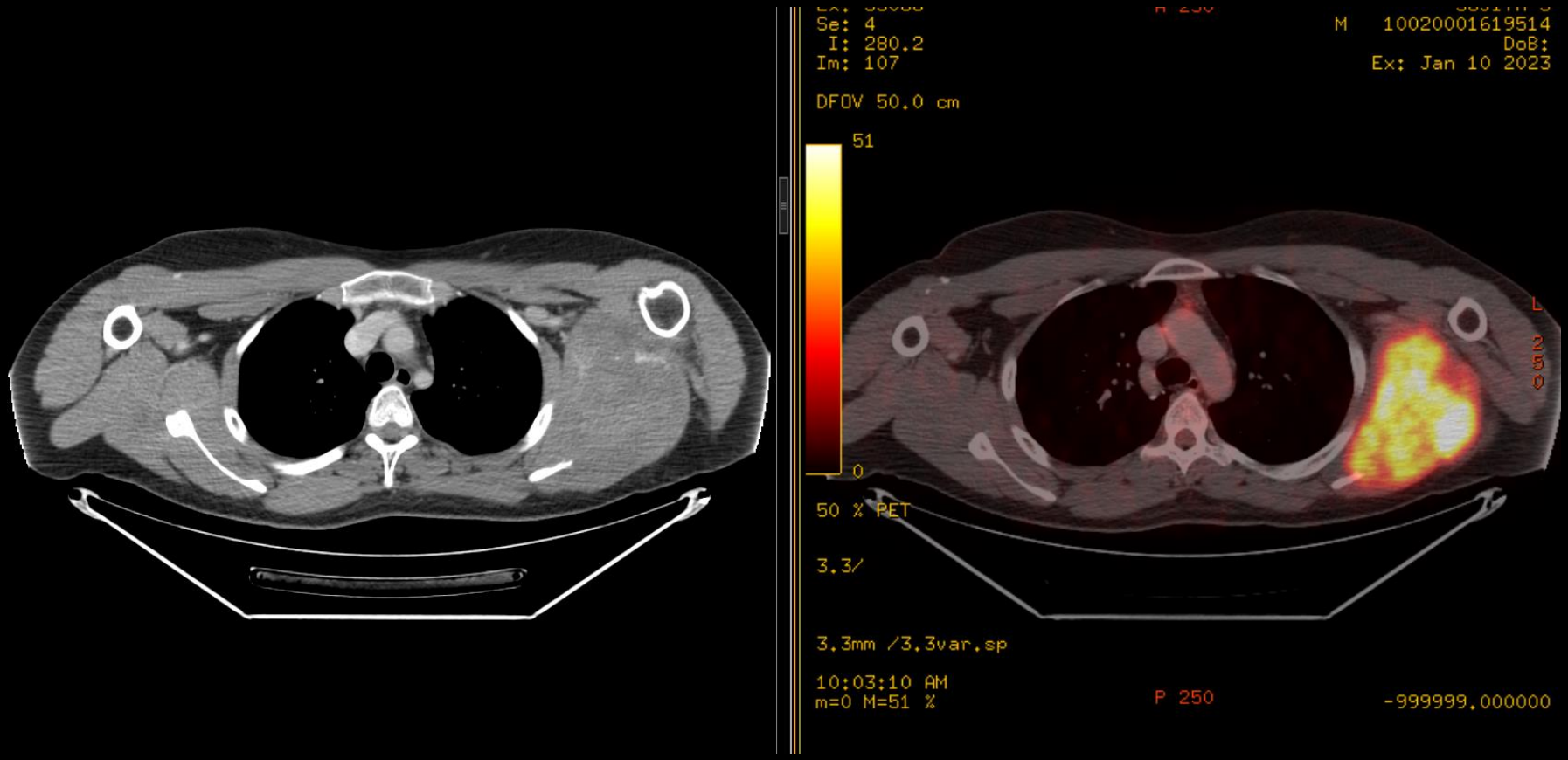
MRI – 01/01/2023



T2W

T1W

PET – 10/01/2023



BIOPSY – 03/01/2023

REGULAR HP SMALL SPECIMEN

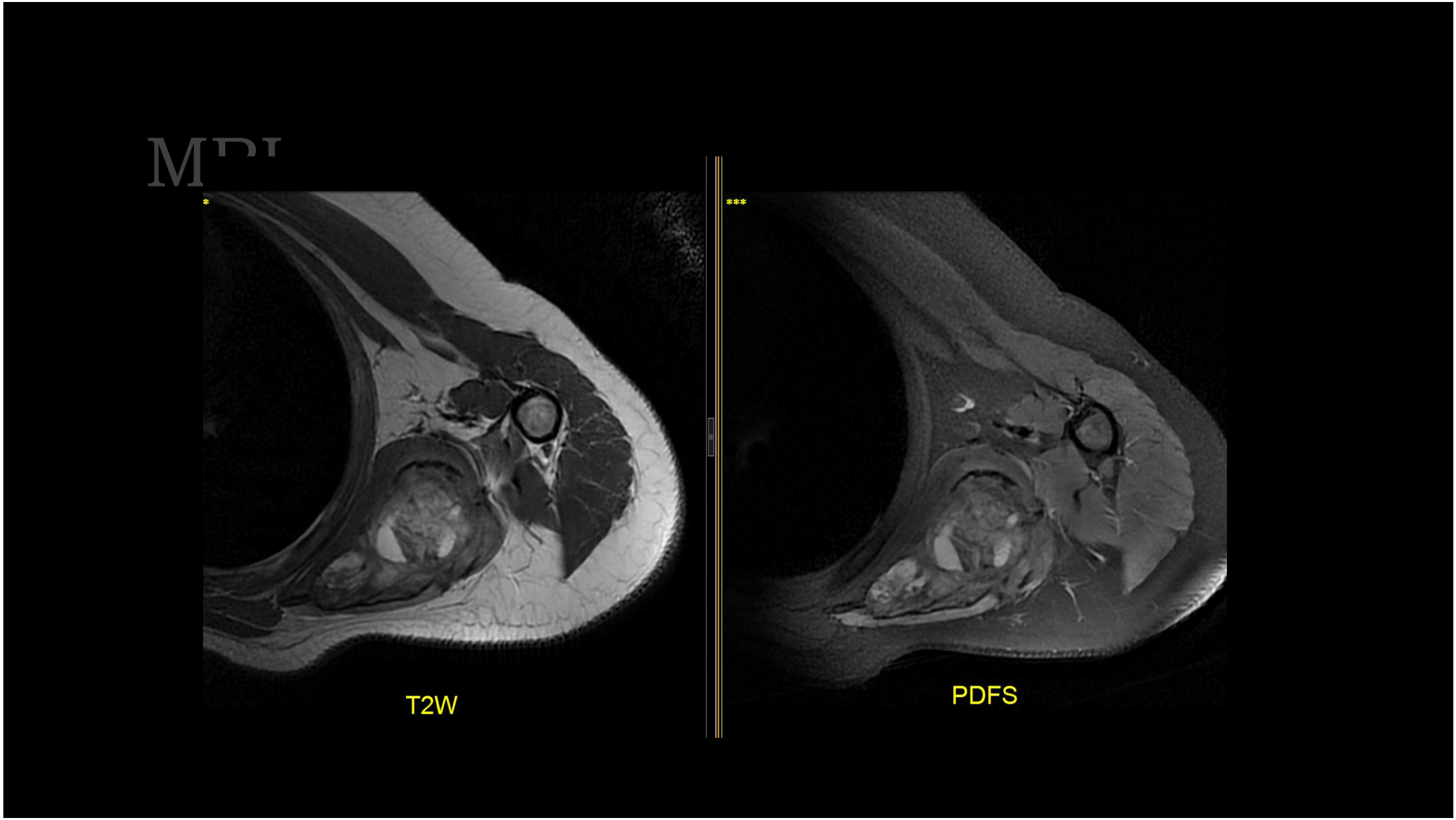
CASE No.	H-065/2023
CLINICAL DETAILS	C/o swelling in left scapula 2-3 months. MRI - Aggressive lesion involving entire body of scapula with soft tissue component. Clinical diagnosis - ? Osteosarcoma of left scapula.
SPECIMEN DETAILS	Needle biopsy.
GROSS EXAMINATION	Multiple tissue fragments altogether weighing about 2 grams. Entire tissue processed in one capsule. Grossed by Dr. Shaesta N.Z
MICROSCOPY/IMPRESSION	These fragments contain a cellular tumour composed of sheets of small round cells with scanty cytoplasm. Foci of necrosis are seen. A small tumour fragment shows scanty thin eosinophilic material amidst the tumour cells (? fibrinous material or ? osteoid). COMMENT - Biopsy shows a malignant round cell tumour. Ewing sarcoma and small cell type of osteosarcoma are a possibility. Immunohistochemistry is needed for subtyping, and is available after payment for more than 10 markers.

--End of Report-

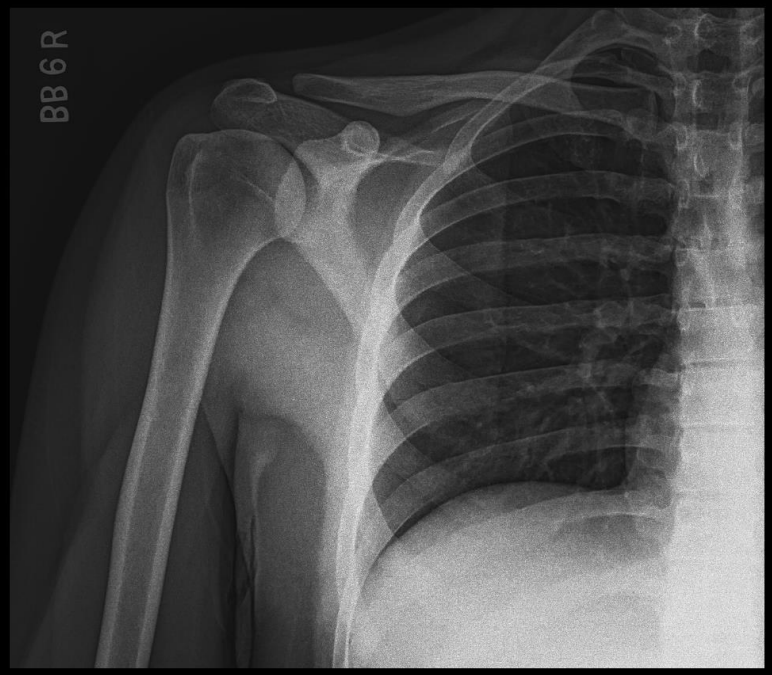
Biopsy- Small round cell tumor

IHC at Oncopath Mumbai - Undiff small round cell sarcoma favoring Ewings sarcoma- Confirm with EWSR rearrangement in view of focal expression of NKX2 EWSR rearrangement sent report awaited

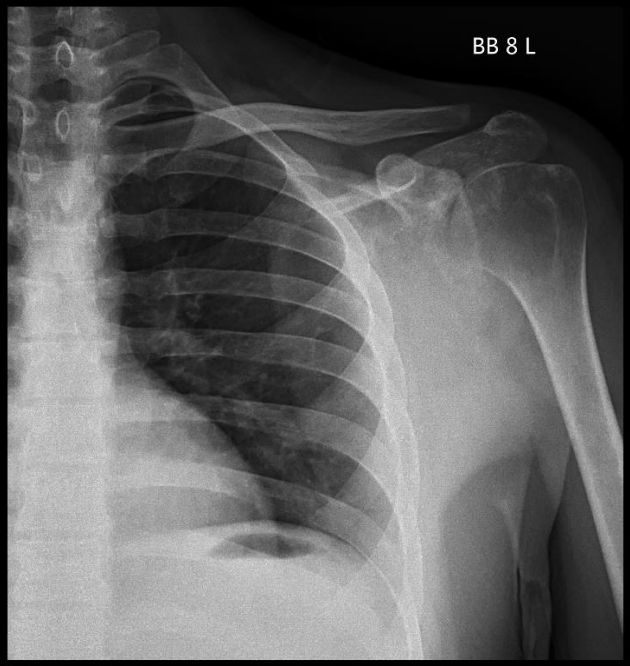
Plan: 3 weekly Adjuvant Dose Dense VAC /IE chemotherapy


T2W
PDFS

RADIOGRAPH – 23/03/2023



RIGHT



LEFT

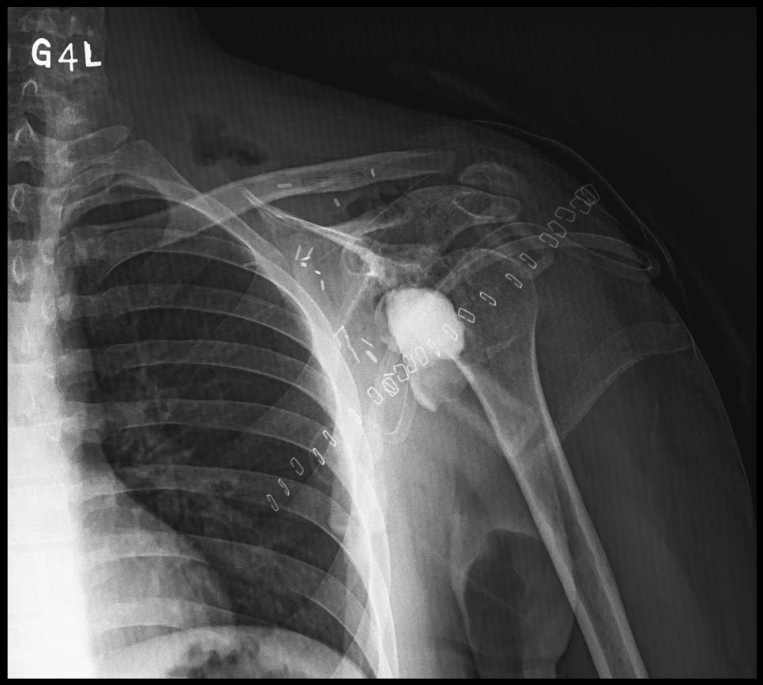
TREATMENT

Systemic chemotherapy 5 cycles – VAC regimen + IE

Inj . PEG-GCSF

Wide local excision + ECRT + reimplantation on 29.03.2023.

RADIOGRAPH – 30/03/2023



LEFT

EWINGS SARCOMA

- 2nd most common primary childhood bone tumour.
- Mc age group: 10-20 yrs. with slight male predilection.
- They are small round blue cell tumours which are closely related to soft tissue tumours, pPNET, Askin tumours and neuroepithelioma (Ewing's sarcoma family of tumours).
- Location: lower limb > pelvis > upper limb > spine and ribs > skull/face.
- Diaphyseal tumour involving the medulla
- *SCAPULA is a very very rare site for involvement of Ewing's sarcoma*

EWINGS SARCOMA

- Clinically presents with local mass / non-specific pain
- Fever ,raised ESR and LDH may also be present
- Arises from the medullary cavity with invasion of the cortex causing destructive and permeative lucent lesions in the shaft of long bones with a large soft tissue component
- Onion skin periostitis is seen. Sclerotic lesions seen in up-to 30% cases

RADIOGRAPHIC FEATURES / CT

- Large tumors with wide zone of transition with majority of them showing adjacent soft tissue extension.
- Radiograph / CT : osteolytic lesions with permeative/moth eaten type of bone destruction (76%) with many of them showing lamellated/onion skin periosteal reaction. Few of them show sclerotic lesions.
- Soft tissue calcification is uncommon.

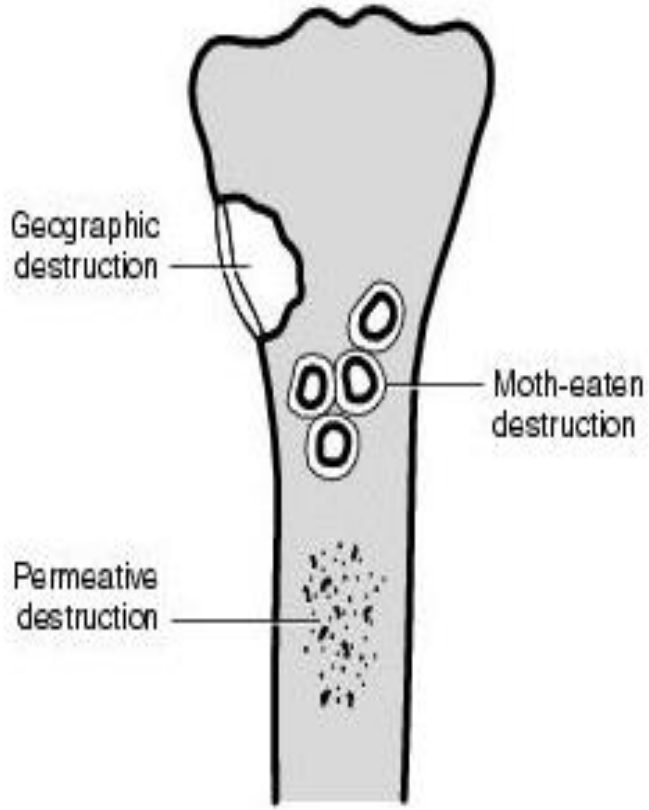
MRI

- T1 :- low to intermediate signal
- T2 :- heterogeneously high signal, may see hair on end low signal striations
- T1 + C :- heterogeneous but prominent enhancement

“Onion Skin” in Radiology

Ewings Sarcoma
Xray shows a laminated "onion skin" periosteal reaction

A


Geographic destruction
Moth-eaten destruction
Permeative destruction

Contd.

- They show increased uptake on gallium citrate and technetium methylene diphosphonate bone scans.
- Histopathology – sheets of small round cells which are detected by PAS stain and are diastase degradable.
- IHC – CD99, FLI-1 and NSE positive.
- Metastasis – usually to lungs and bones(most common to spine).

DIFFERNTIAL DIAGNOSIS

- Osteosarcoma included as differential diagnosis when reactive sclerosis is present – usually metaphyseal location and commonly seen around knee joint and humerus.
- Primary lymphoma – also presents with permeative pattern of destruction and soft tissue mass but age of presentation is usually higher than Ewing's.
- Aggressive osteomyelitis or eosinophilic granuloma may also mimic ewing’s.
- Other Ewing sarcoma family tumours like pNET and Askin tumor

TREATMENT and PROGNOSIS

- Systemic chemotherapy with surgery and / or radiotherapy.
- Prognosis is good and depends on presence or absence of metastasis at the time of presentation.