KREP

2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

CASE PRESENTATION:

CASE OF GIANT CELL TUMOR OF KNEE

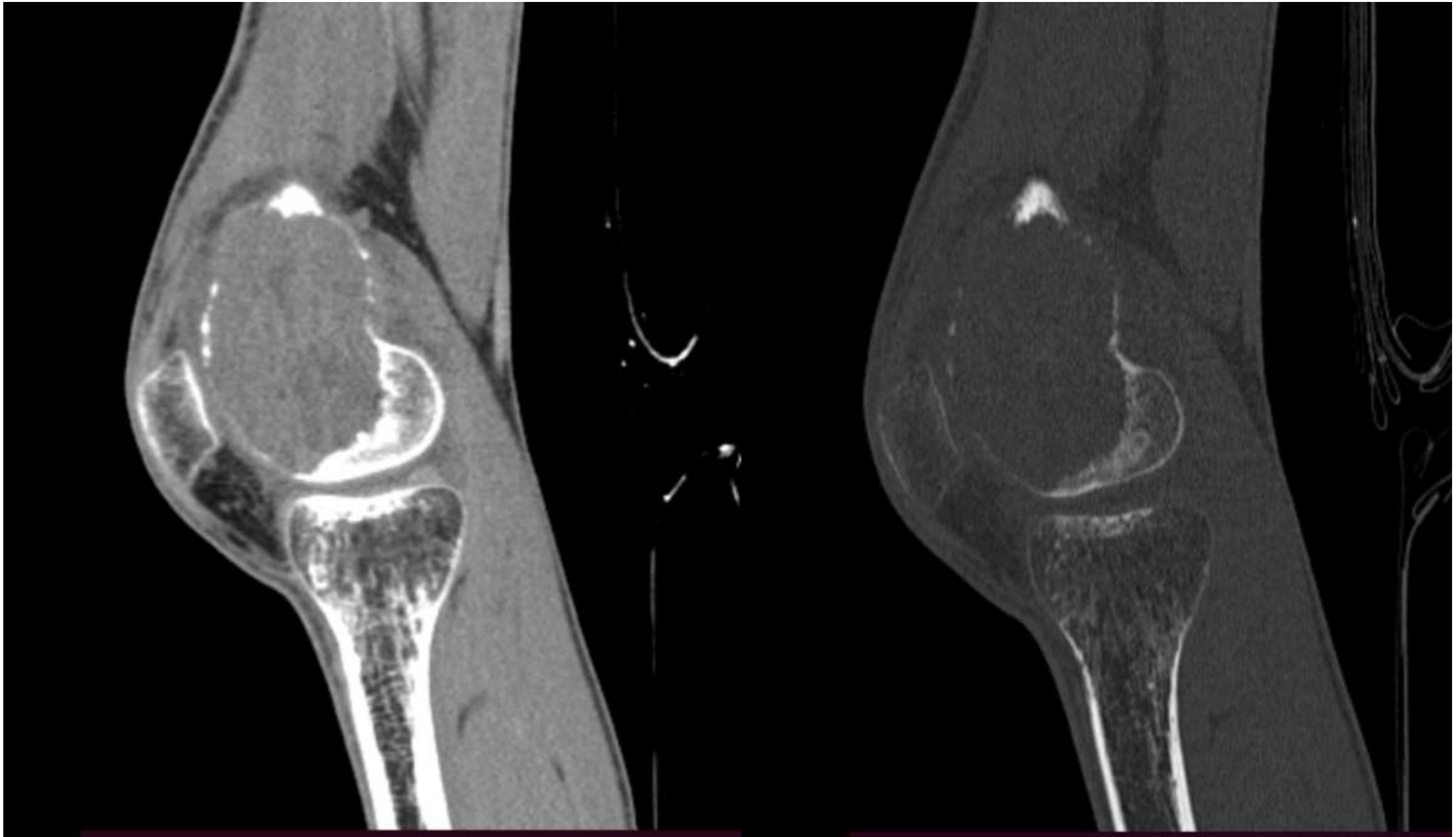
MENTOR: DR PRADEEP PATIL SIR
KAHER UNIVERSITY
J.N.MEDICAL COLLEGE,BELAGAVI
PRESENTER: DR SHRIYA RAVICHANDRAN

CLINICAL HISTORY

- 22 Year old male came with complaints of swelling in the right knee to KLE's Dr .Prabhakar Kore hospital & Research centre
- The swelling was associated with pain and restriction of movement in the right knee since the past 2 months
- The patient complained of increase in the swelling since the past 4-5 days
- No history of fever/trauma

RADIOGRAPH FINDINGS

CT FINDINGS



RADIOGRAPH FINDINGS :

- This is an AP /lateral radiograph of right knee joint of a skeletally mature 22 year old male showing a
- Expansile geographical lytic lesion
- In the distal end of femur
- Epi metaphyseal in location in the longitudinal axis extending into the articular surface
- Eccentric in location in transverse axis
- Narrow zone of transition
- Thin septations within it
- Causing cortical explansion with thinning of overlying cortex ,however the overlying cortex is maintained
- No peri-osteal reaction,soft tissue component or matrix mineralization can be seen
- The tibia and fibula appears normal

CT FINDINGS

- There is seen a large expansile fairly well defined heterogeneously enhancing expansile lytic lesion with internal hyperdensities (likely hemorrhagic) involving the epiphyses and metaphysis of distal shaft of right femur with thinning and breach of the adjacent cortex and extension into the soft tissue plane posteriotly.

- The lesion is seen to be supplied by few branches of the distal superficial femoral and popliteal arteries.

DIFFERENTIAL DIAGNOSIS

- Giant cell tumor
- Aneurysmal bone cyst
- Chondroblastoma
- Brown’s tumor
- Telengiectatic osteosarcoma

GIANT CELL TUMOR/OSTEOSARCOMA

POINTS FOR	POINTS AGAINST
Age of the patient : 22 years Clinical symptoms: pain,swelling and restriction of movement	Thin,shell like septations
Location : Metaphyseal-epiphyseal region of distal femur,adjacent to articular surface (subarticular)	
General appearance: Eccentric geographical lytic lesion of long bone,expansile,circumscribed Absent matrix mineralisation No surrounding sclerosis	
Cortex features : thinned out,expanded cortex	
Aggressive features :cortical breakthrough and soft tissue mass	
CT features: cortical thinning and breakthrough,absent matrix mineralisation	

ANEURYSMAL BONE CYST

POINTS FOR	PONTS AGAINST
General appearance: Eccentric ,expansile lytic lesion with thin shell like septations	Age of the patient : 22 years
Type of destruction and transitional zone :Geographical with Narrow zone of transition	Epi-metaphyseal lesion
Cortex features : Cortical thinning and breakthrough	

CHONDROBLASTOMA

POINTS FOR	POINTS AGAINST
Location: Epi-metaphyseal Present in long bone (femur)	AGE: 22 YEARS Skeletally mature patient
General Appearance: Geographical lytic eccentric lesion	Periosteal reaction absent
Cortex features : cortical expansion and thinning	X ray and CT: No chondroid matrix (calcifications)seen

BROWN'S TUMOR

POINTS FOR	POINTS AGAINST
Bone involved :Found in femur	Clinical symptoms: No abdominal pain, no signs of bone pain or multiple joint involvement Pain confined to one joint
General appearance: Expansile ,lytic lesion with thin septations ,without matrix mineralisation	Location: eccentric Single lesion on radiograph
Cortex features : thinned out and expanded	No other signs of hyperparathyroidism on Xray and CT 1.No signs Subperiosteal, endosteal, subchondral, intracortical, subtendinous, subligamentous resorption 2.No generalized osteopenia 3.No signs of metastatic soft tissue calcification seen 4.No erosive arthritis like appearance
	Cortex features : Cortical destruction

TELENGIECTATIC OSTEOSARCOMA

POINTS FOR	POINTS AGAINST
Location: epi-metaphyseal	Age: 22 years
Bone involved : Femur	No periosteal reaction
General appearance : Geographical expansile lytic lesion with narrow zone of transition and cortical destruction	CT findings : No osteoid matrix mineralization seen

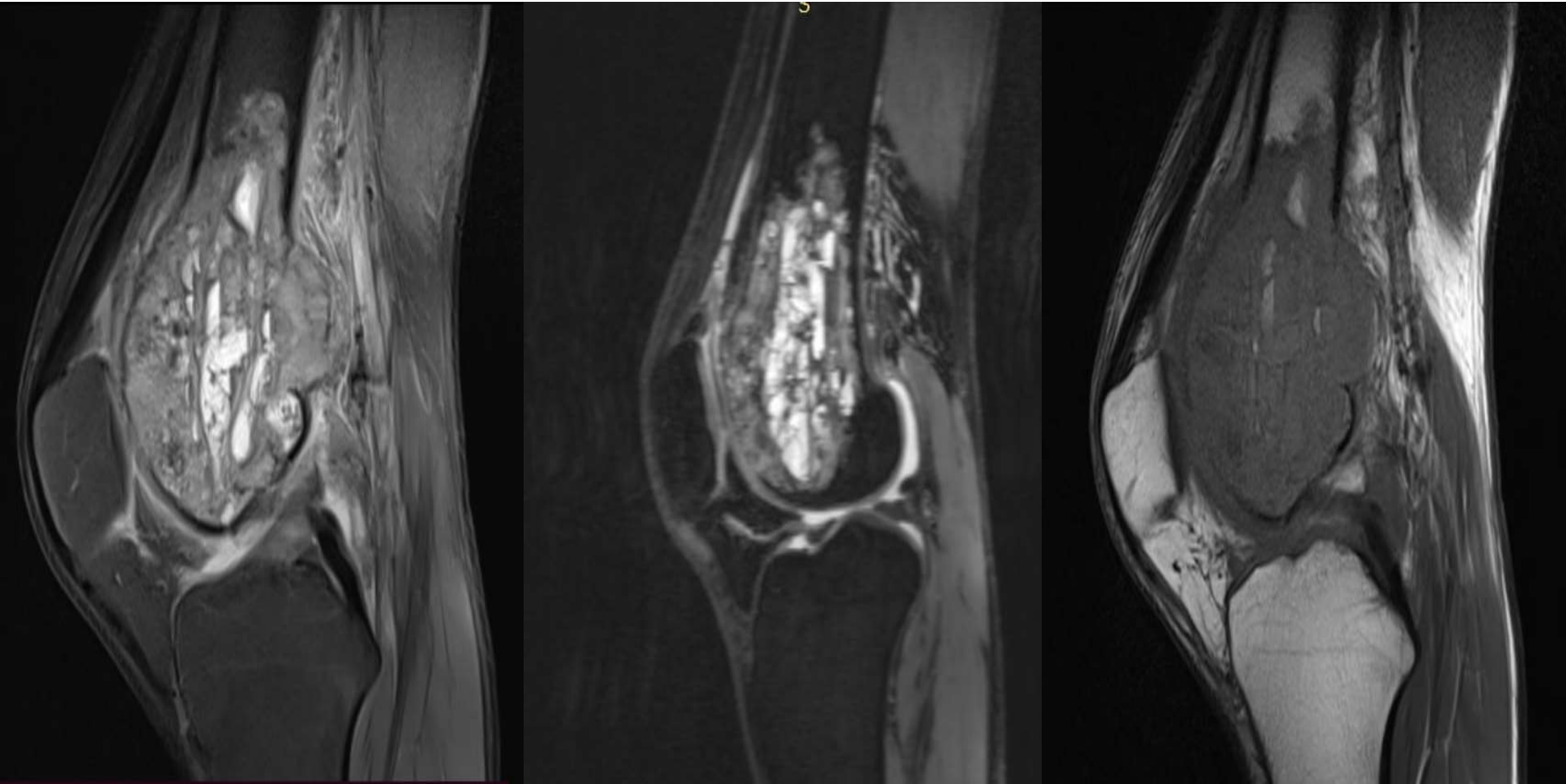
MRI FINDINGS

- There is seen a large expansile multilobulated T2 and STIR heterointense, predominantly hyperintense and T1 predominantly hypointense lesion with few areas of T1 hyperintensities (hemorrhage) and fluid fluid levels noted involving the epiphysis and metaphysis of the distal shaft of the femur with adjacent bone marrow edema, cortical breach involving the anterior , medial and posterior aspect of the distal shaft of the femur with extension of the lesion into the surrounding soft tissue plane posteriorly
  On DWI sequence, areas of diffusion restriction note
- Mild joint effusion noted along with the subcutaneous and intramuscular edma involving the medial head of gastrocnemius

PD FAT SATURATED

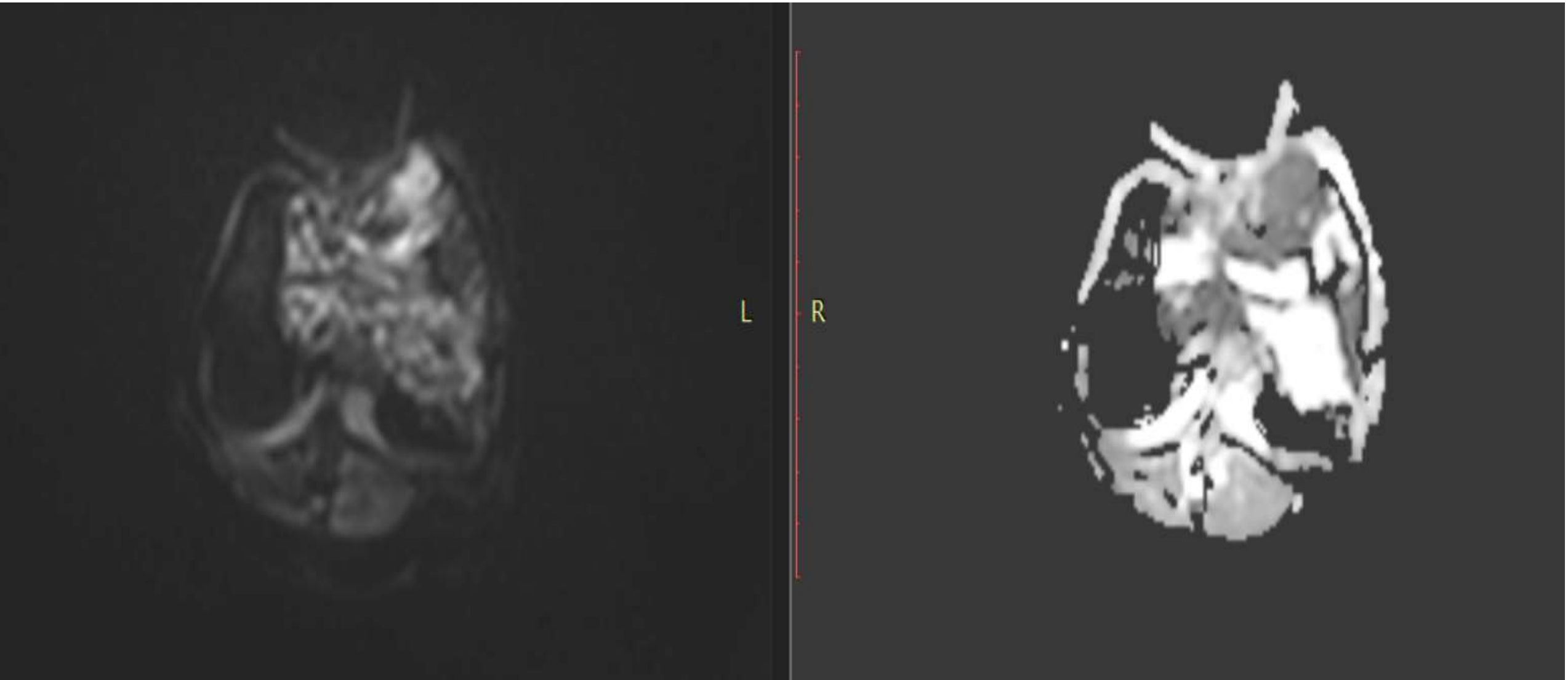
T2 WEIGHTED

T1 WEIGHTED

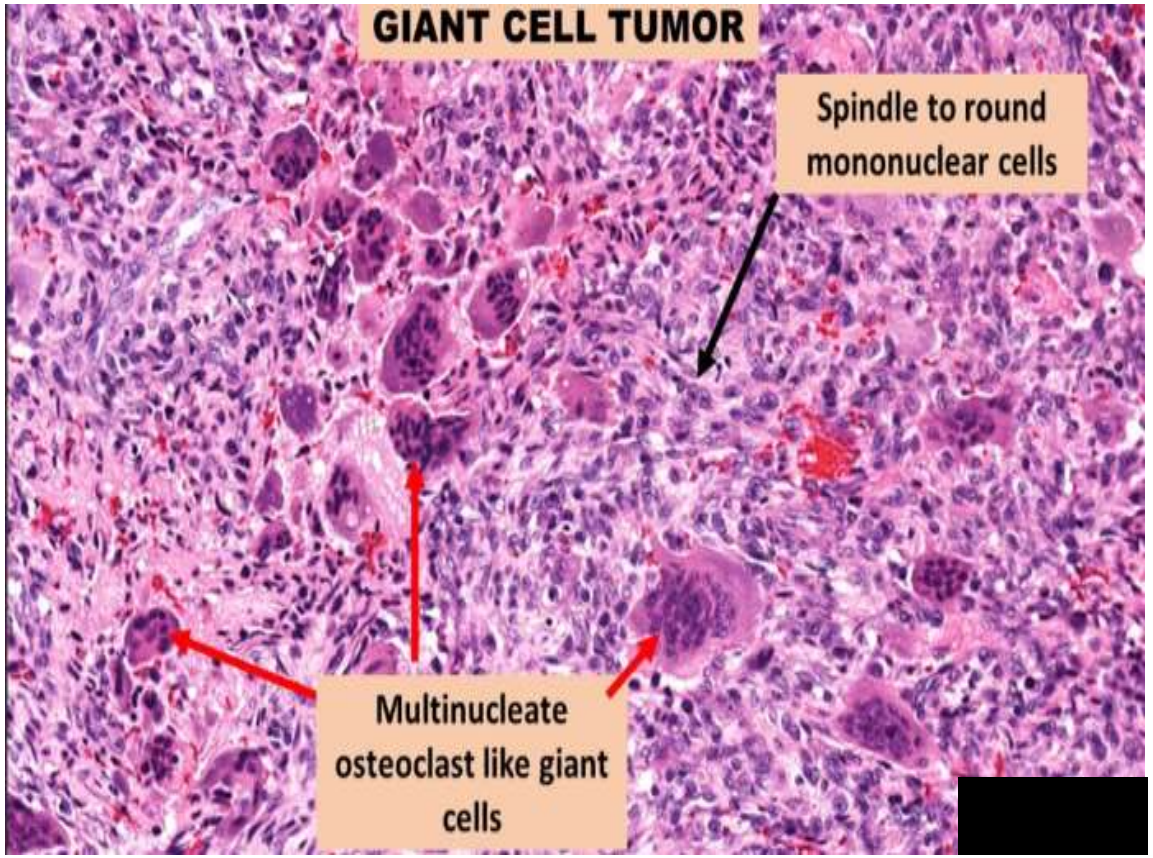


DWI

ADC



DIAGNOSIS



KLES

LABORATORY REPORT

Patient Name	: MR ANIRUDH PARASHARAM HANAMANTACHE	IP / OP No	: 7840811
Ordered Loc	: Free	Gender	: Male
Referred By	: Dr. JOINTREPLC&ARTH CONSULTANT ORTHOPEADIC	Age	: 22 Y 0 M 4 D
Class	: OPD - Hospital	Vch No	: 1734325
Current Loc	:	Collection Dttm	: 06/05/2025 11:21 AM
Sample No	: 25264662	Reported On	: 08/05/2025 09:47 AM

HISTOPATHOLOGY

Investigations	Result	Method	Unit	Reference Range
Sample Type : GENERAL				
BIOPSY NO:	2428/25			
SITE:	1. Right anteromedial aspect of right femur 2. Right anteromedial aspect of right femur			
GROSS:	Received two containers 1. Received friable haemorrhagic soft tissue pieces. 2. Received grey white soft tissue pieces measuring 2 x 1 x 1 cm. Cut Surface: Grey white			
MICROSCOPY:	Multiple sections studied from both the containers show features of giant cell tumour of bone.			
IMPRESSION *	Giant Cell Tumour of bone.			

NOTE: Slides and Blocks will be saved for 10 years, specimen will be preserved for 3 months if not fully embedded.

--- End Of Report ---

FOLLOW UP

- Patient underwent limb salvage surgery with distal femur resection with megatumor prosthesis reconstruction on 23/05/25