

RADYOLOJİ KİŞ OKULU 2019

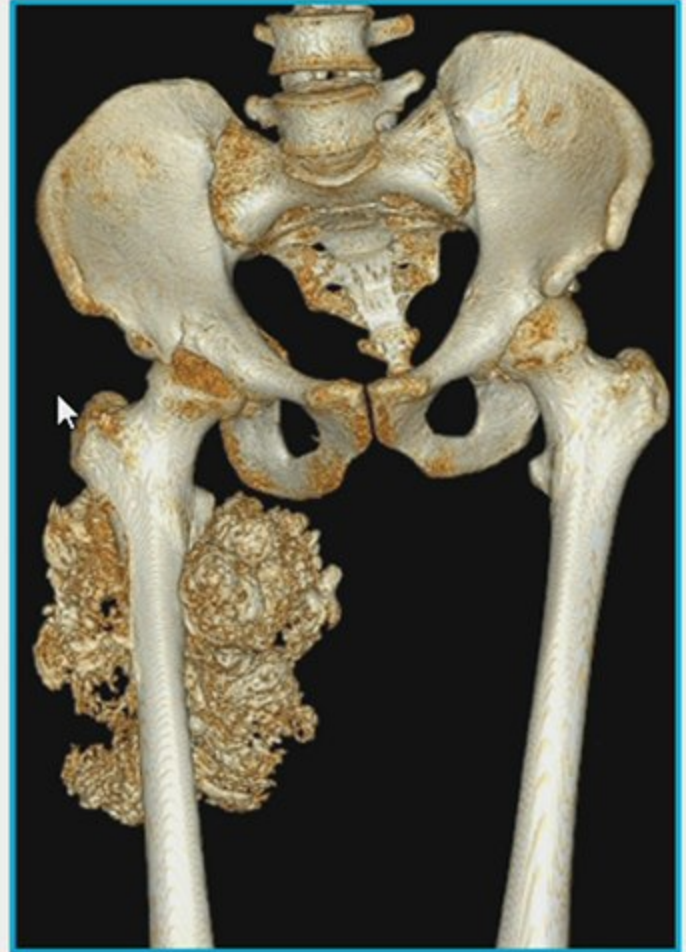
4 -10 Şubat 2019
Mirage Park Otel, Antalya



Kemik ve Yumuşak Doku Tümörleri

Dr. Ali BALCI

Dokuz Eylül Üniversitesi
Tıp Fakültesi Radyoloji AD



ÖĞRENME HEDEFLERİ

- Kemik ve YD tümörlerine genel yaklaşımı kavrama
- Örnek olgularla ayırıcı tanı yapabilme
- Görüntüleme yöntemlerinin tanıya katkılarını kavrama

İNCELEME YÖNTEMLERİ

- Direkt Radyografi
- Ultrasonografi ve renkli Doppler US
- BT
- MRG
- Anjiyografi ve girişimsel yöntemler

DİREKT RADYOGRAFİ

- İlk inceleme yöntemi
 - Geçiş zonu
 - Lokalizasyon
 - Boyut
 - Kenar
 - Matriks
 - Periost reaksiyonu
 - Kortikal tutulum

MANYETİK REZONANS GÖRÜNTÜLEME

- İkinci inceleme yöntemi
 - Kemik iliği tutulumu
 - Yumuşak doku tutulumu
 - Nörovasküler tutulum
 - Eklem tutulumu
 - Skip lezyon saptama
 - Lezyon karakterizasyonu
 - Yağ
 - Kan
 - Hemosiderin
 - Kalsifikasyon
 - Seviyelenme
 - Tedavi yanıtı

EVRELEME

BİLGİSAYARLI TOMOGRAFİ

- Seçilmiş olgularda tercih
 - Kortikal lezyonlar (OO)
 - Lezyon içi mineralizasyon (Enkondrom)
 - Süpheli kortikal erozyonlar
 - Yassı kemik tutulumu
 - Kırık olasılığını ve patolojik kırıkları ortaya koyma
 - Biyopsi

Yaş

Soliter
Multipl

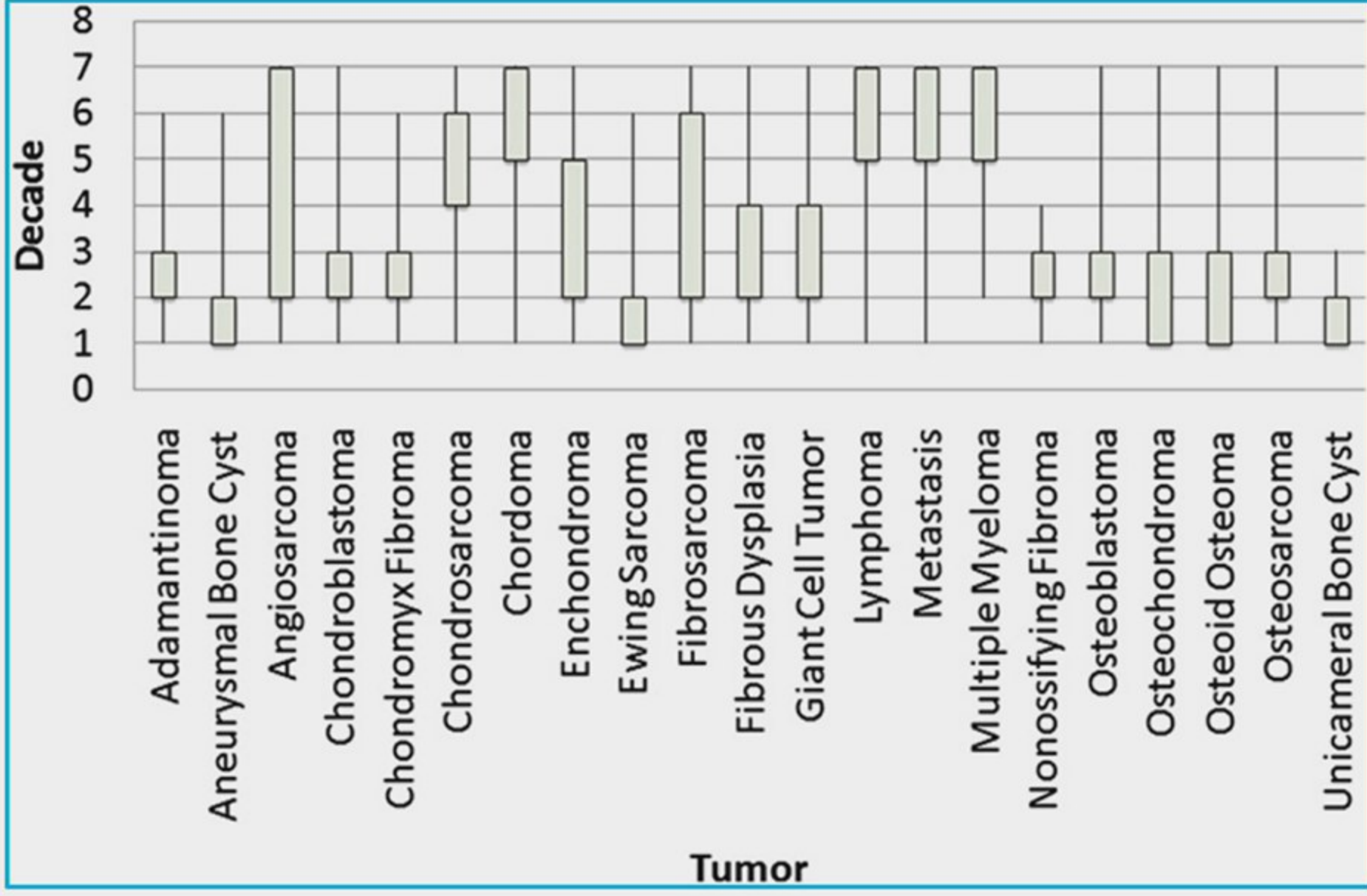
KEMİK
LEZYONU



Morfoloji

- Sınır
- Boyut
- Destrüksiyon
- Periost reaksi.
- Matrix
- Kortikal tutulum
- YD kitlesi

Lokalizasyon



Diaphysis

Children: FD, EG,
OO, UBC, OFD, ES

PeriOS

Adults: Met, MM,
Ad, Lym

Metaphysis

Children: Oc, NoF, Ec,
FD, Om, UBC, ABC, Ob,
EG, OO, Os

ParOS,
PeriC,
PeriCS

Adults: Oc, Om, Met, MM,
Cs, Ec, CmF, GCT, Lym

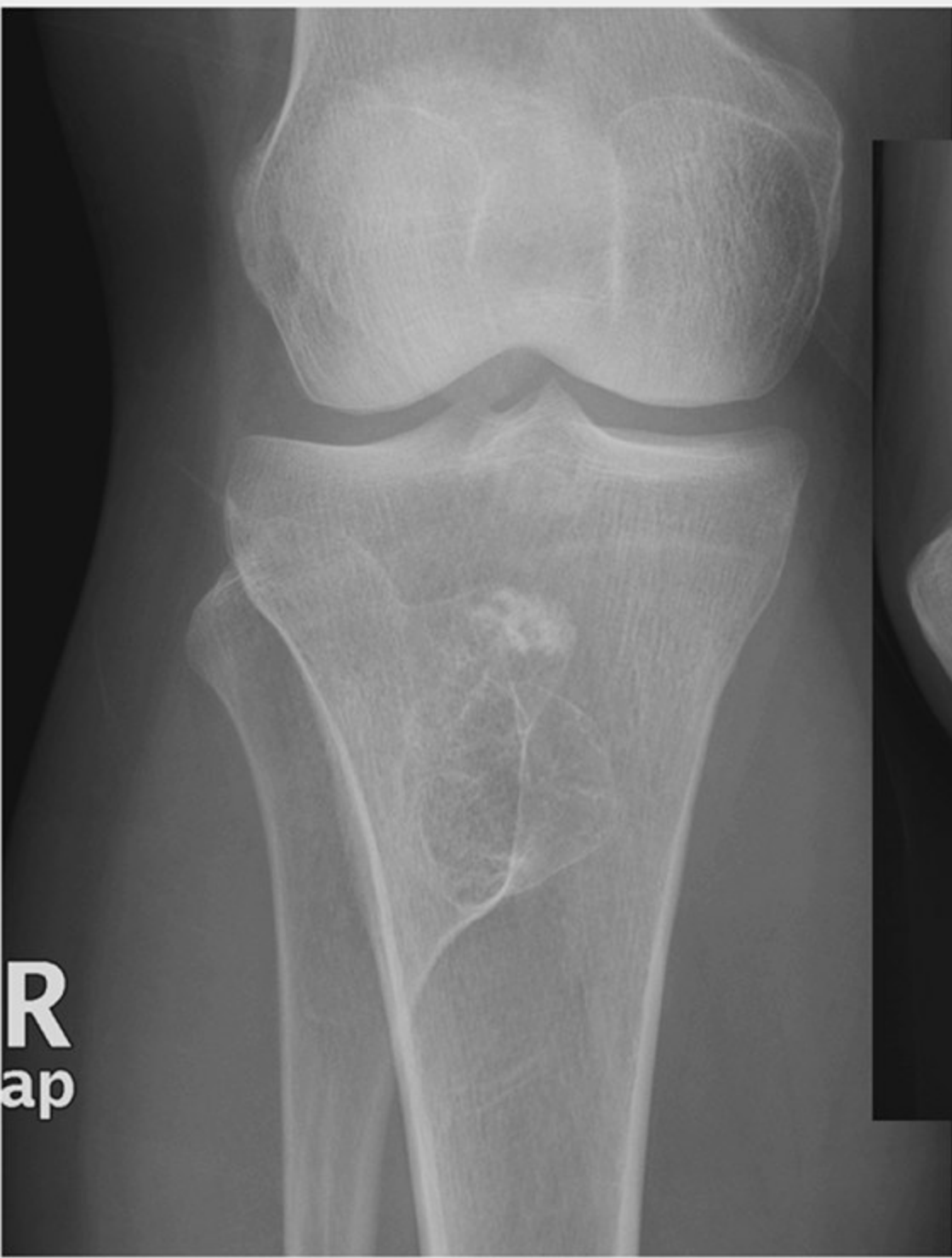
Epiphysis

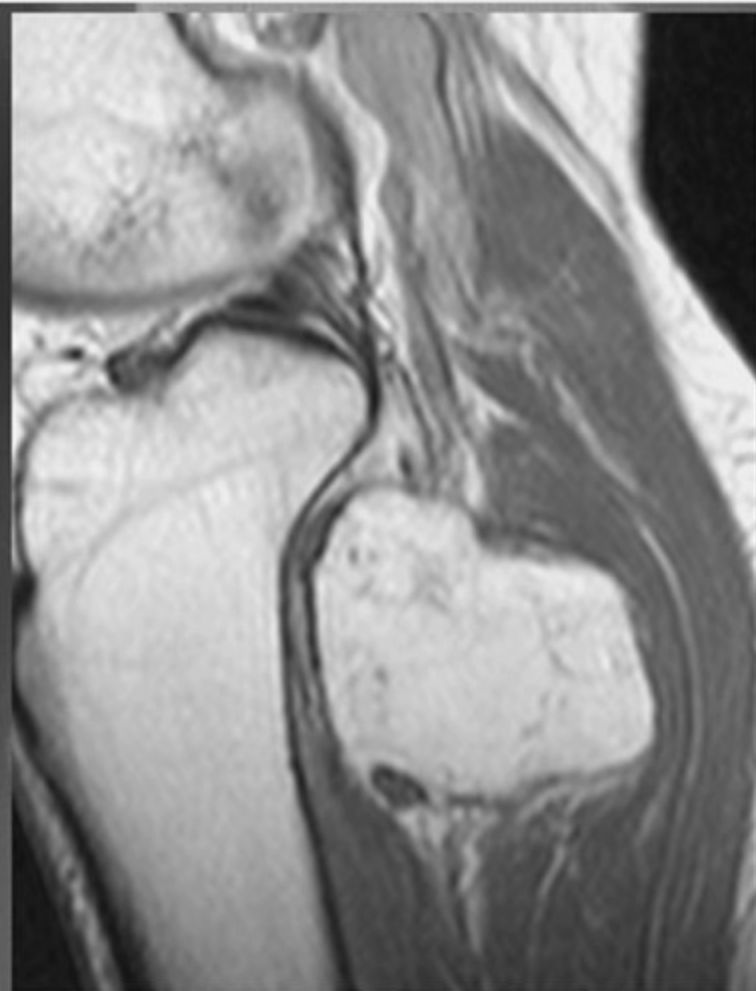
Children: Cb, Om, EG, Ec, OO

Adults: SCC, IoG, GCT, CCC

CARTILAGE TUMOURS

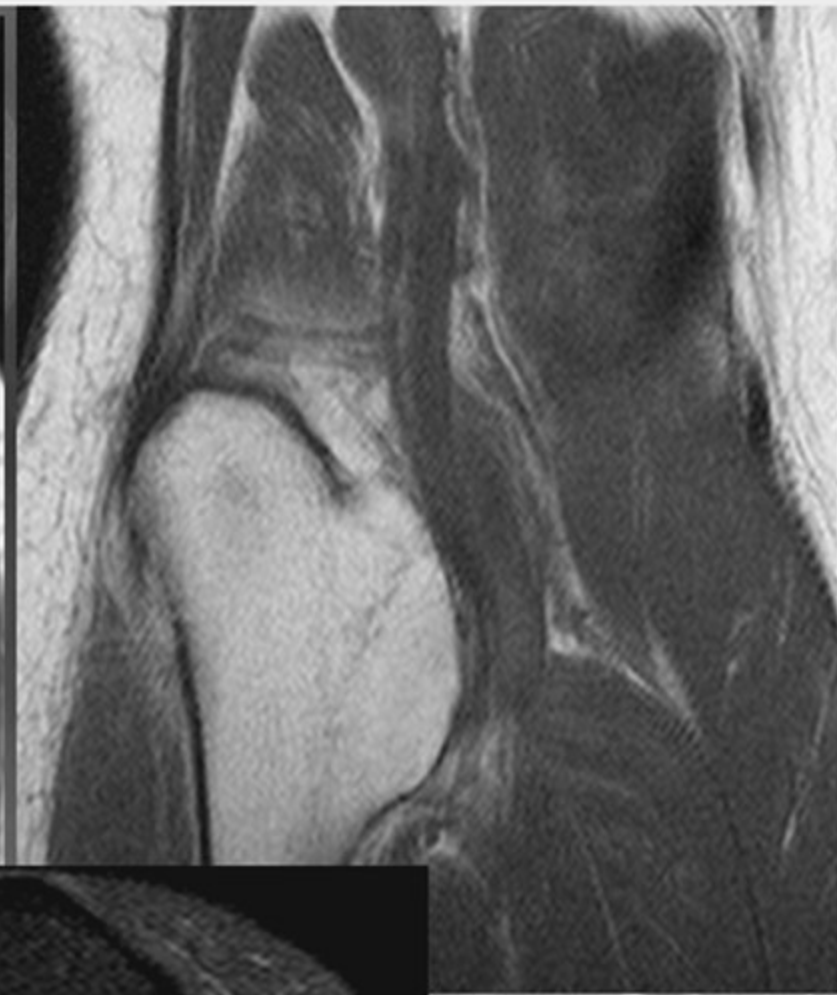
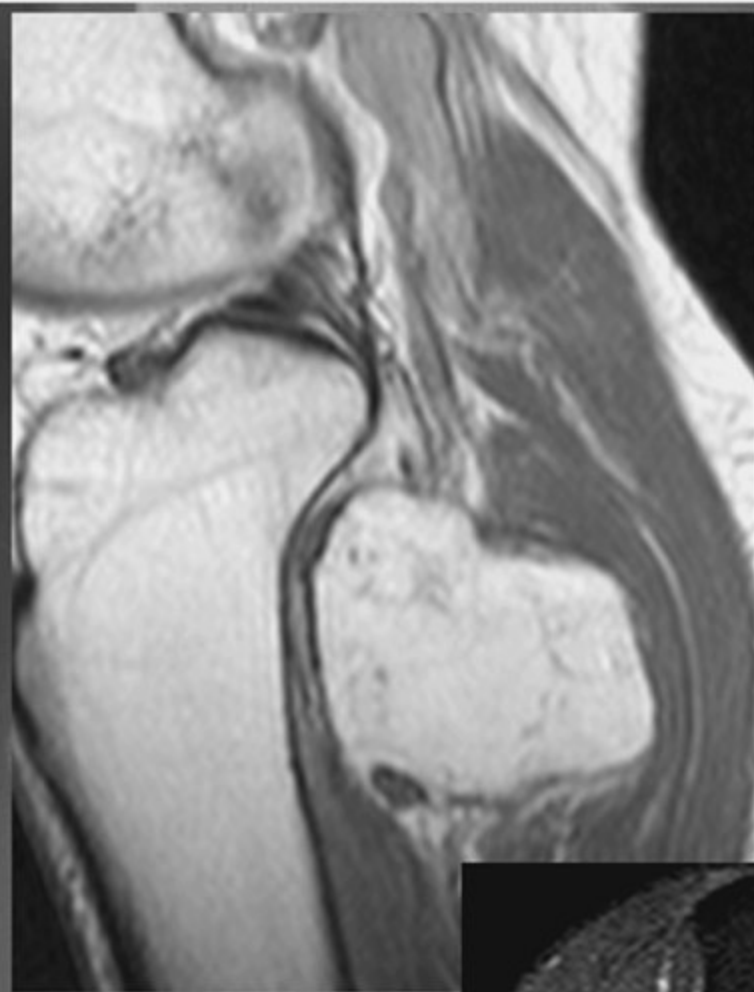
Osteochondroma	9210/0*
Chondroma	9220/0
Enchondroma	9220/0
Periosteal chondroma	9221/0
Multiple chondromatosis	9220/1
Chondroblastoma	9230/0
Chondromyxoid fibroma	9241/0
Chondrosarcoma	9220/3
Central, primary, and secondary	9220/3
Peripheral	9221/3
Dedifferentiated	9243/3
Mesenchymal	9240/3
Clear cell	9242/3





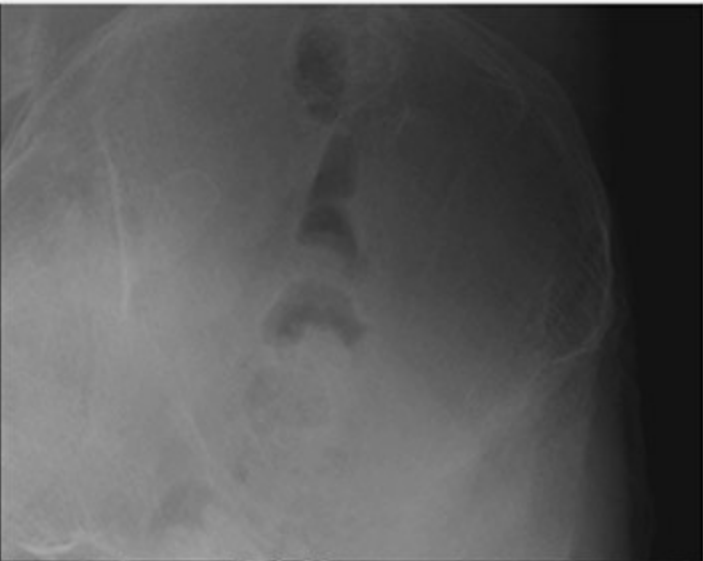
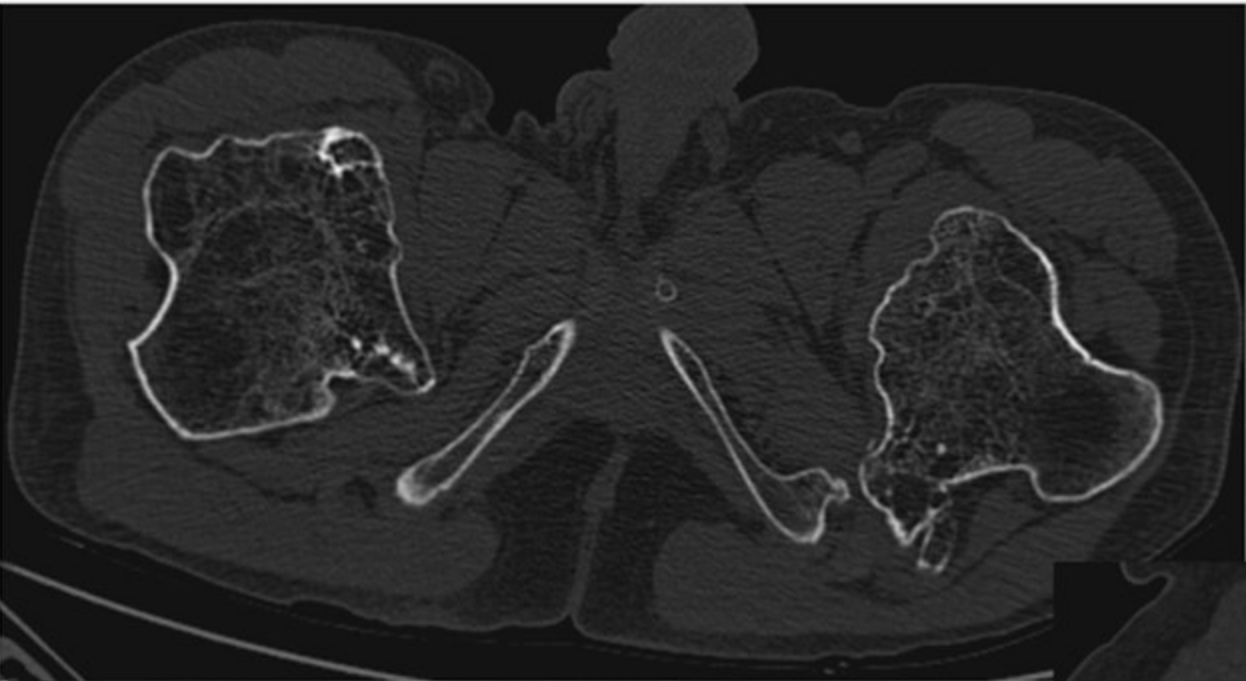
R
ap

R
lat

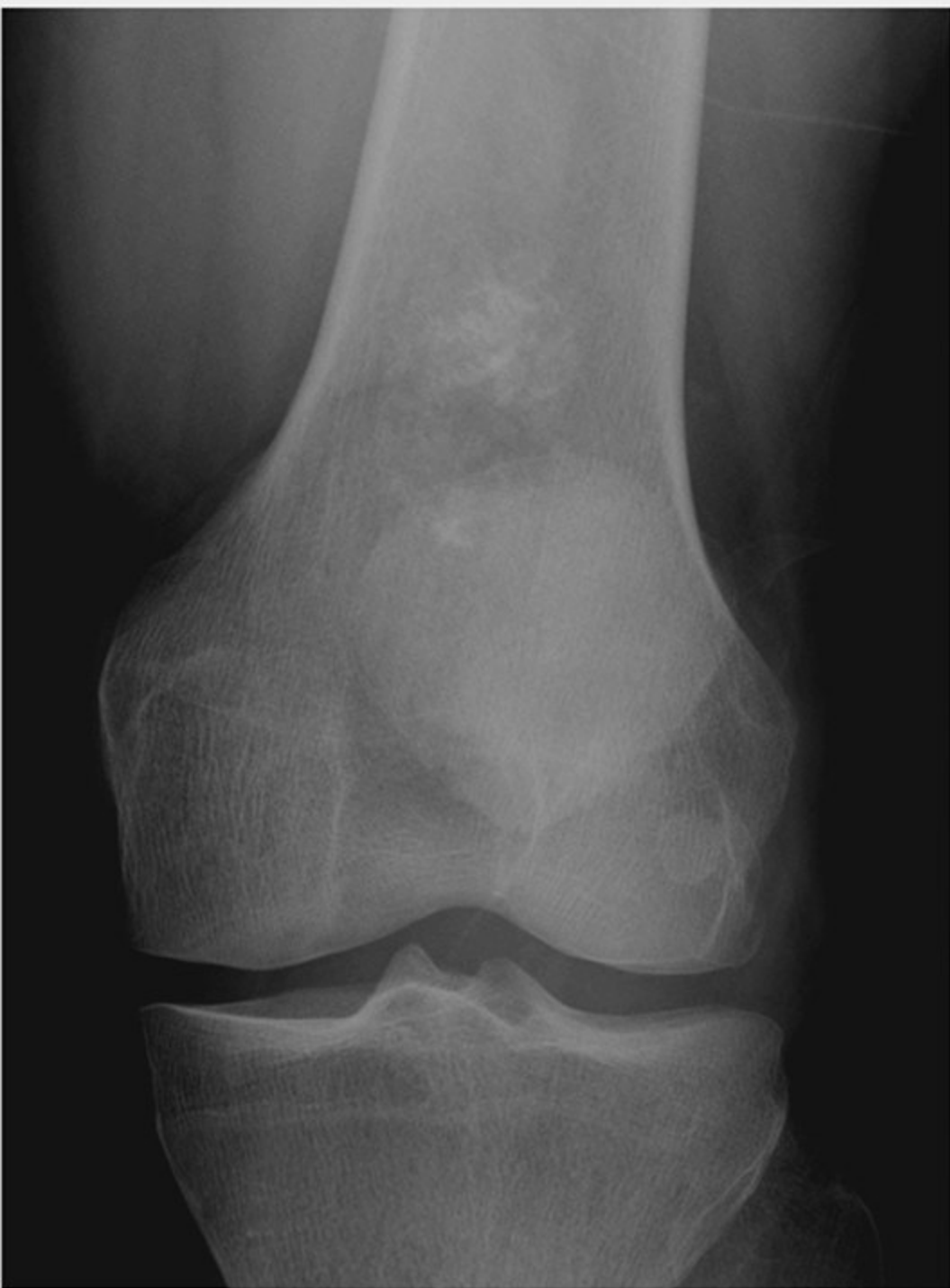


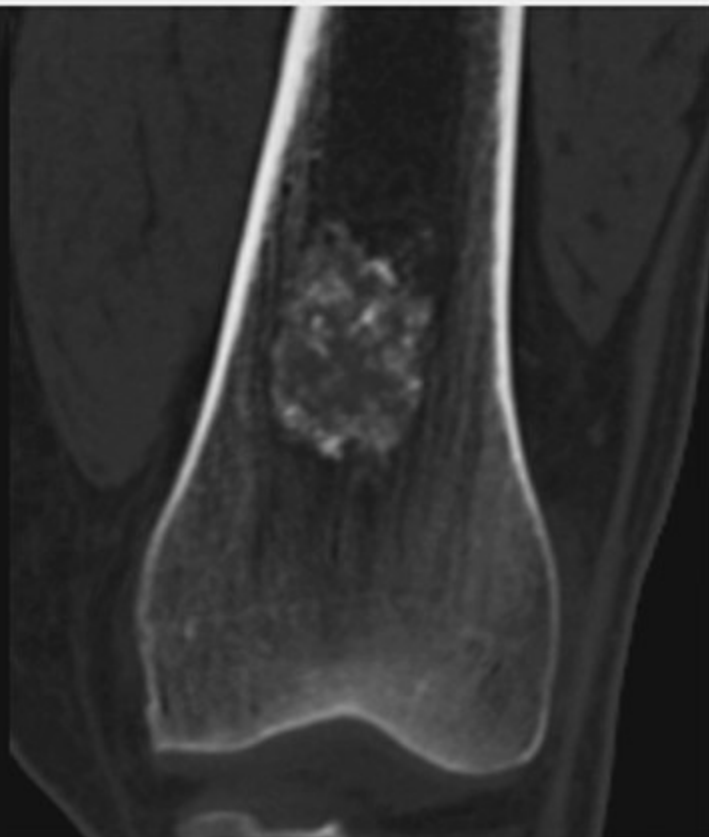
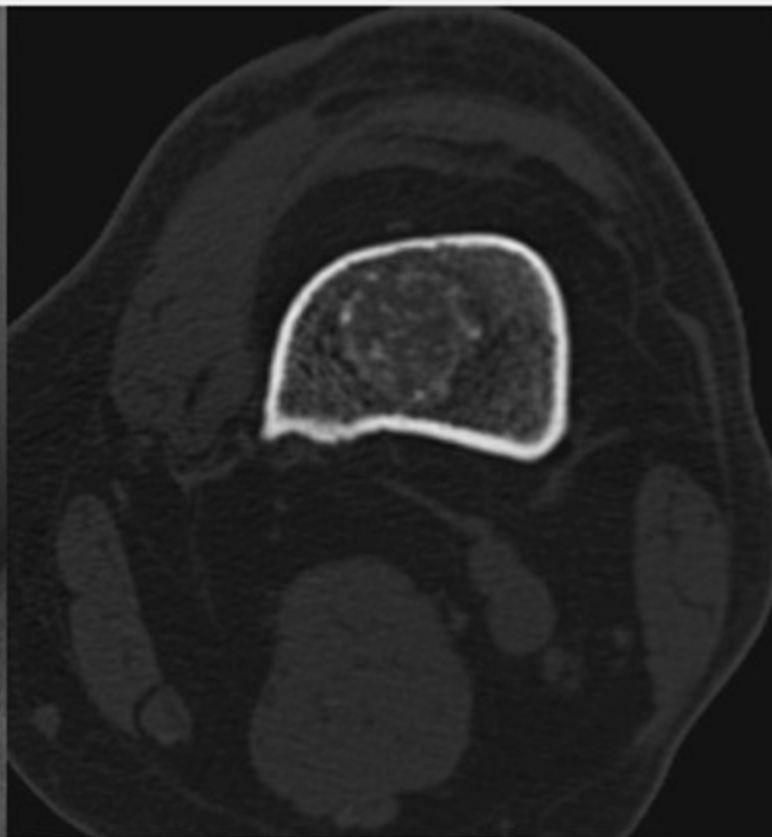
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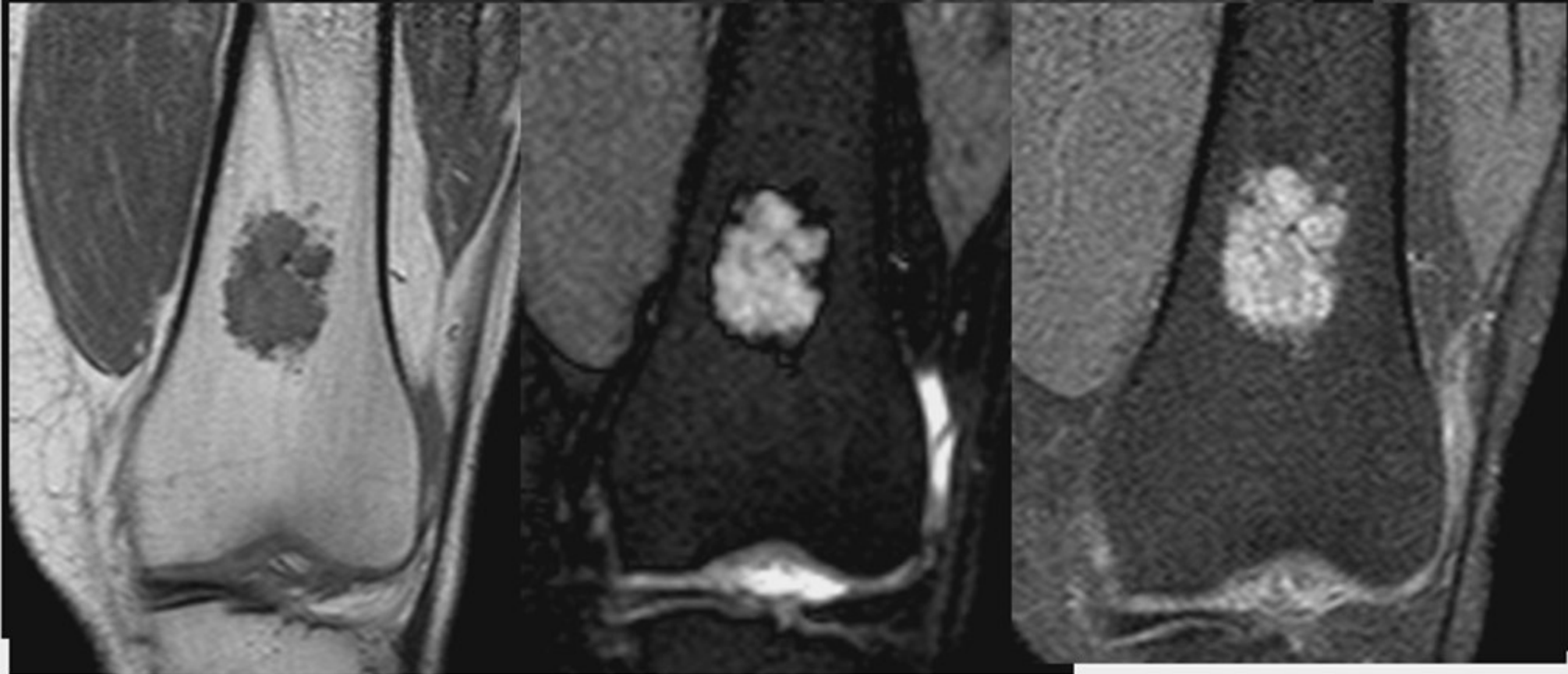
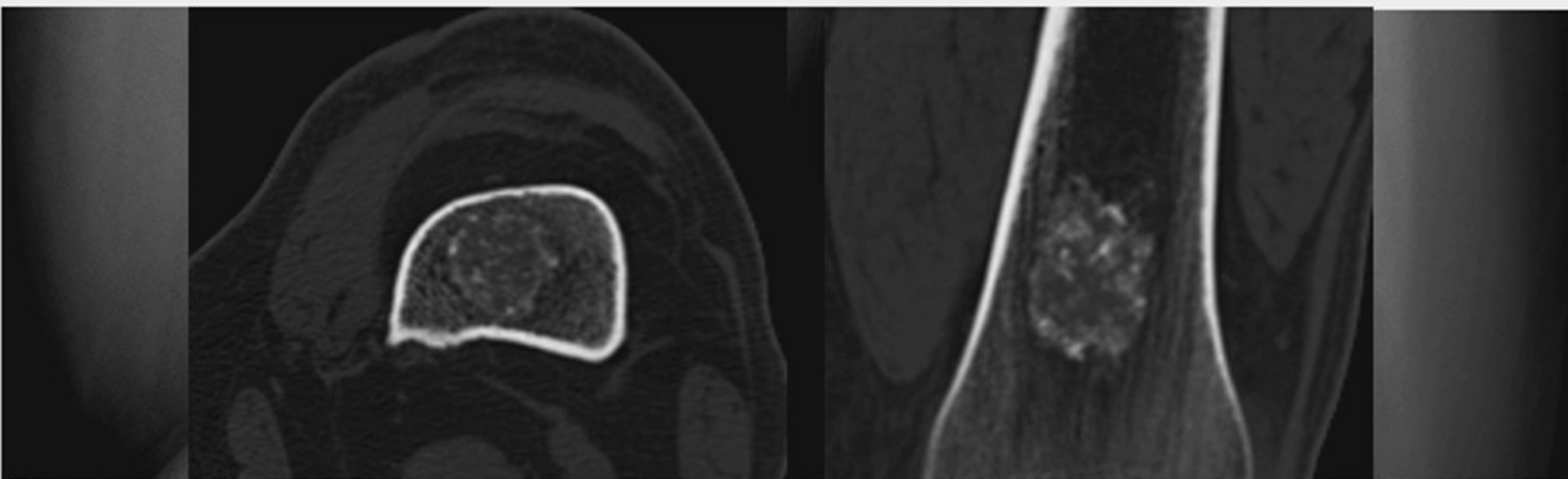














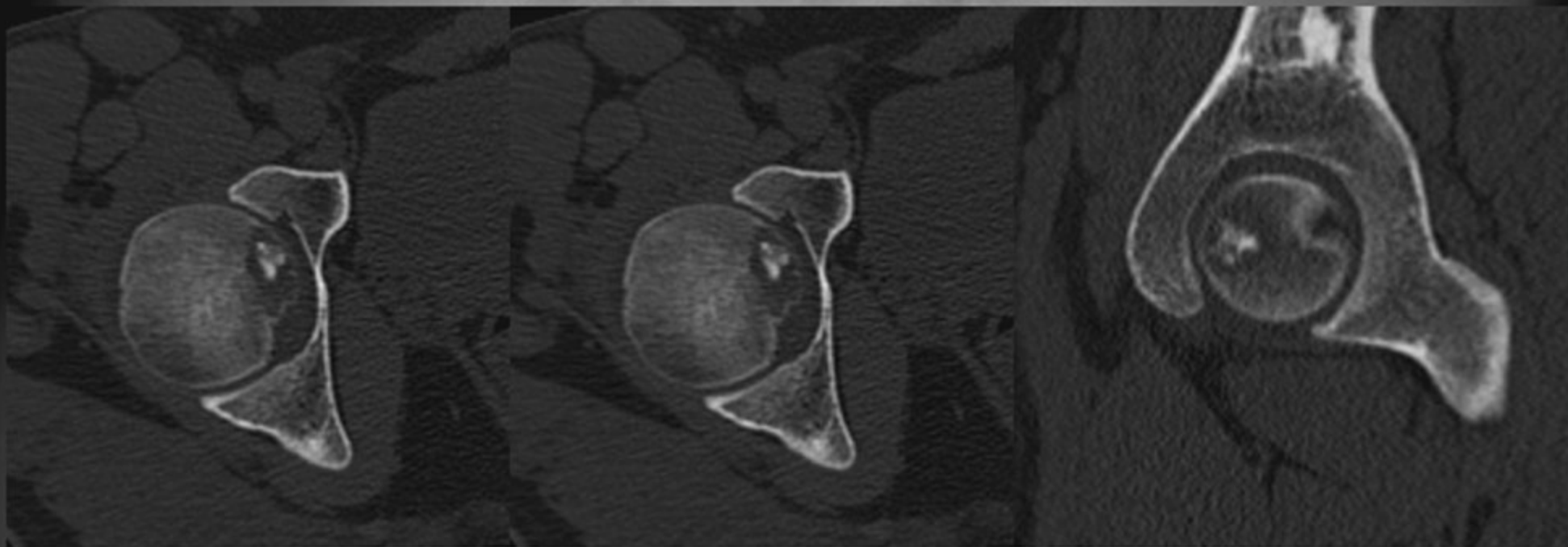


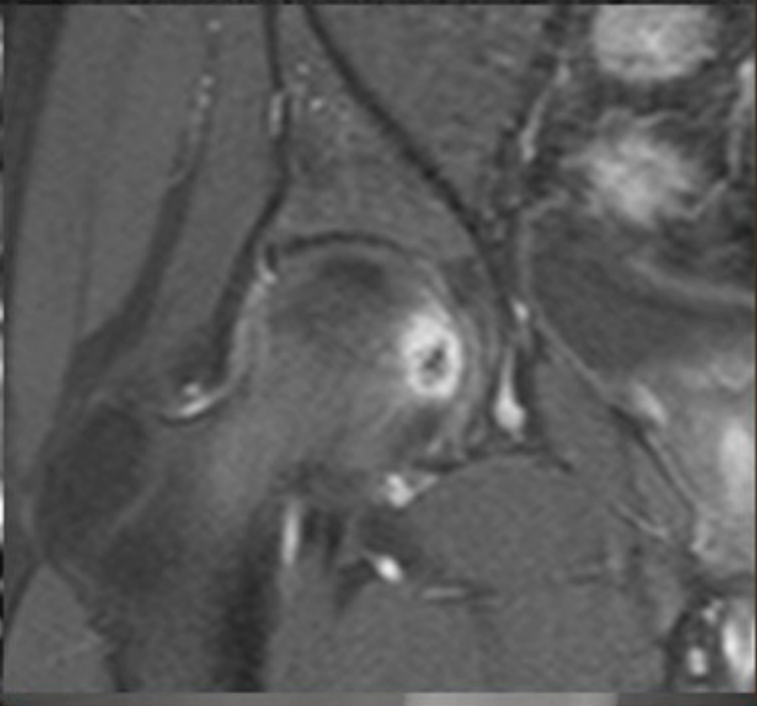
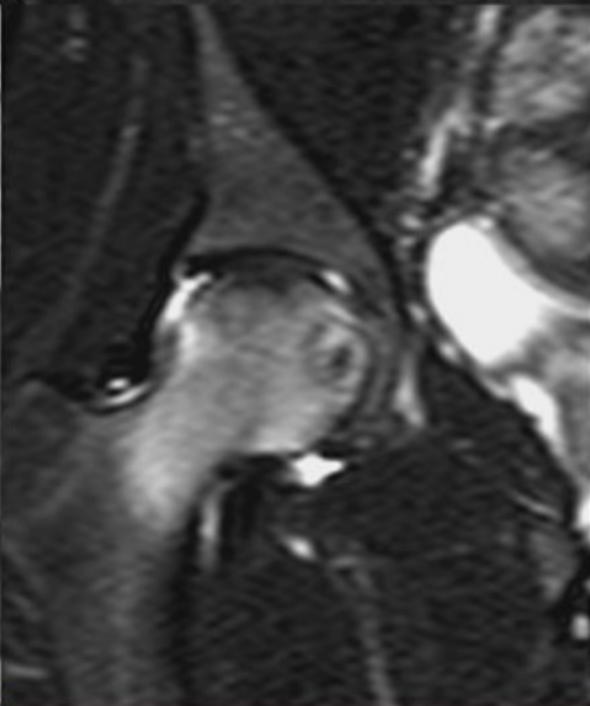
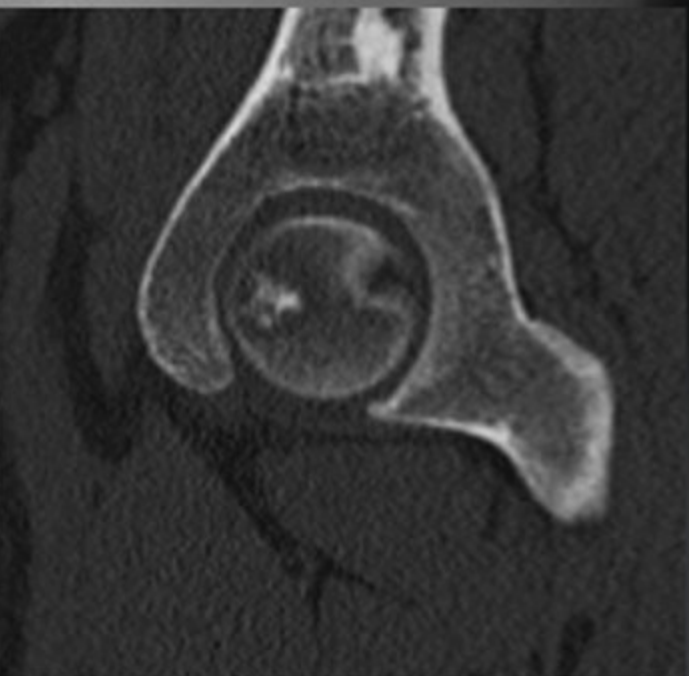
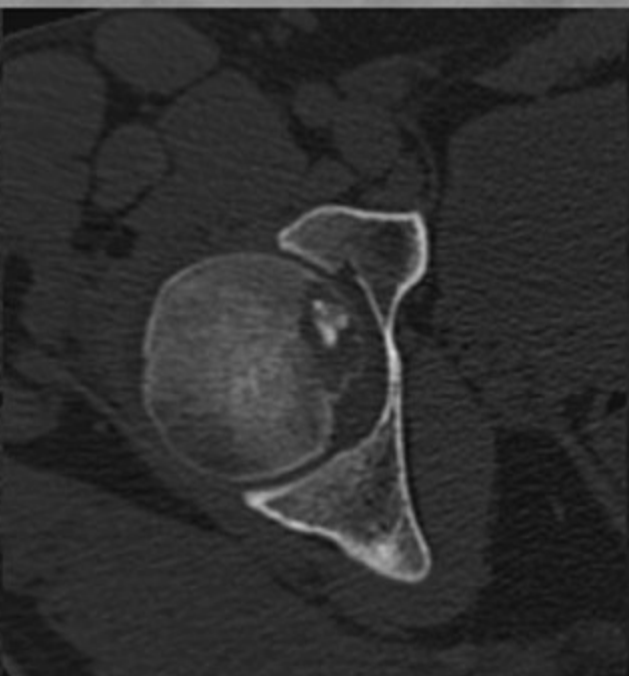
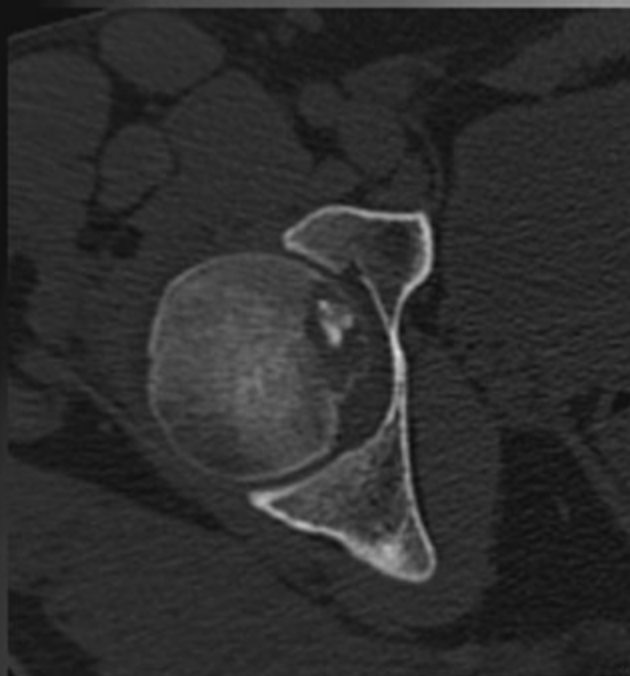




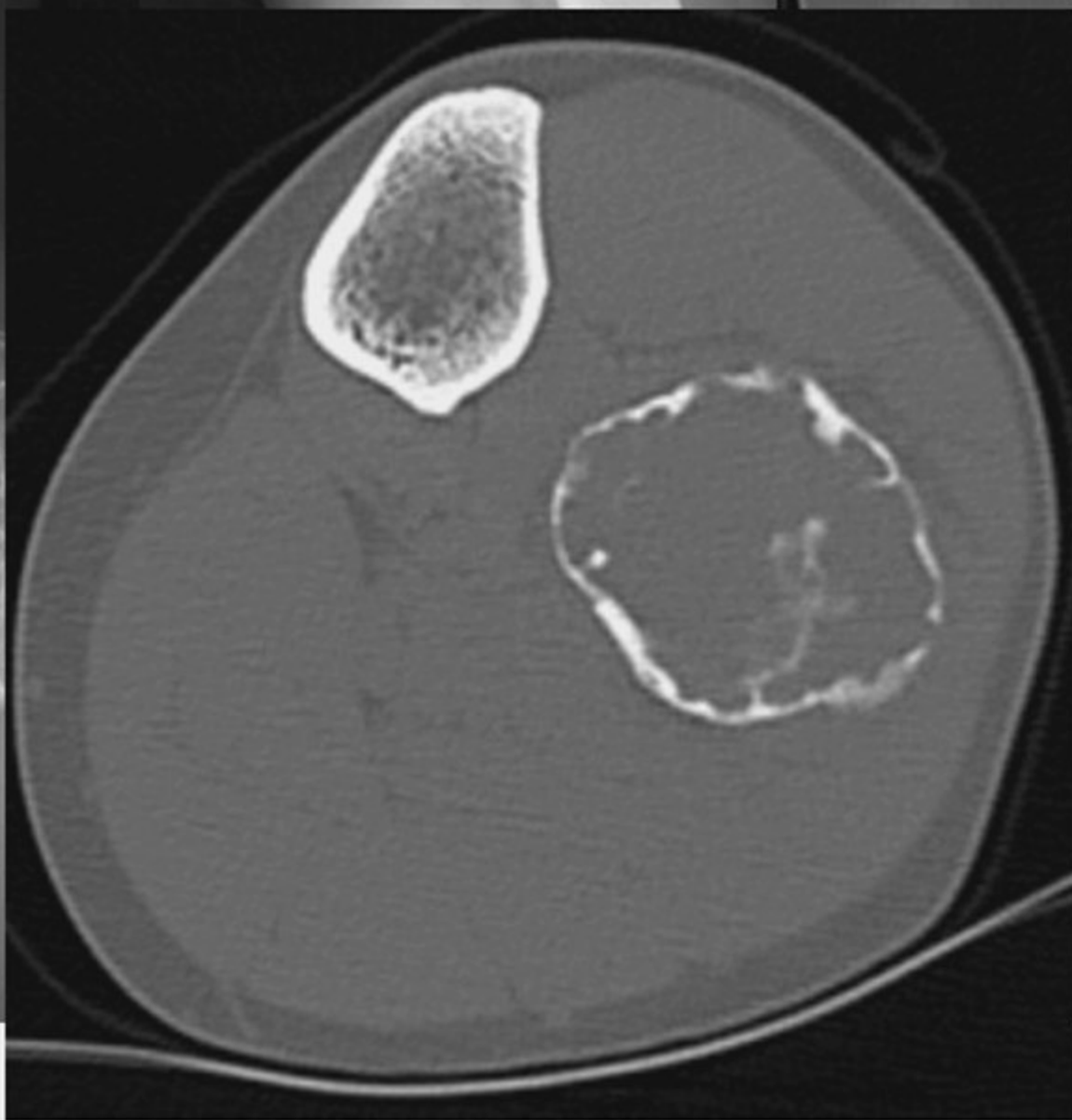
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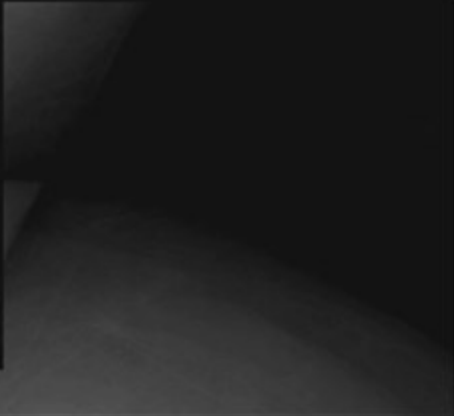
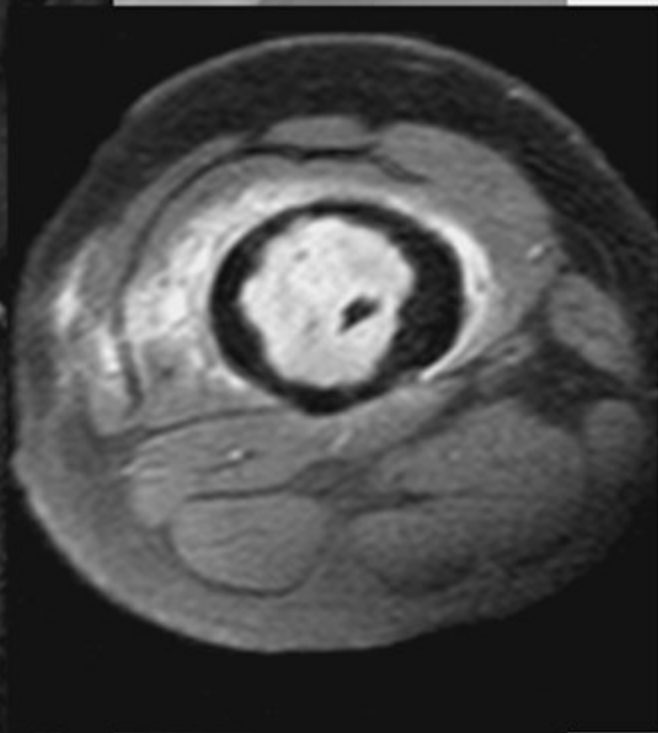
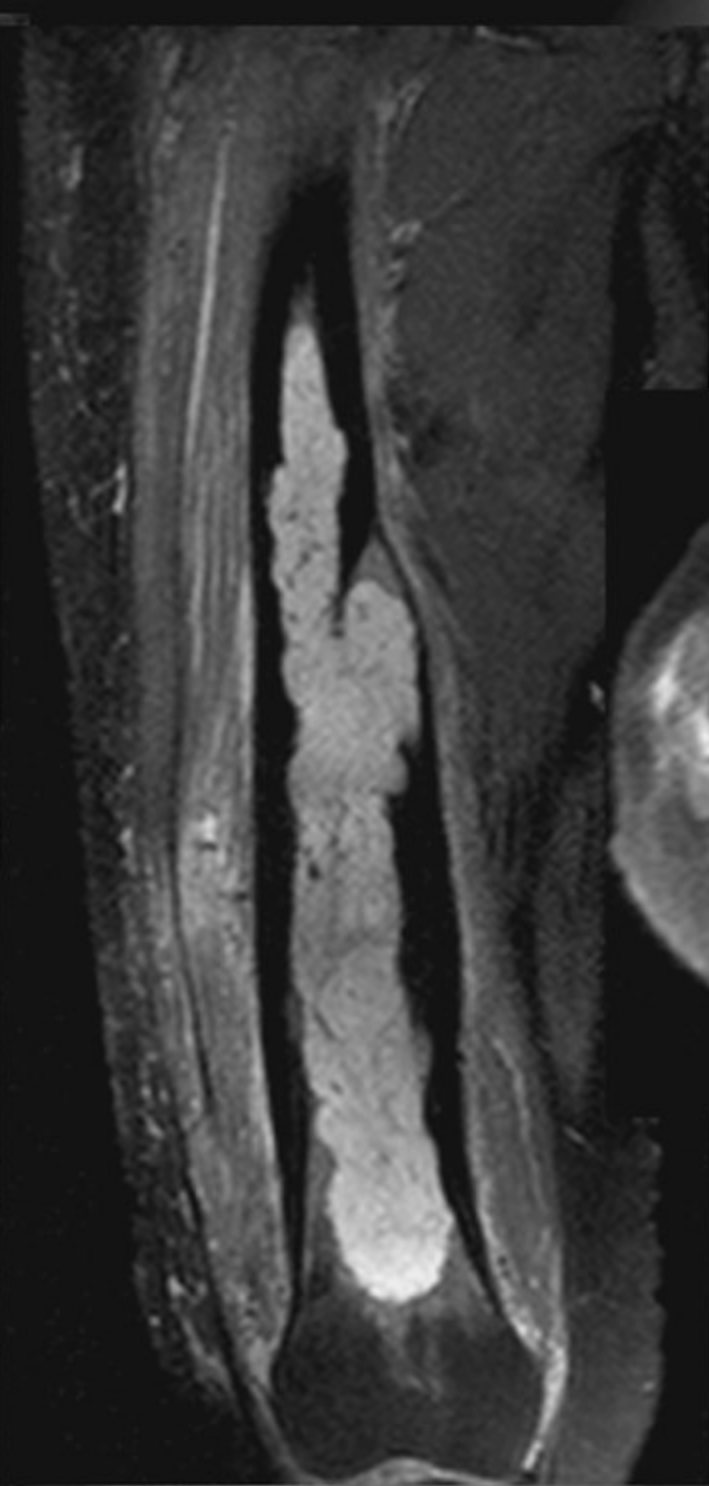


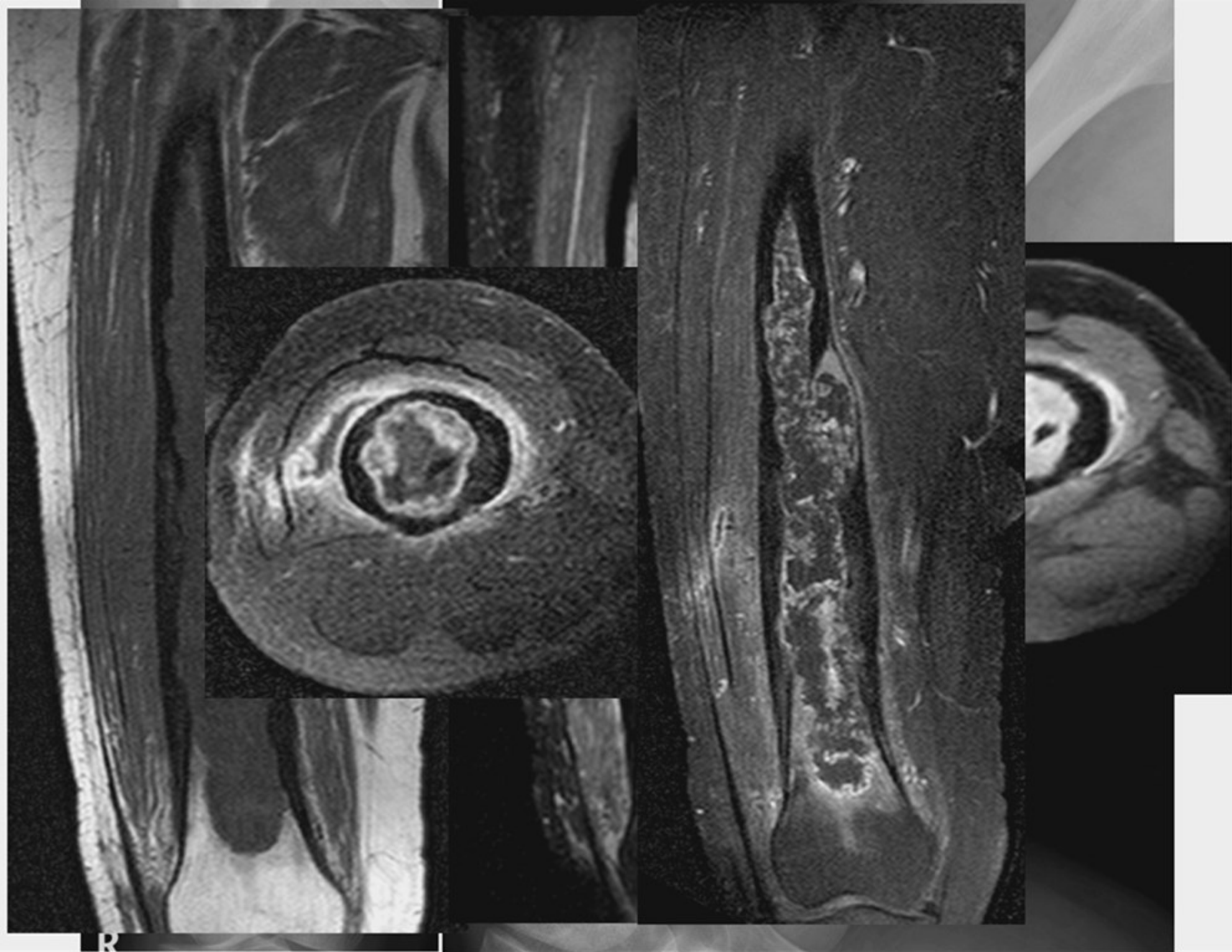




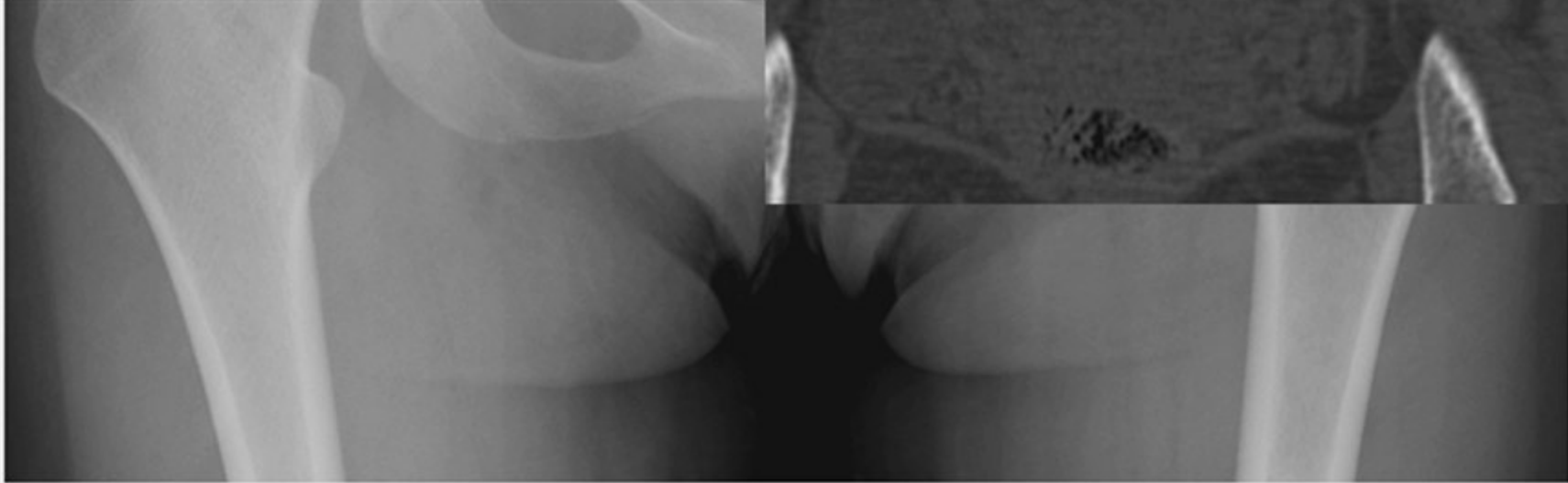
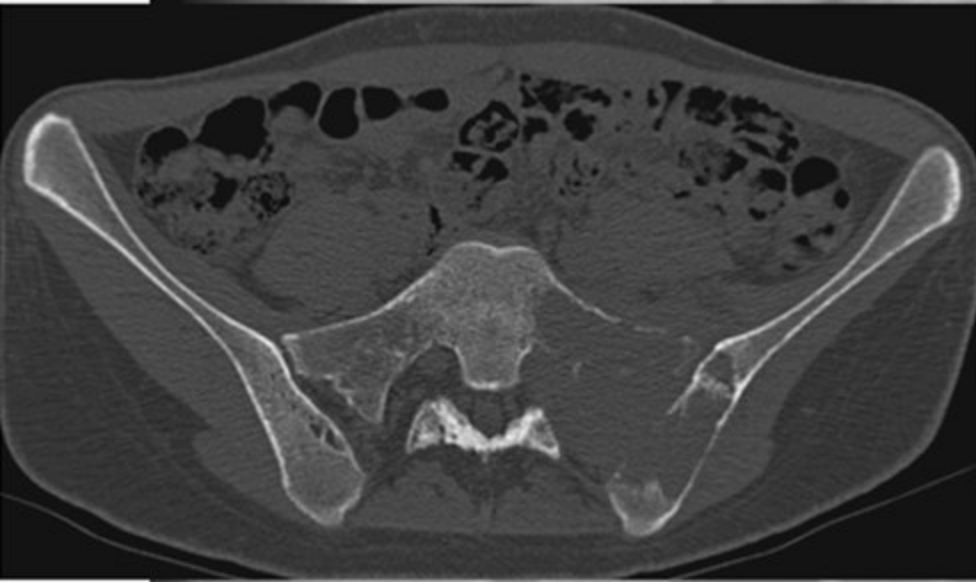
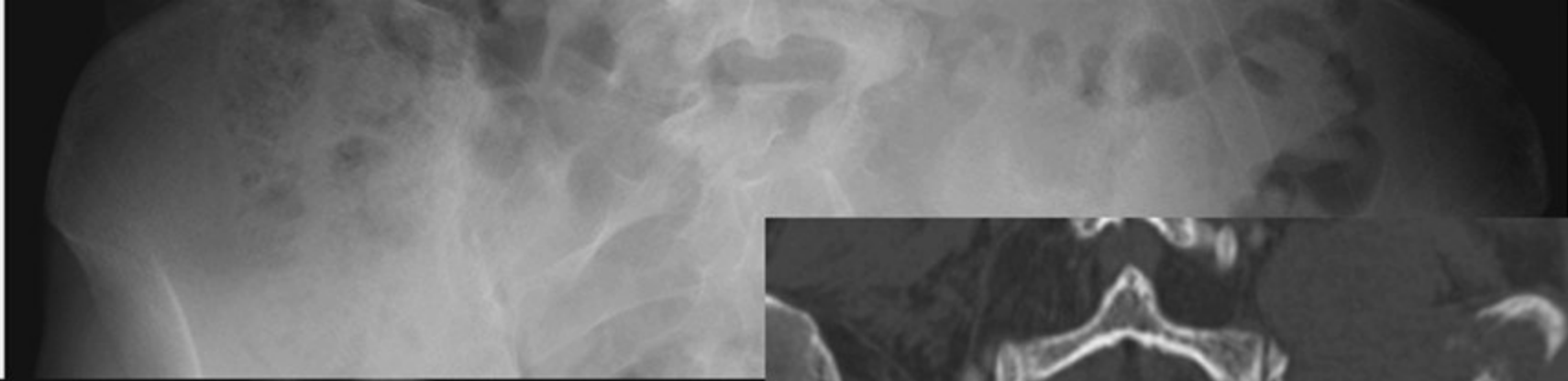


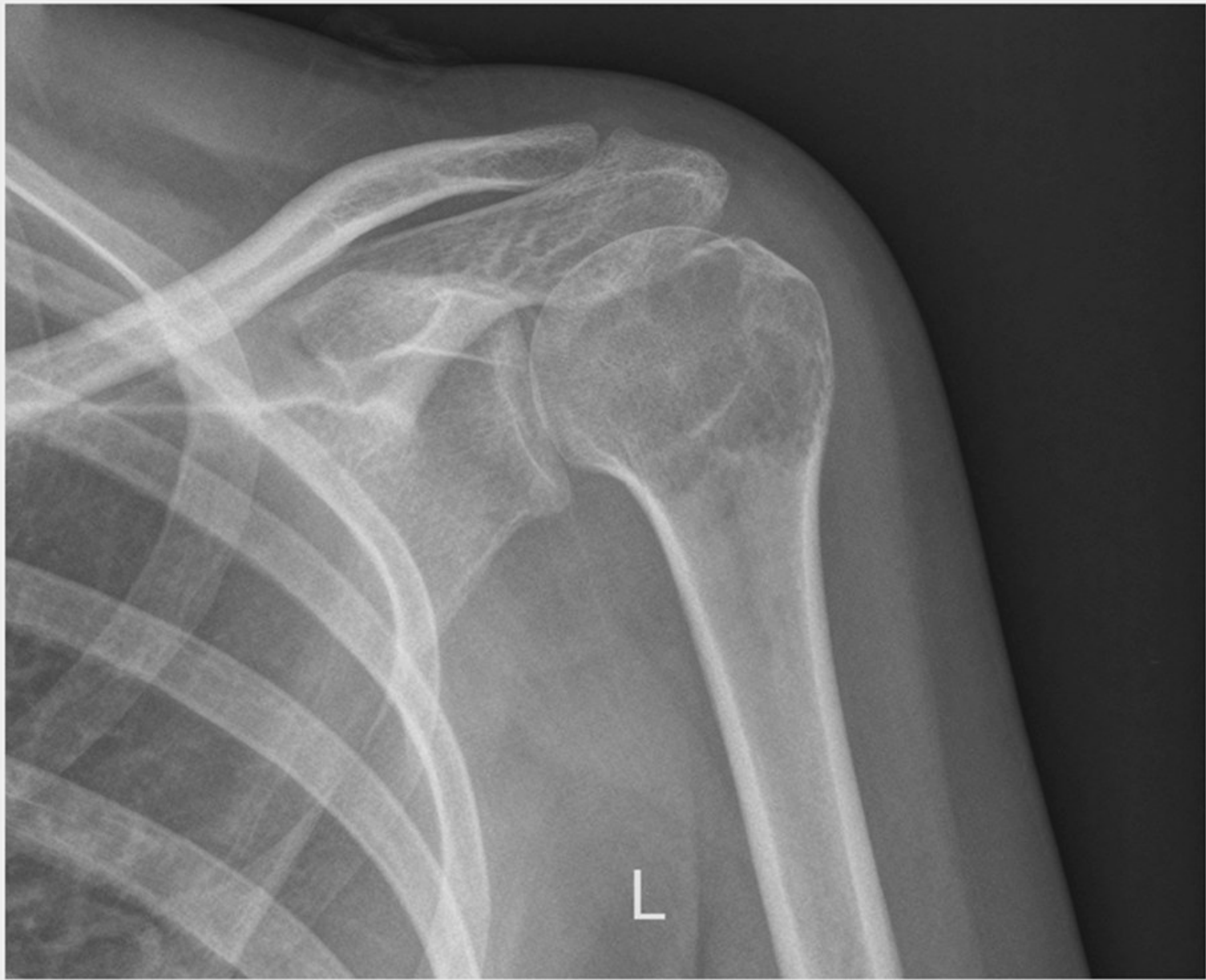


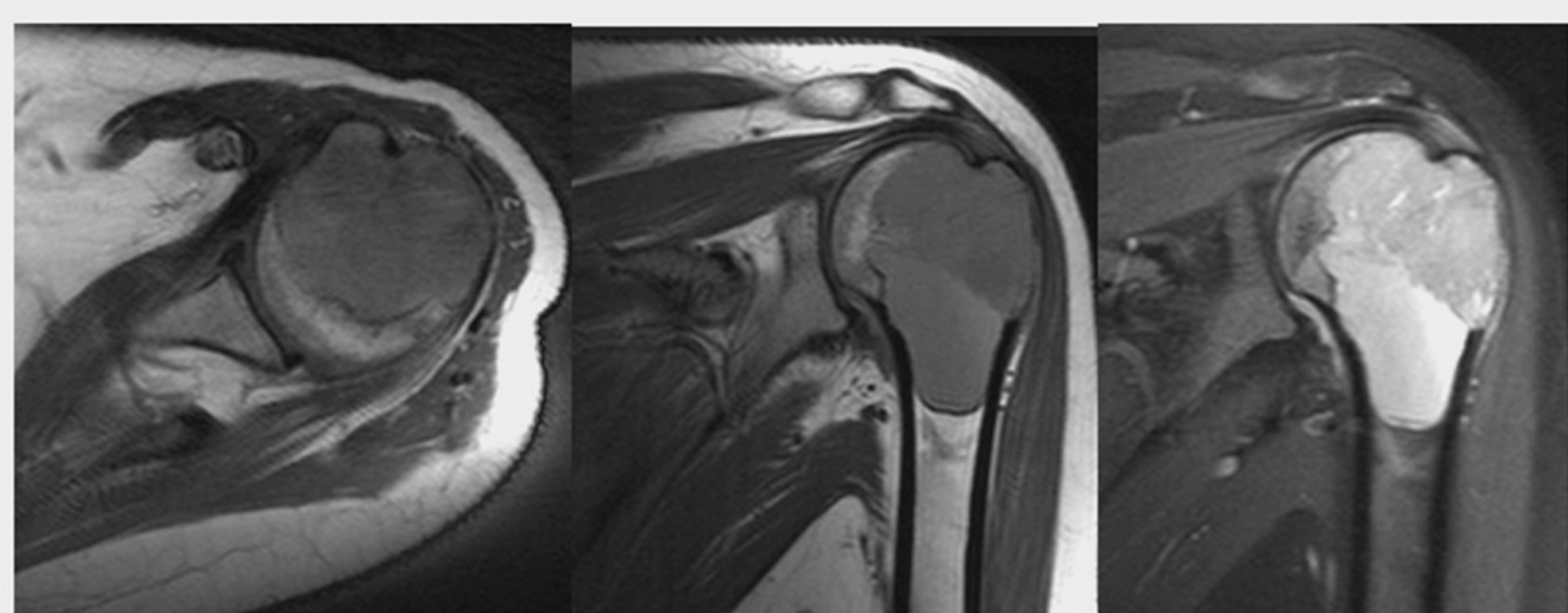


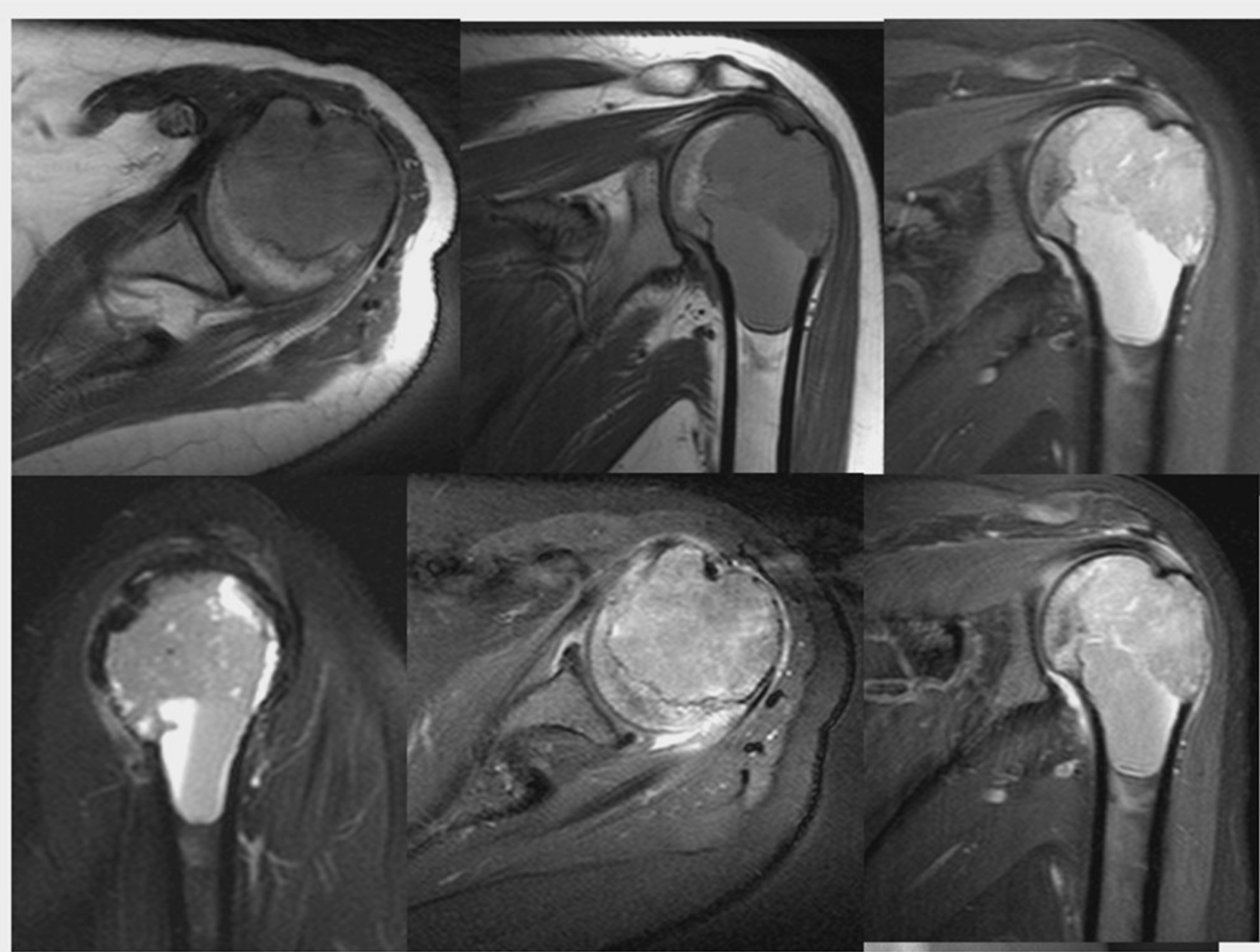








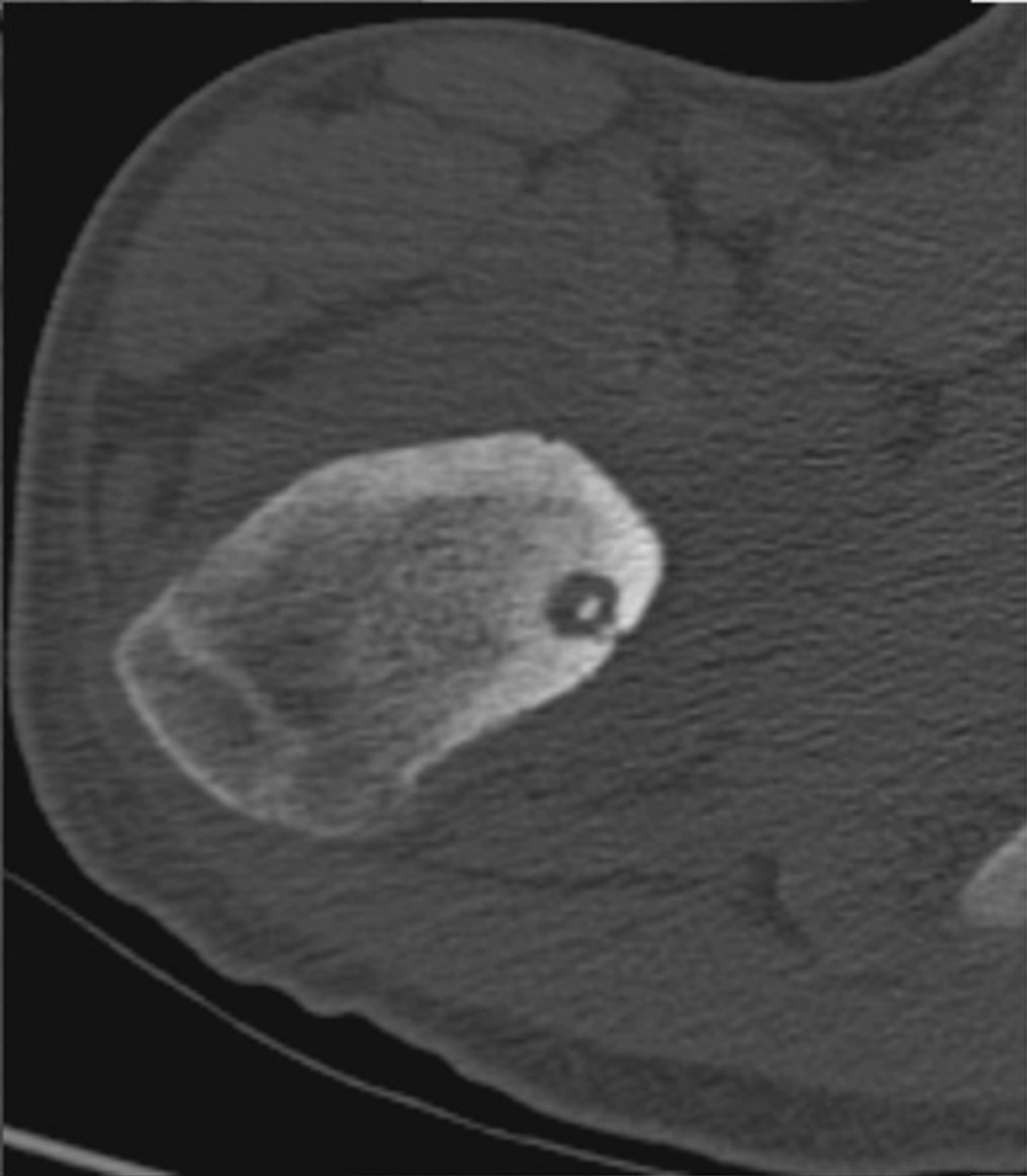


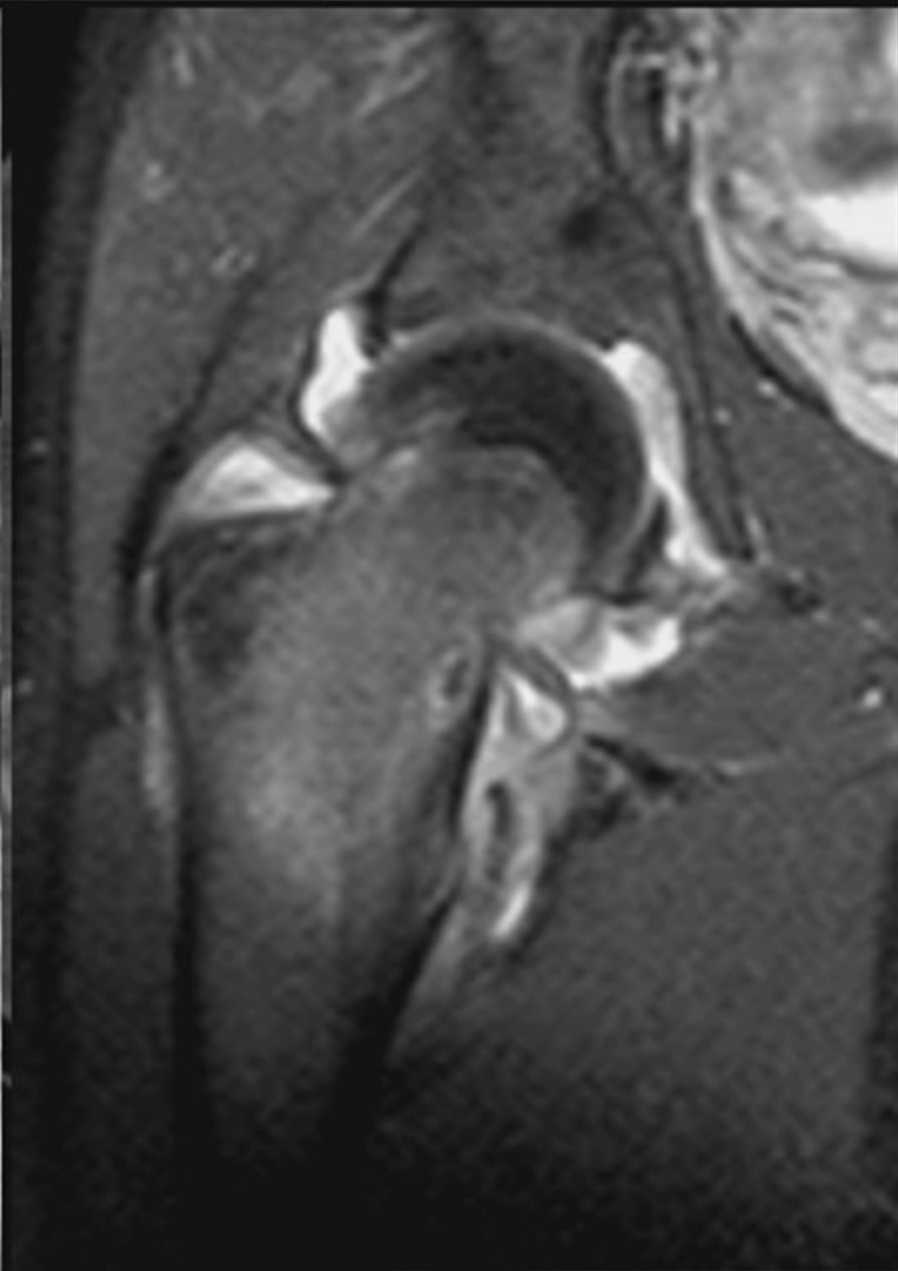
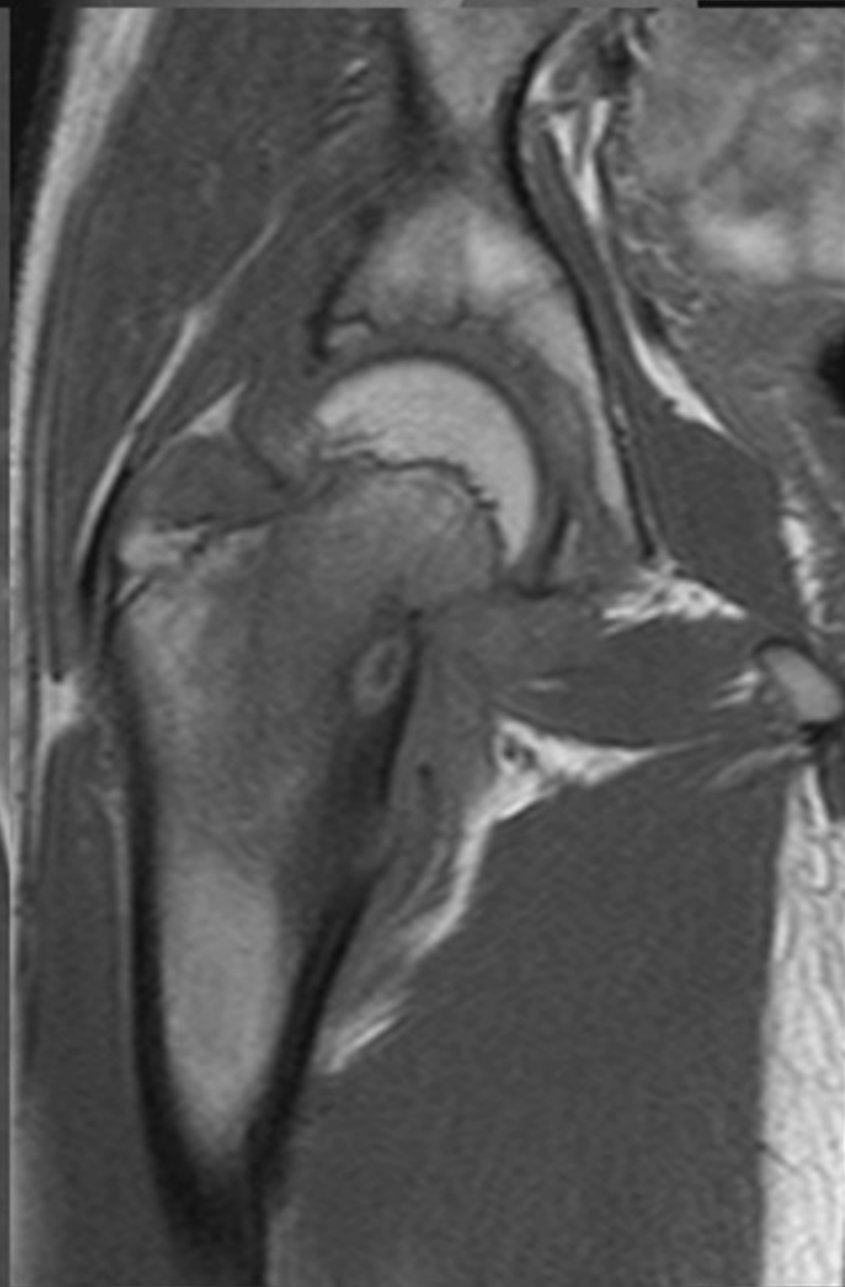


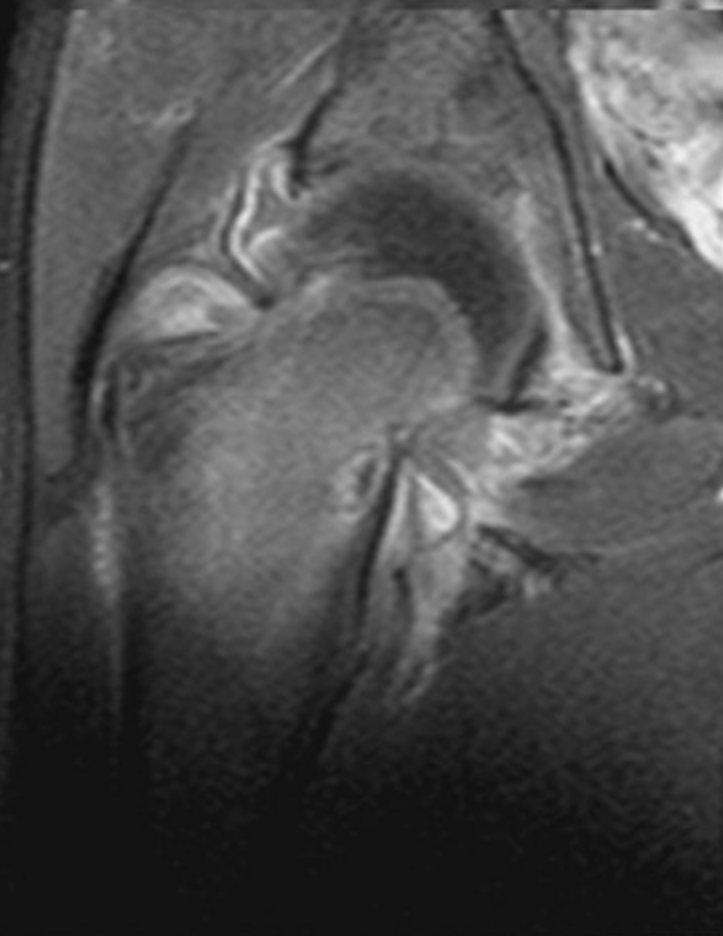
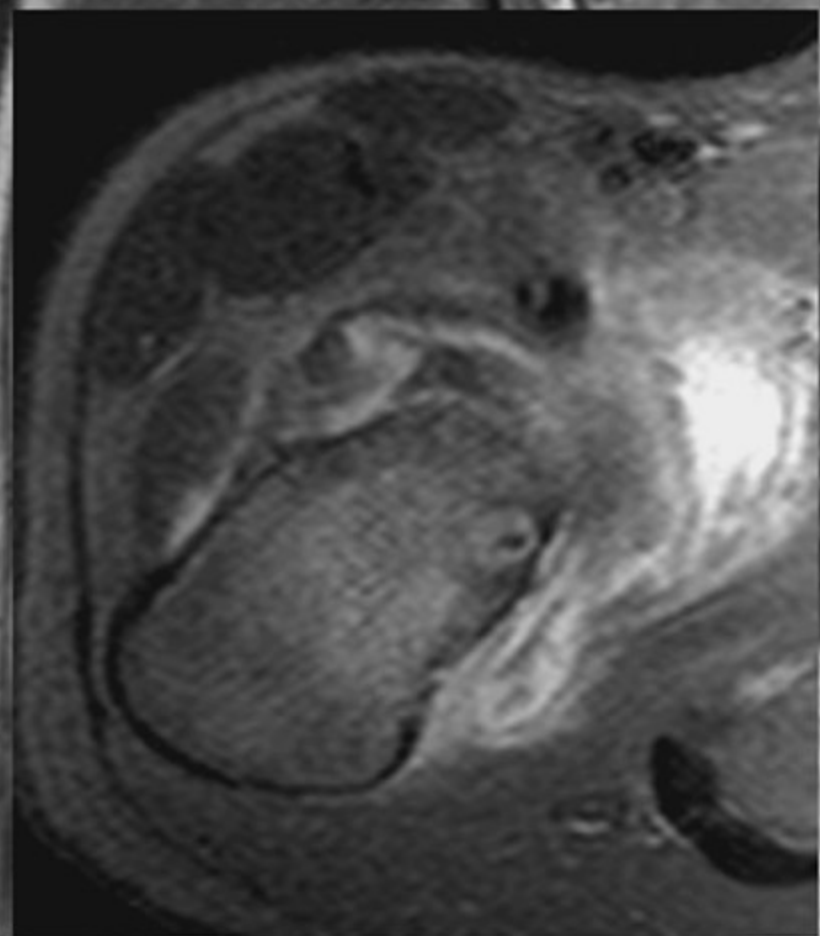
OSTEOGENIC TUMOURS

Osteoid osteoma	9191/0
Osteoblastoma	9200/0
Osteosarcoma	9180/3
Conventional	9180/3
chondroblastic	9181/3
fibroblastic	9182/3
osteoblastic	9180/3
Telangiectatic	9183/3
Small cell	9185/3
Low grade central	9187/3
Secondary	9180/3
Parosteal	9192/3
Periosteal	9193/3
High grade surface	9194/3

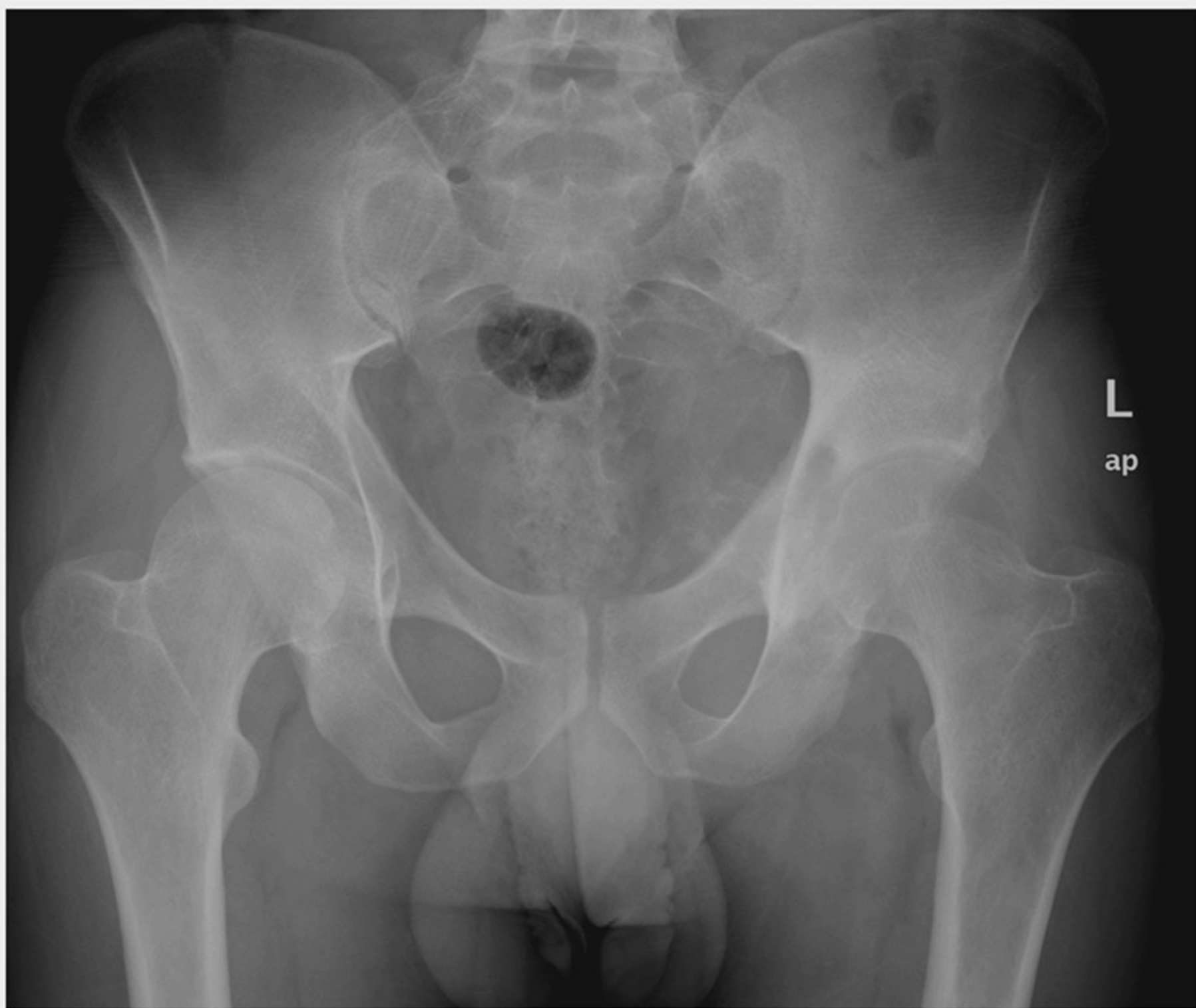


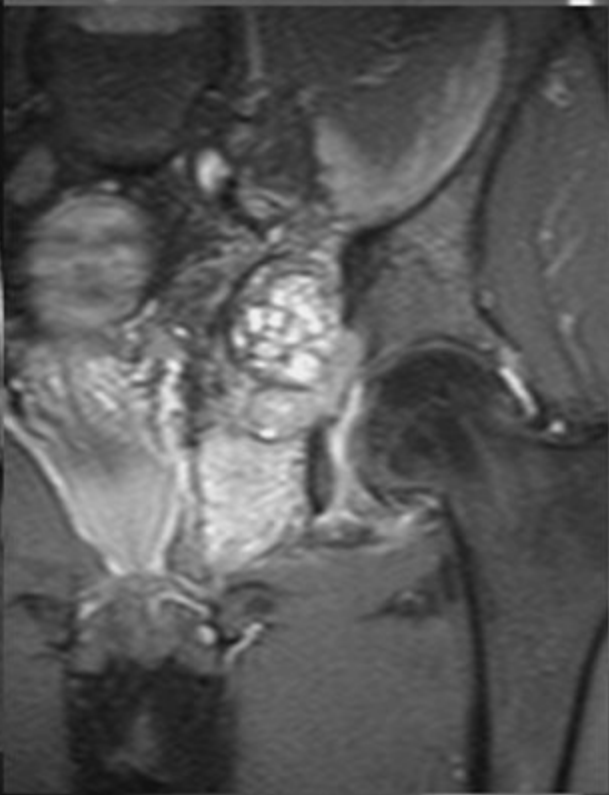
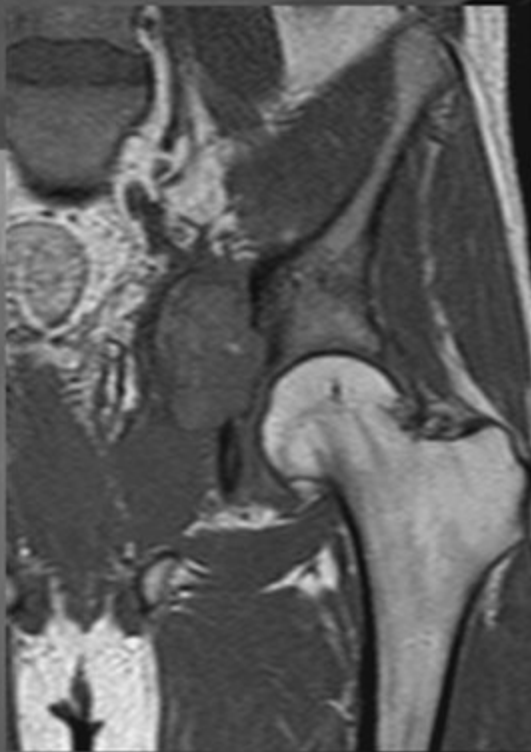
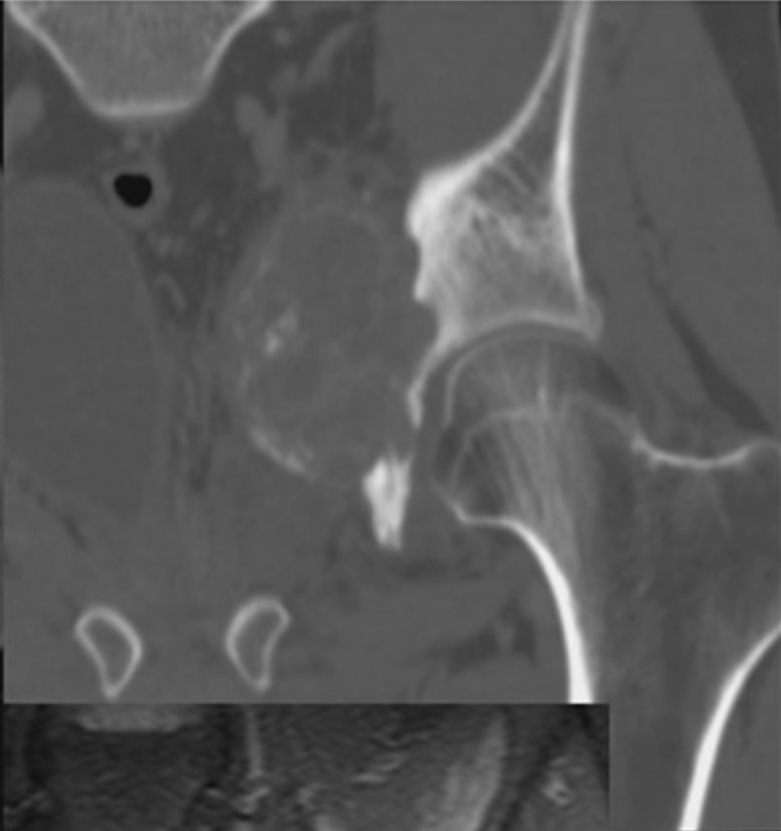
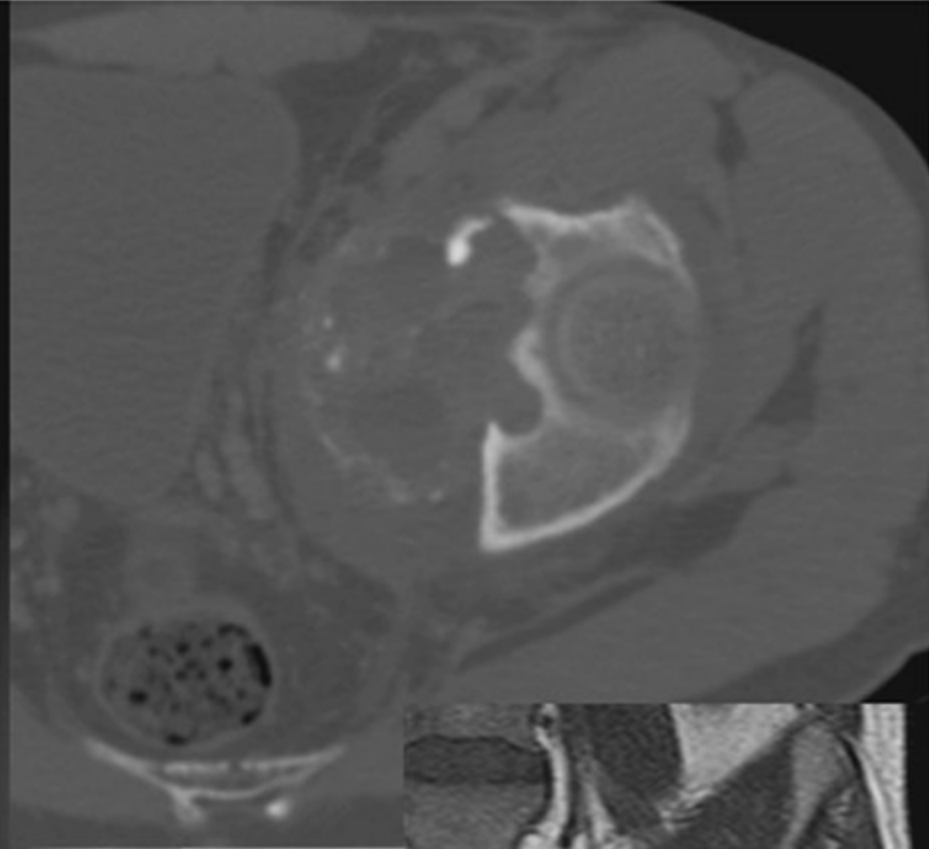


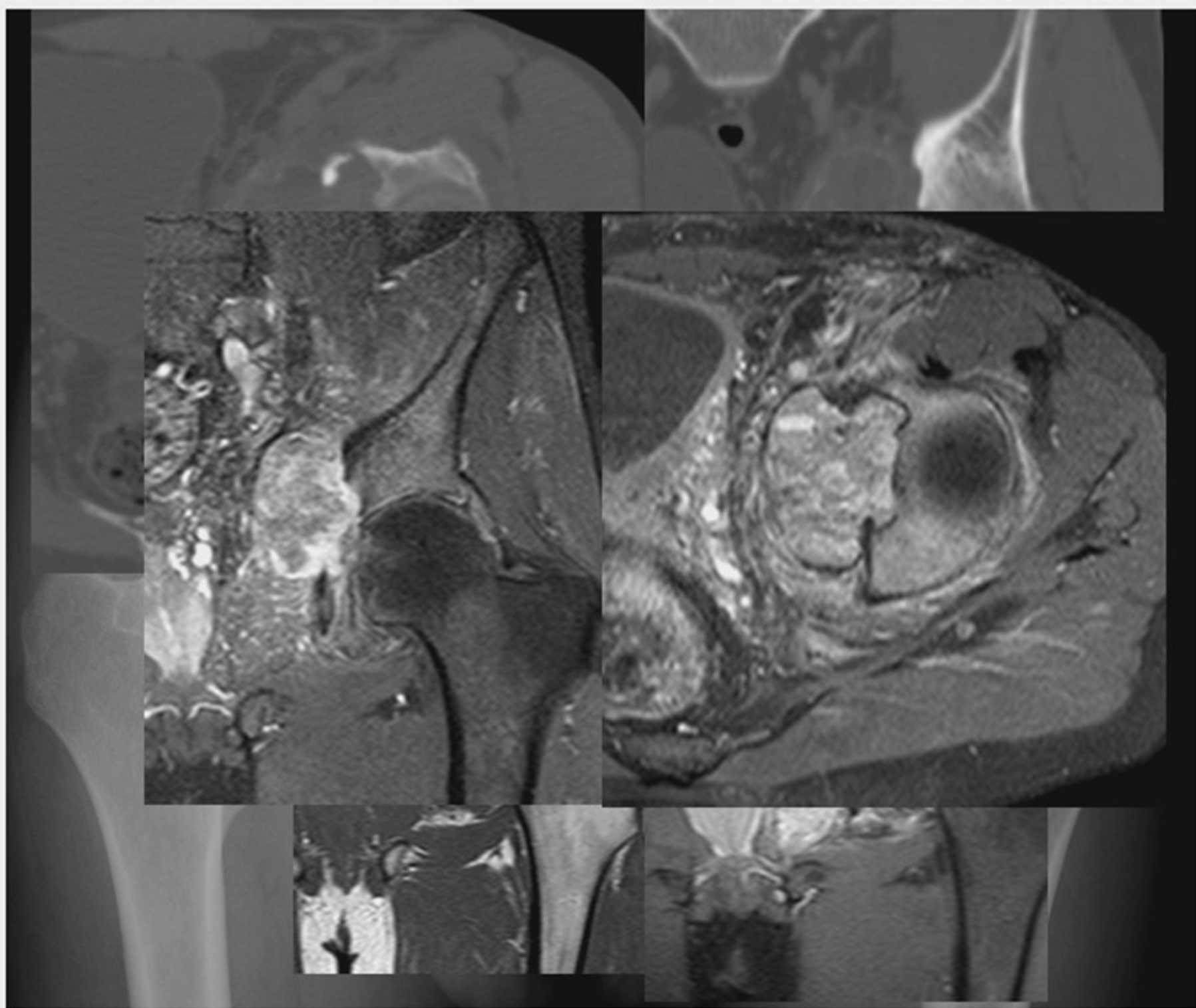




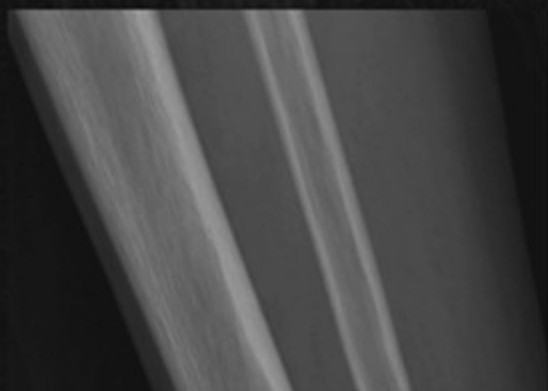
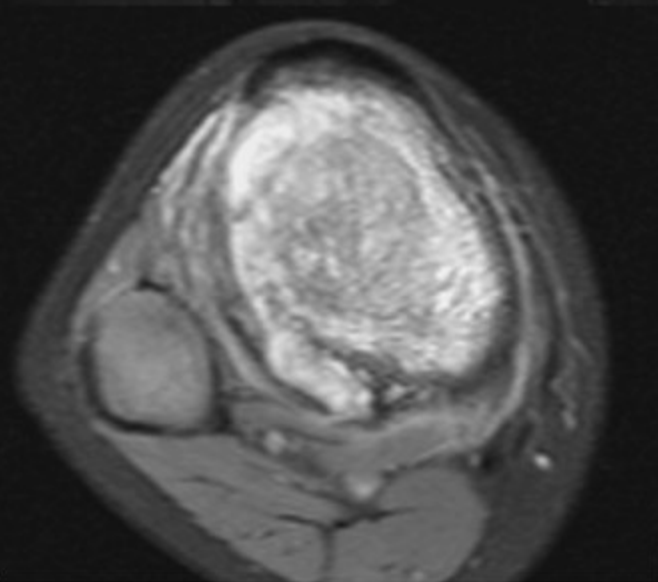
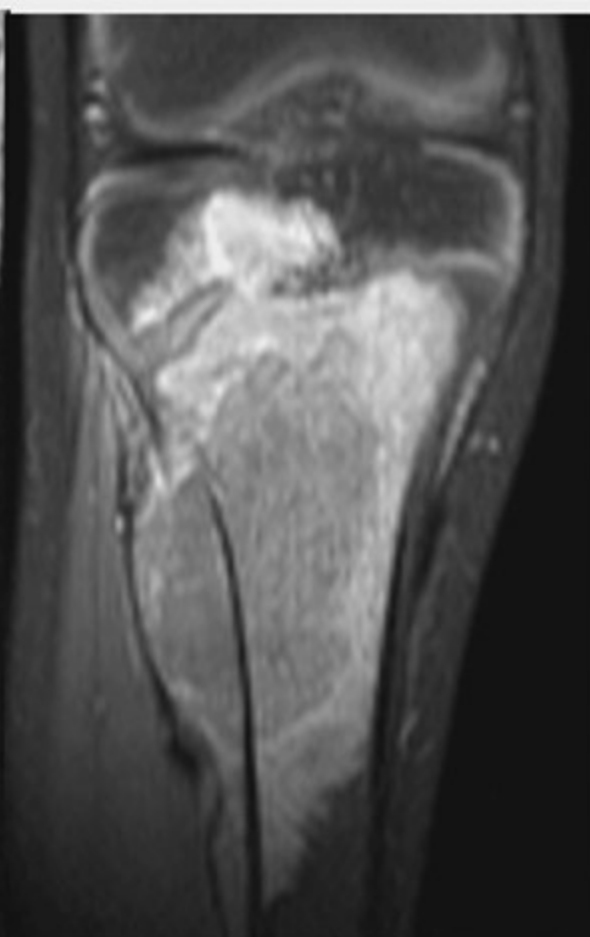
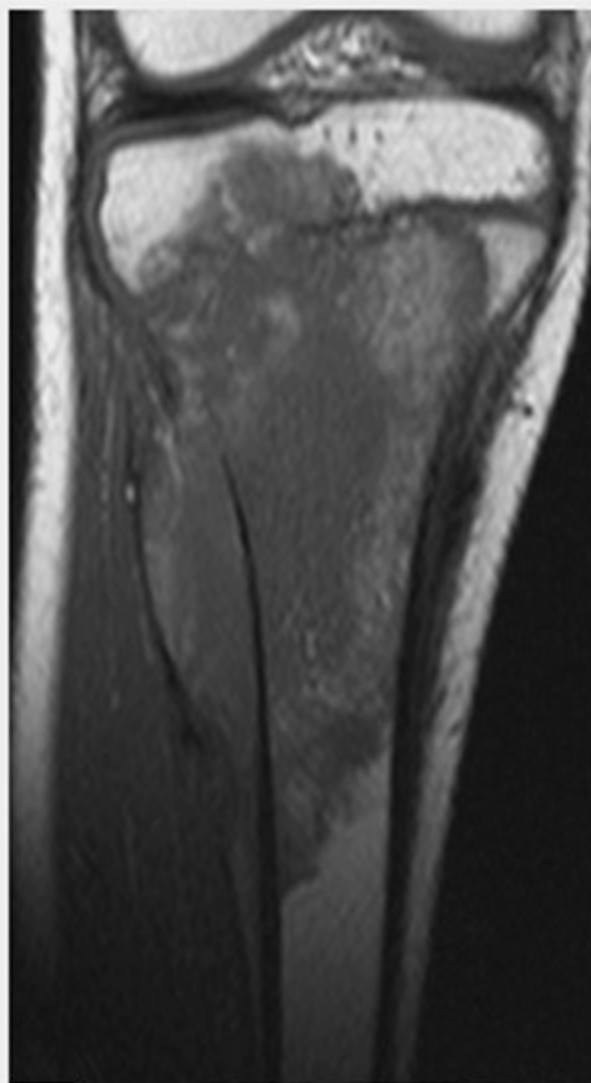




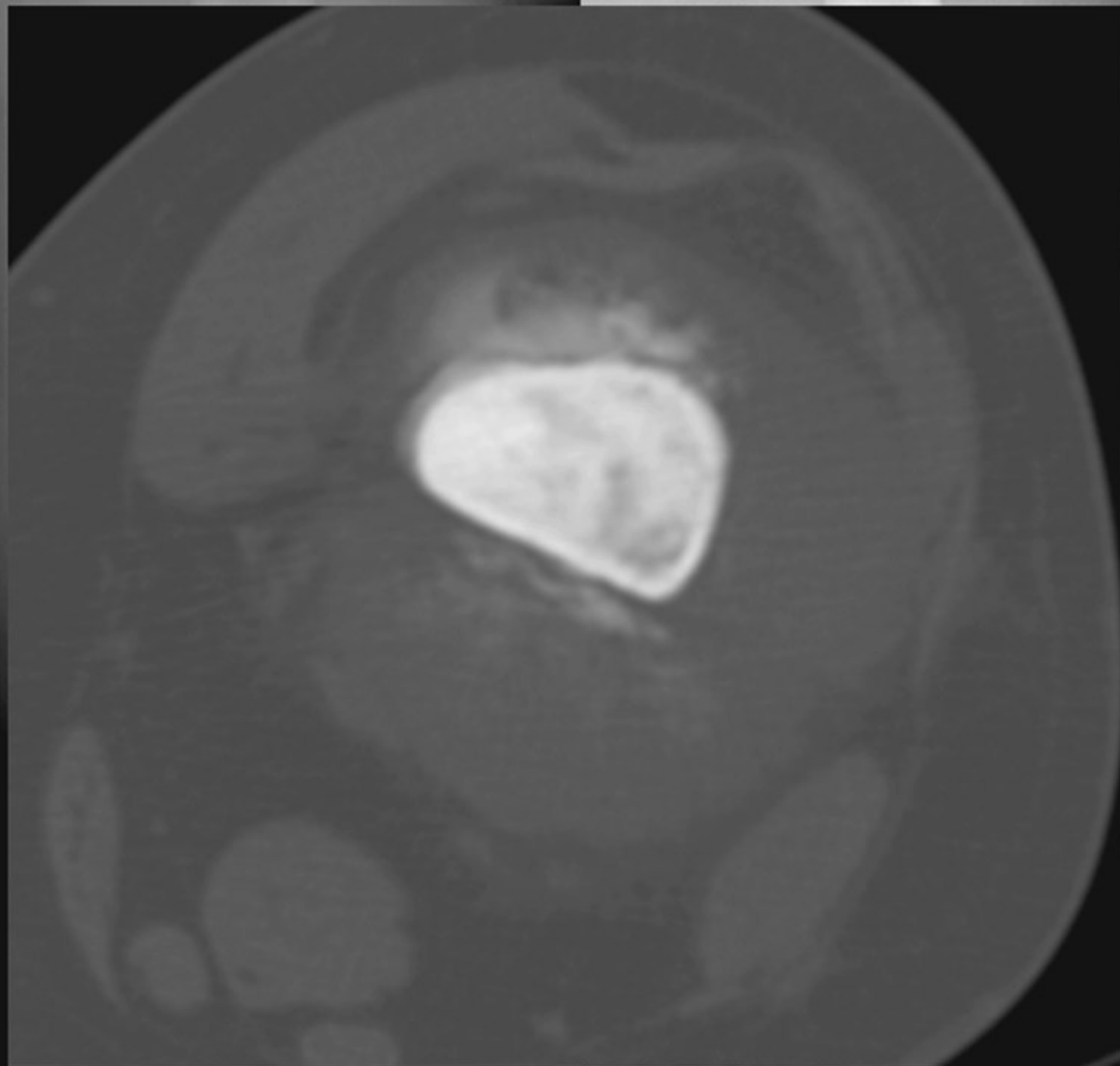


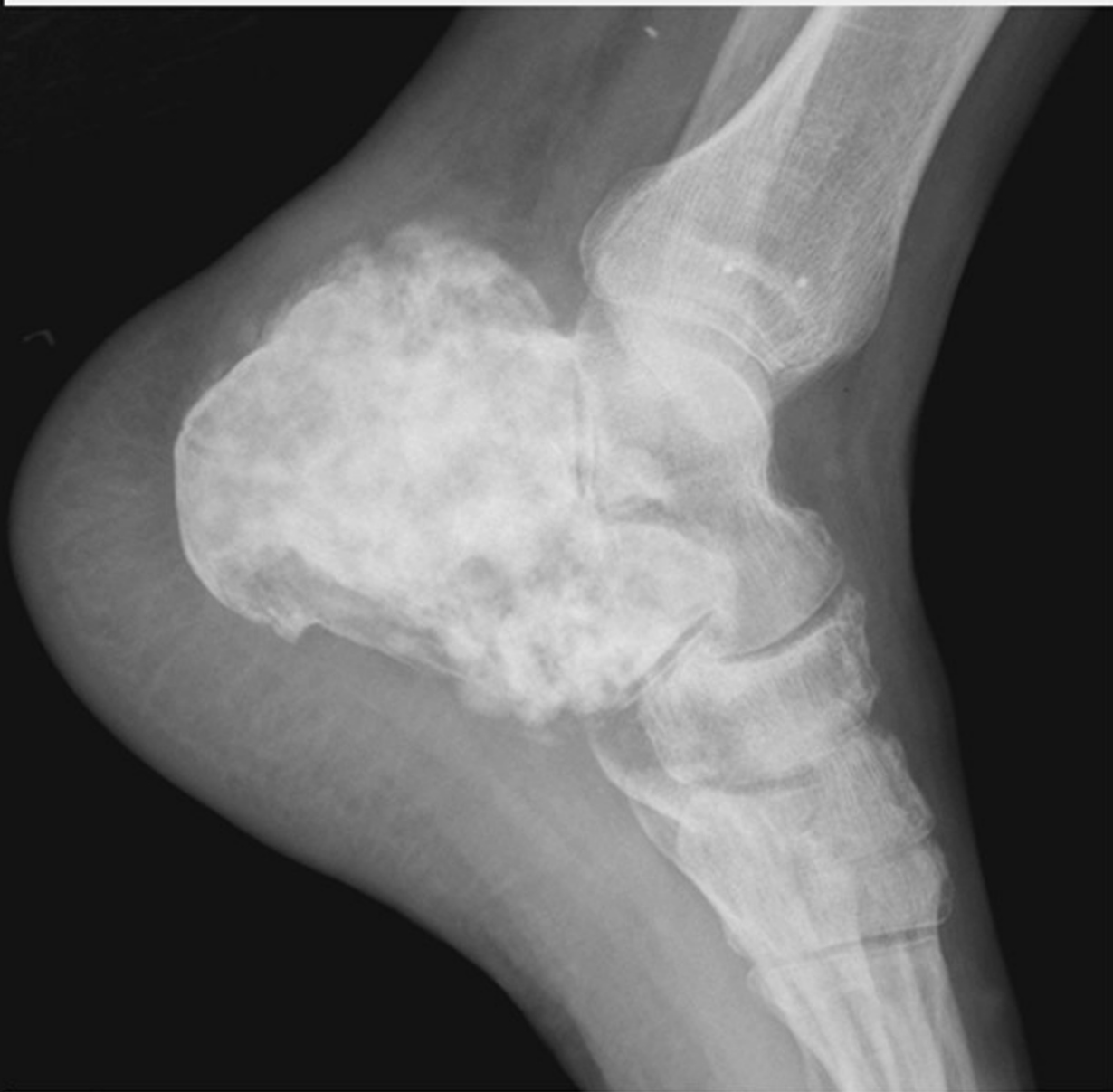


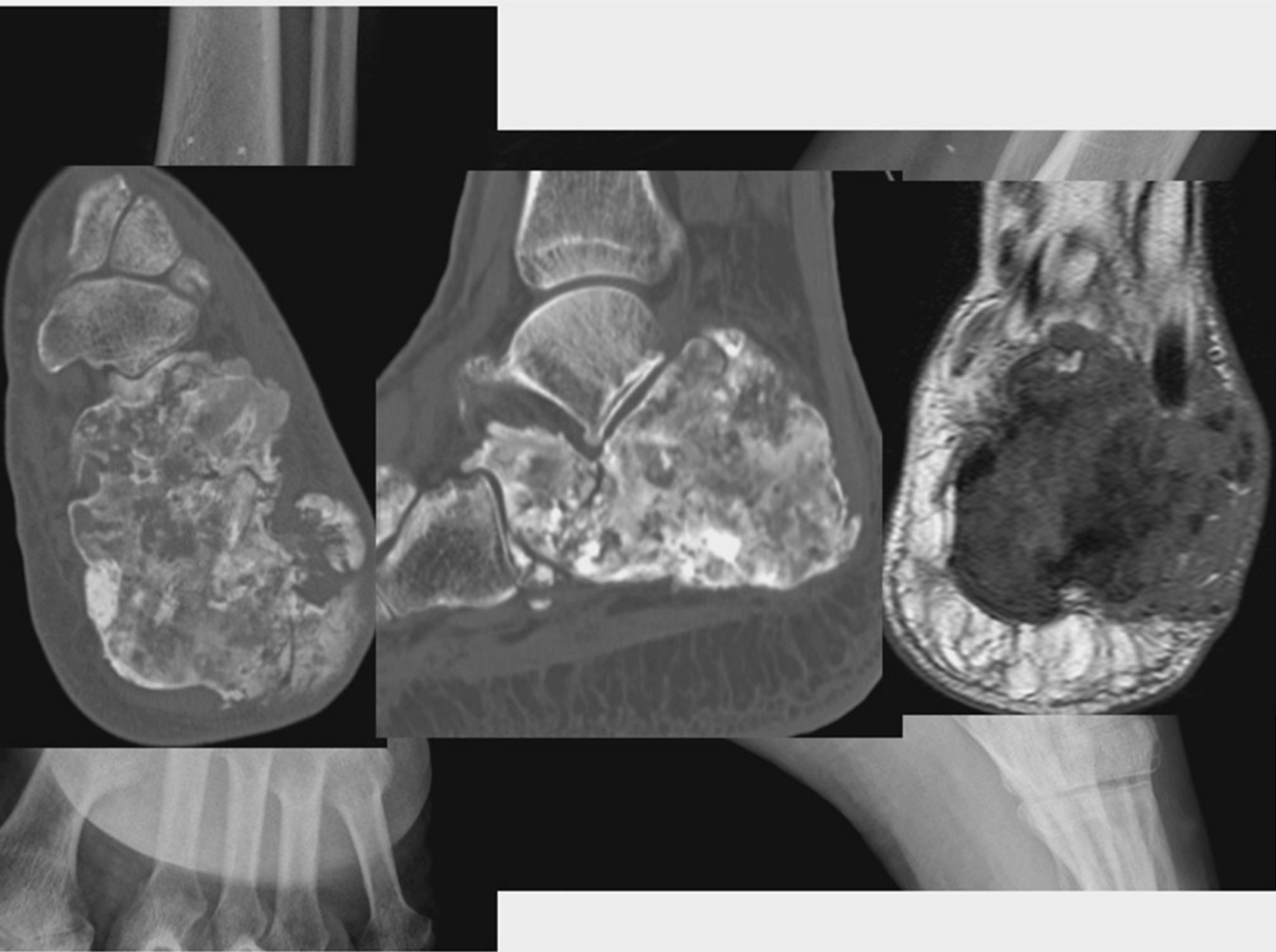


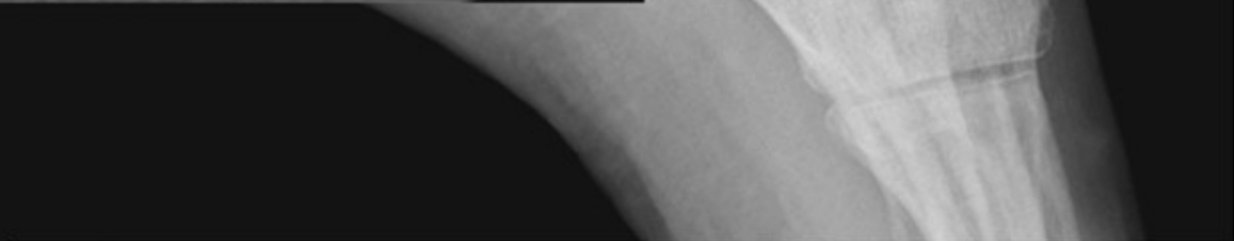
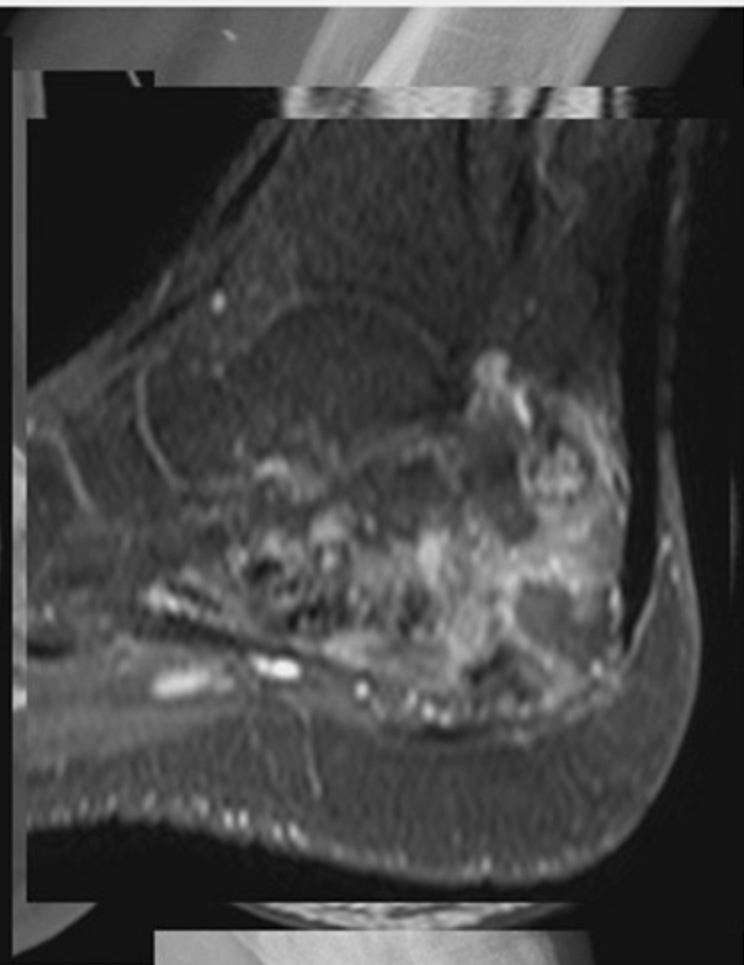
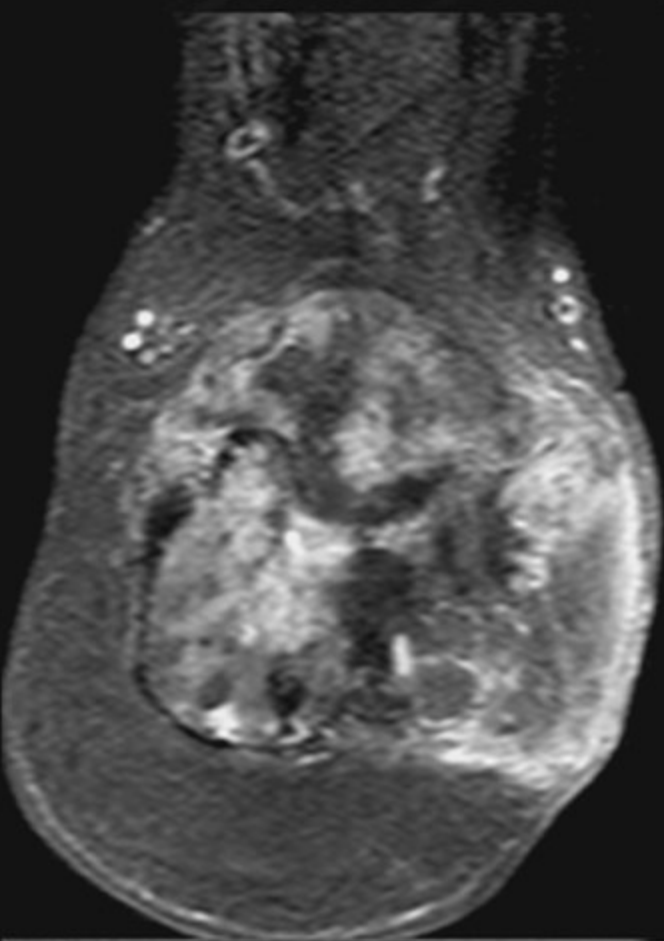
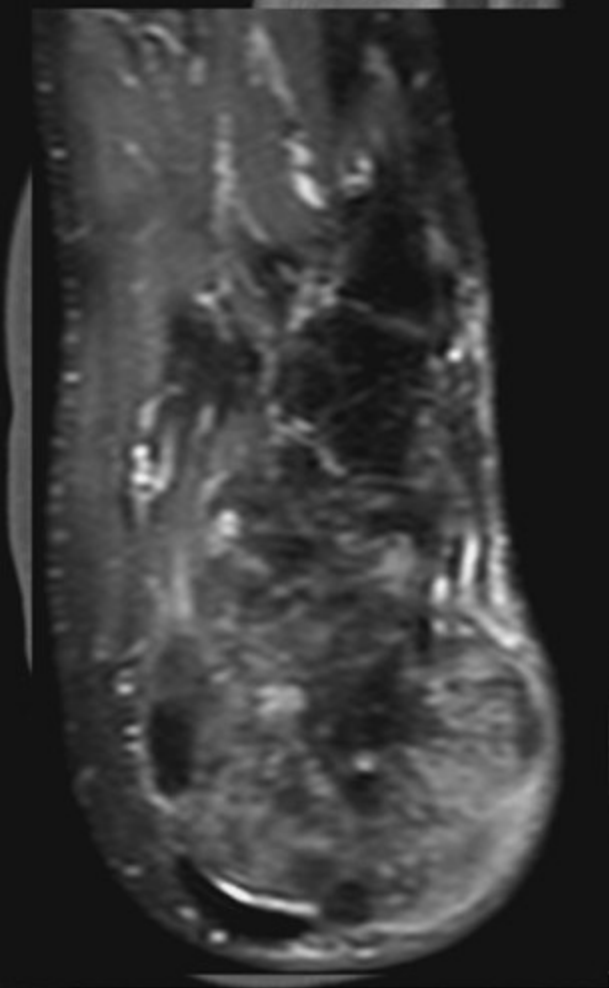
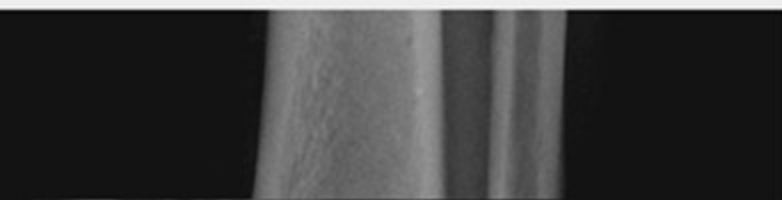




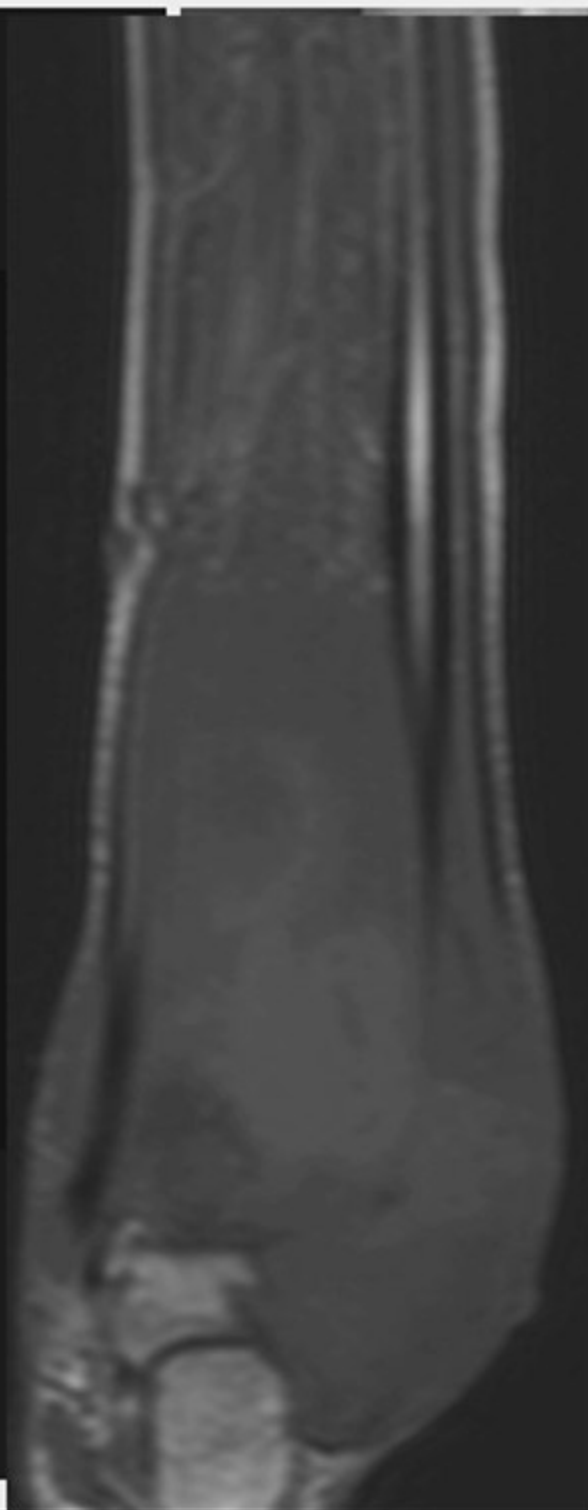
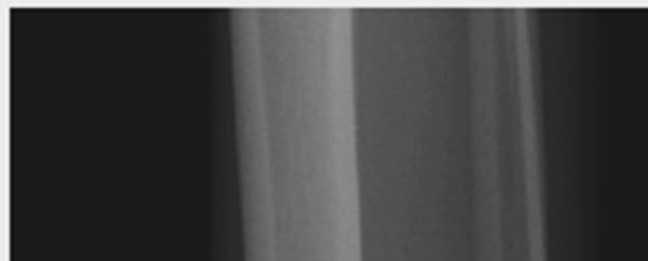
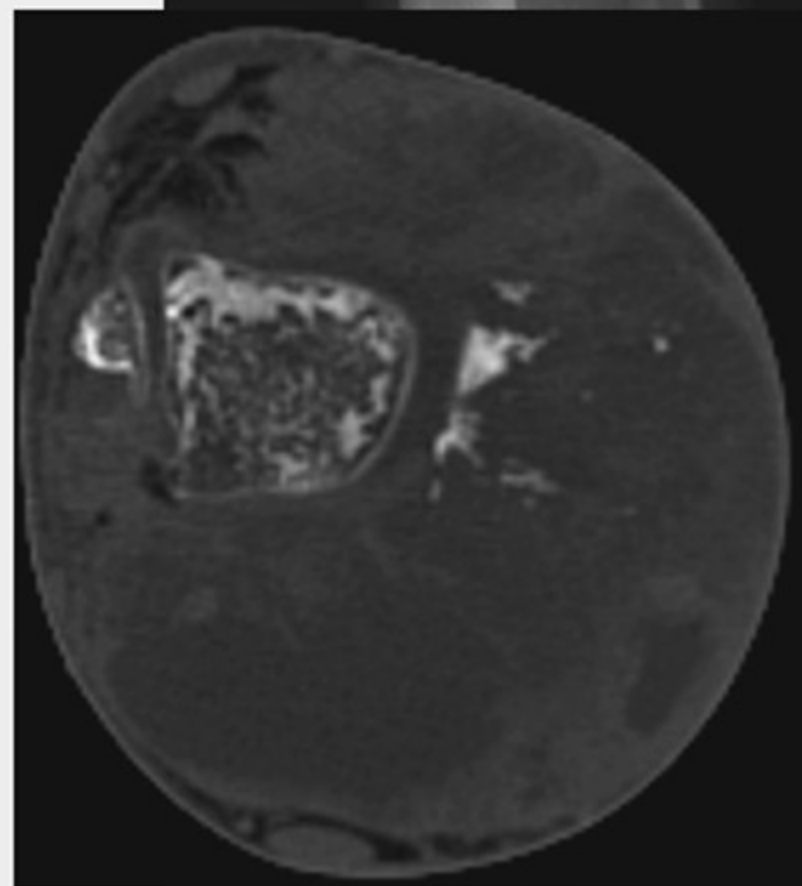


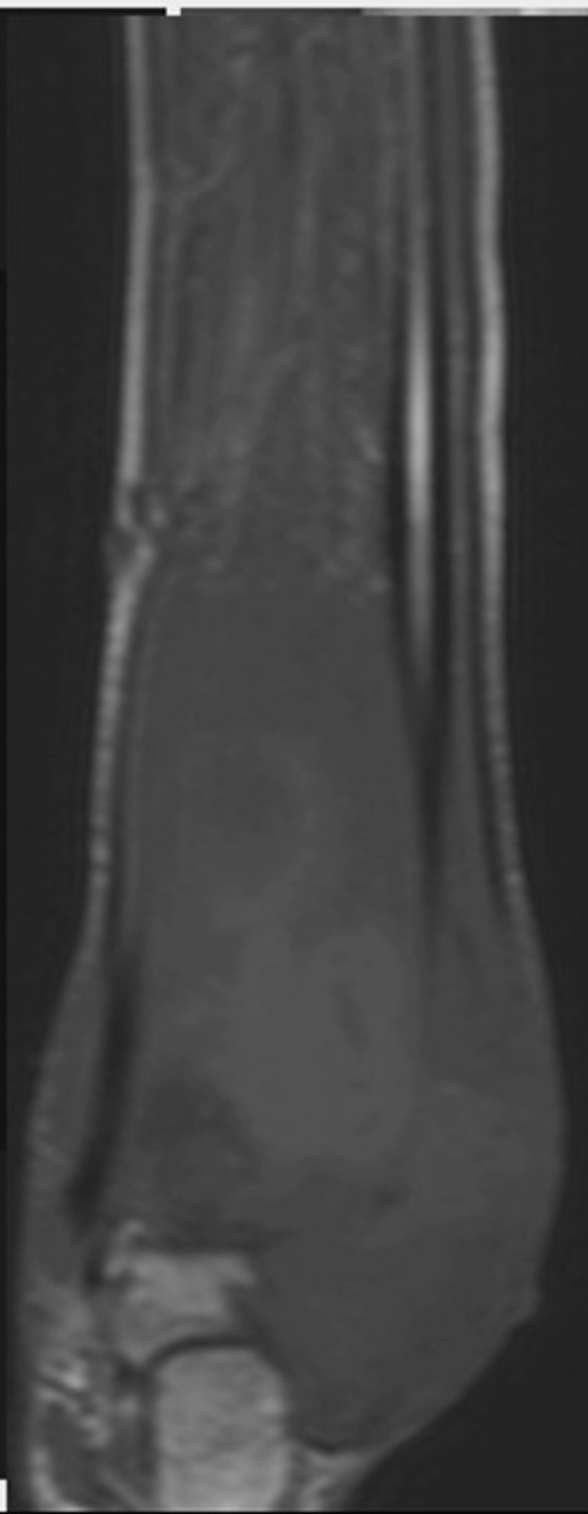
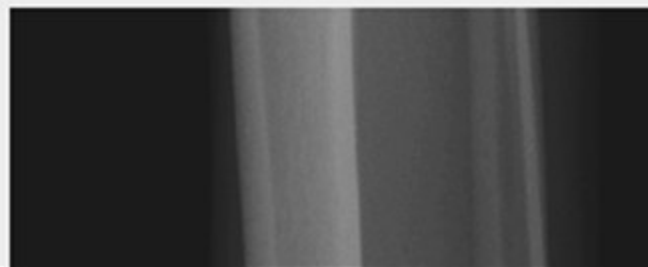
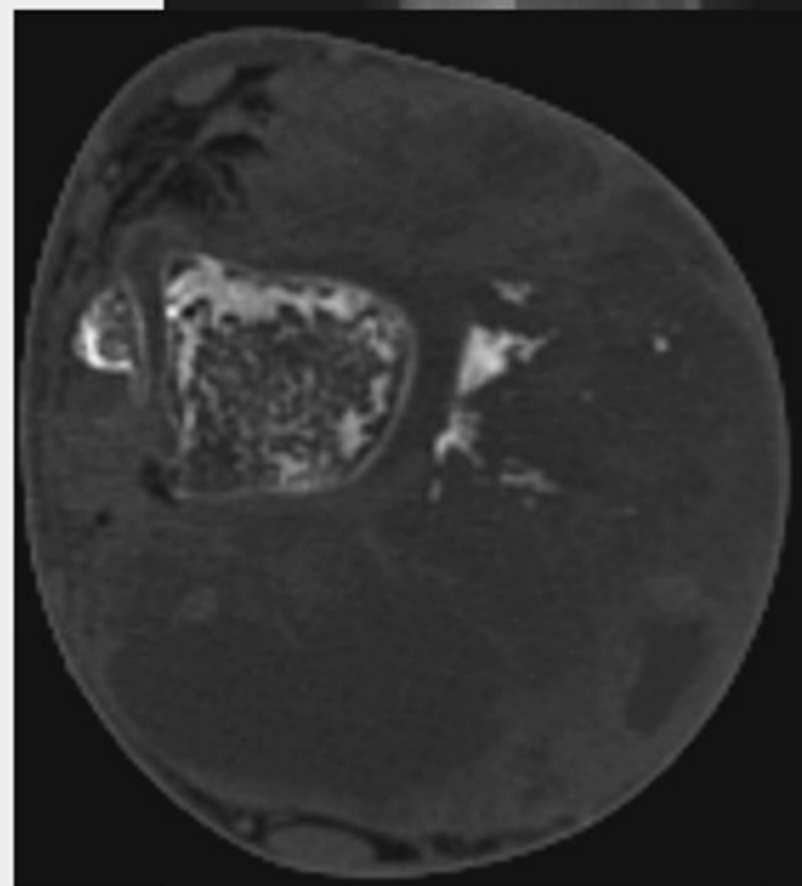


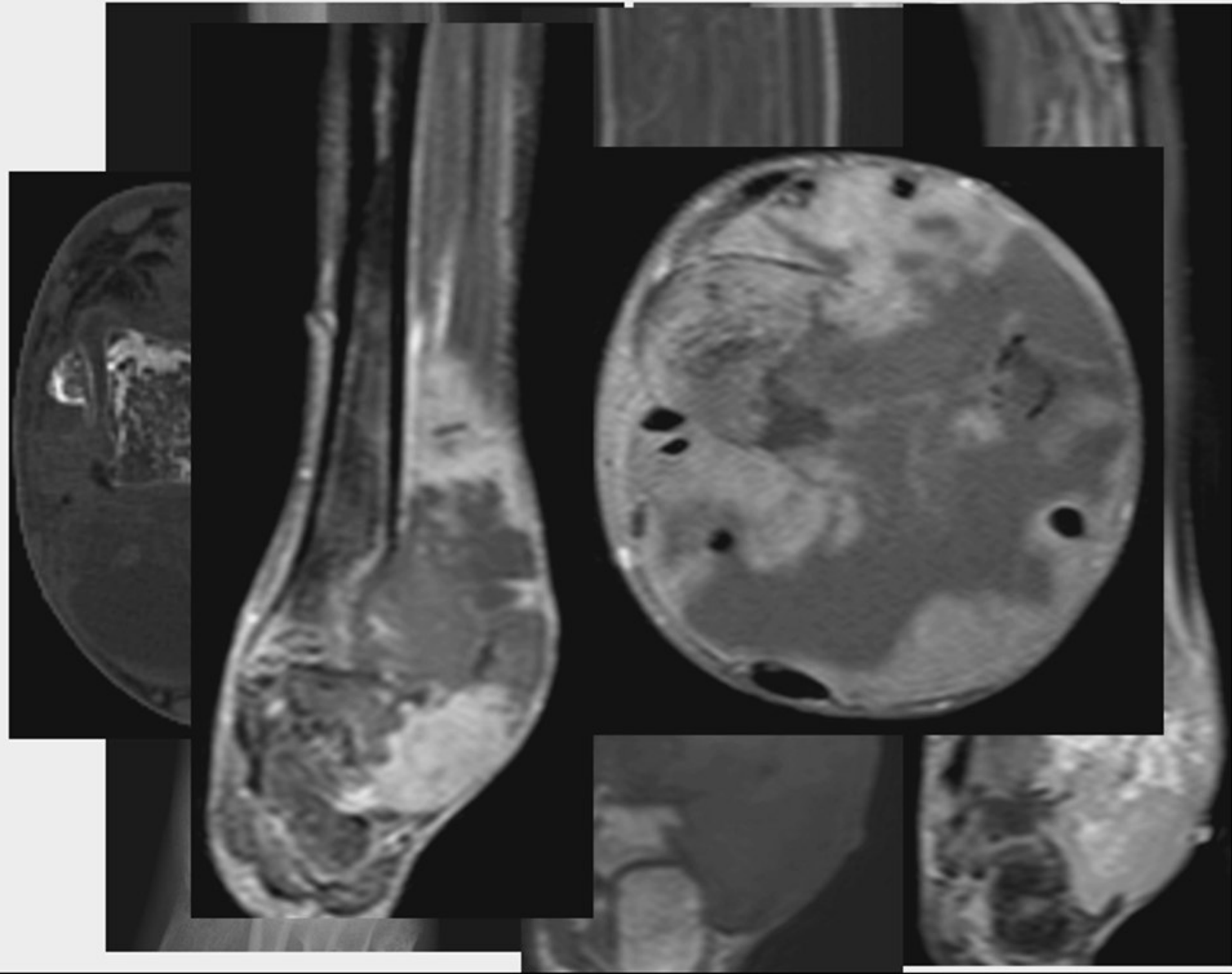




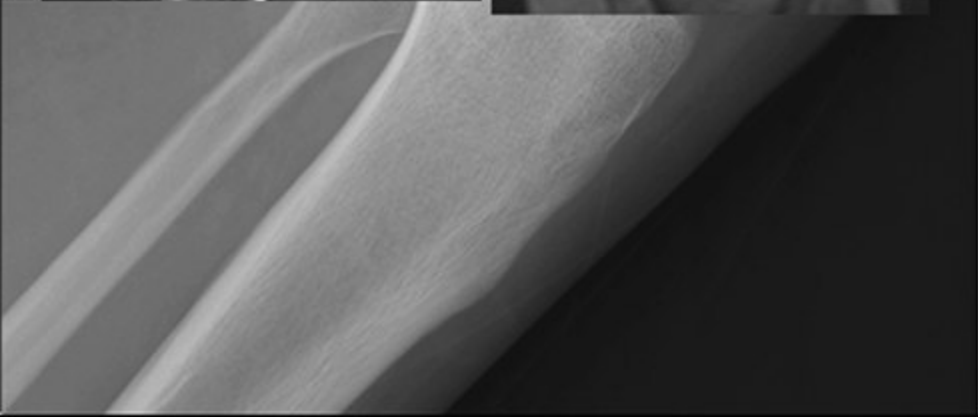
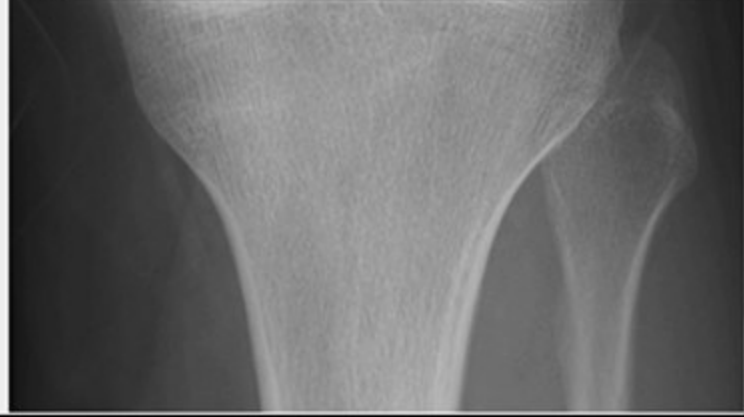
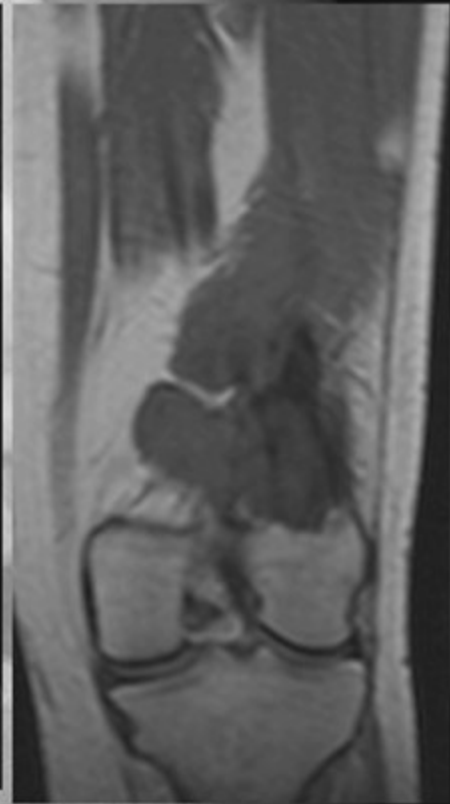
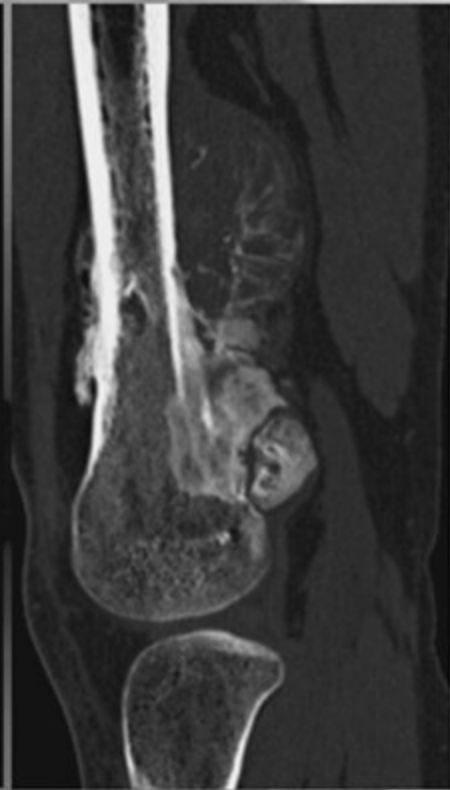
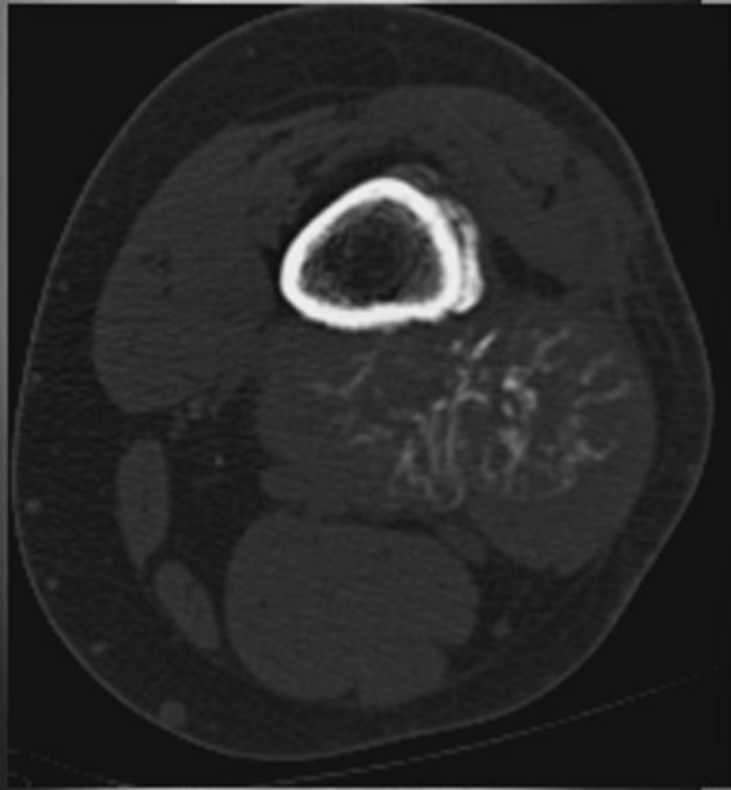
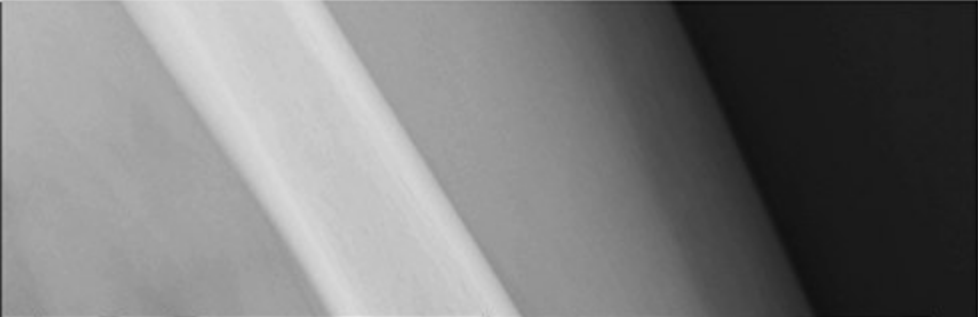
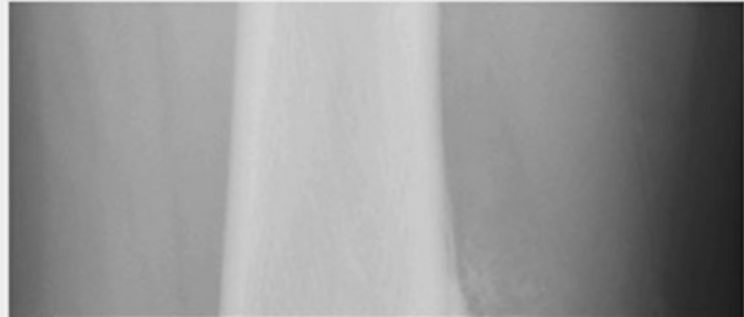


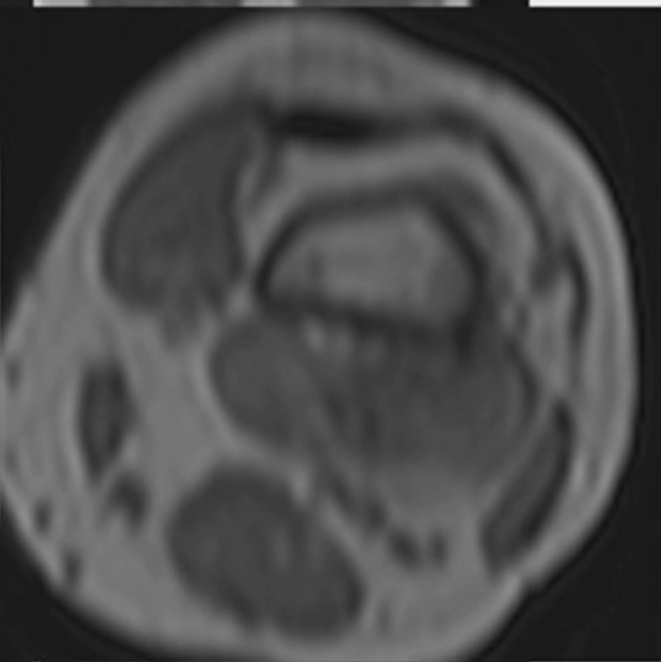
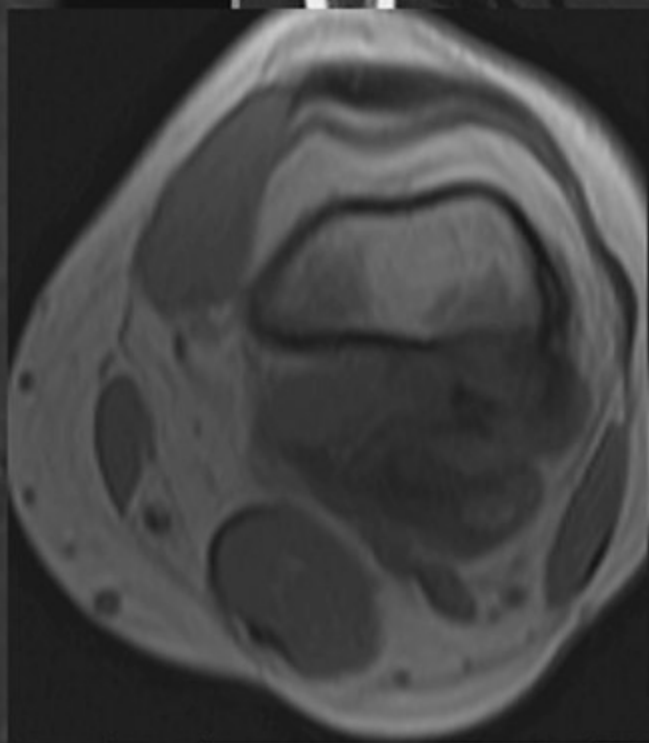
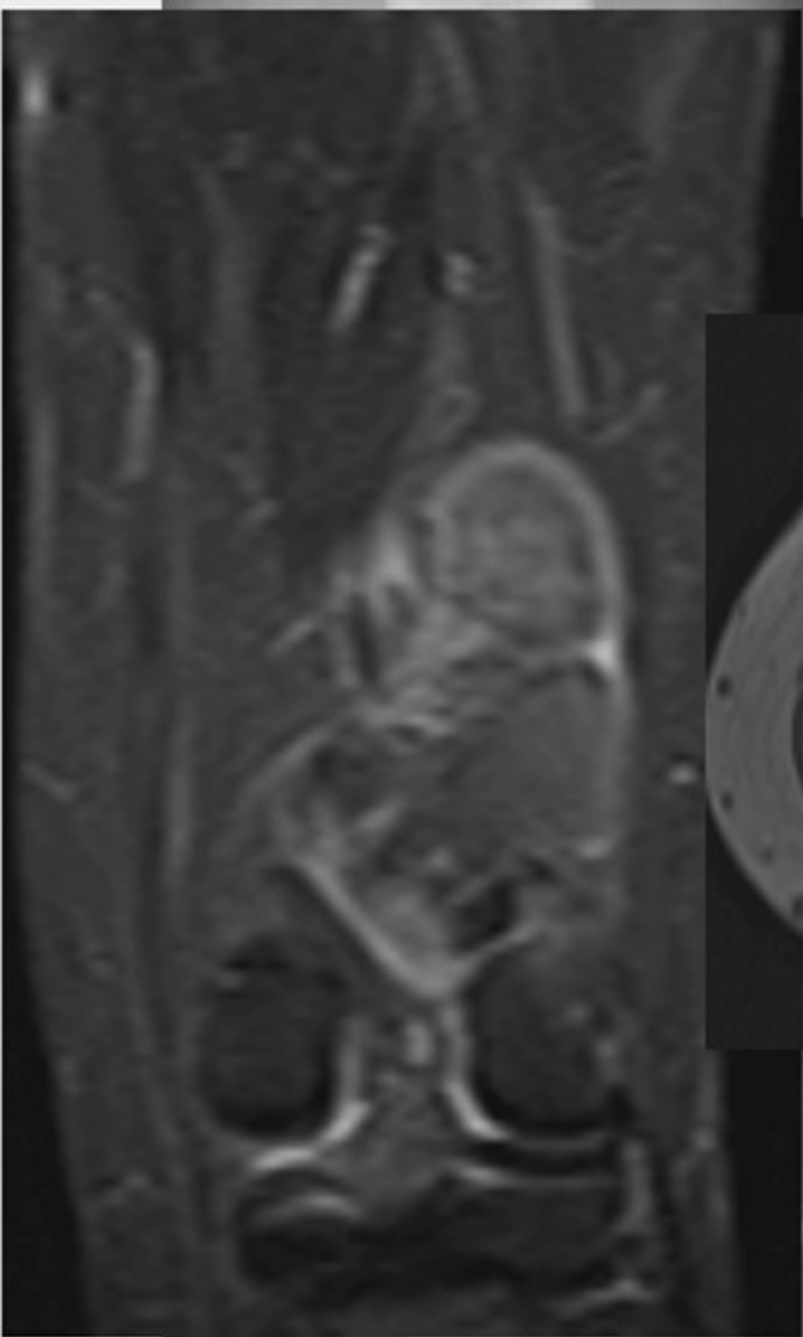




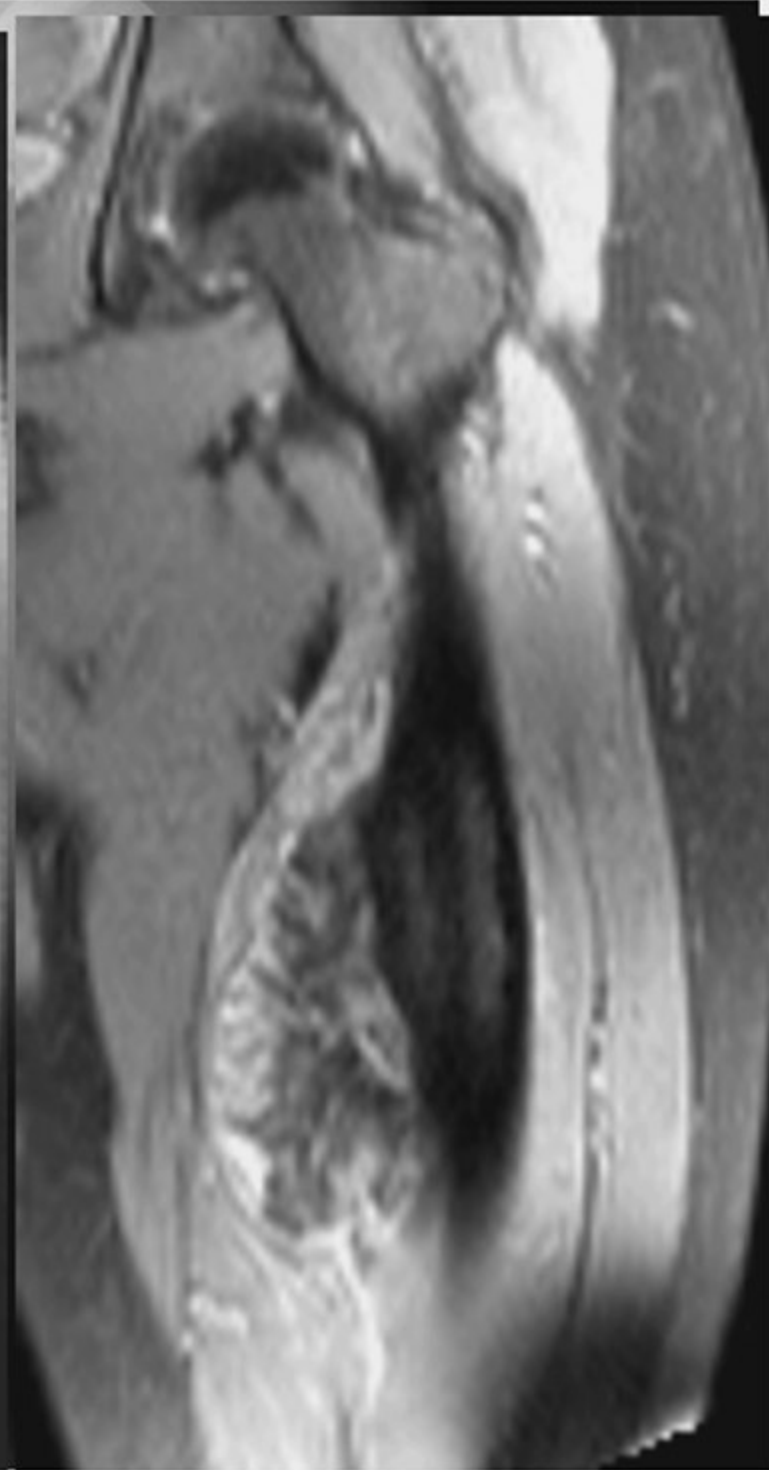
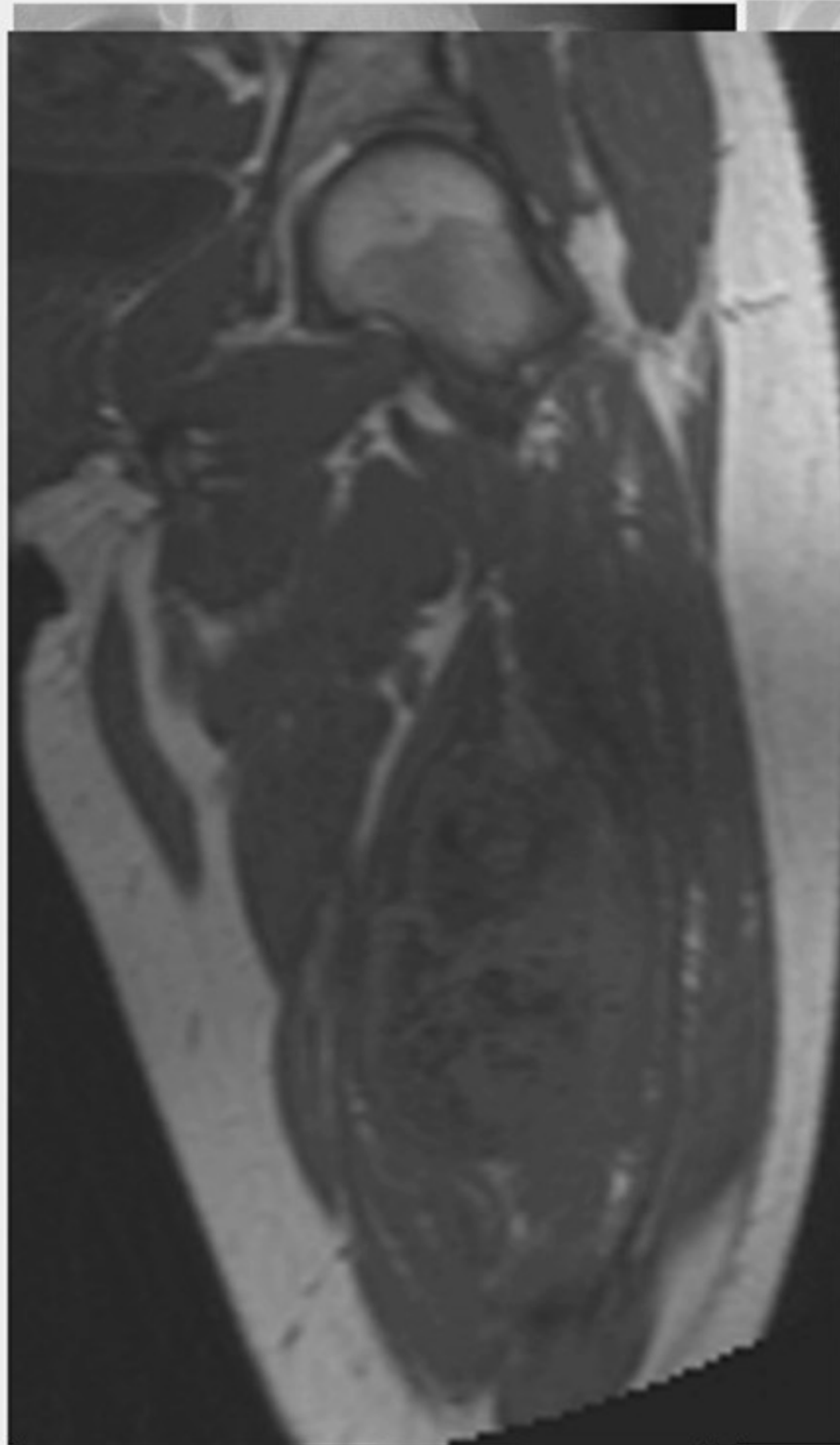


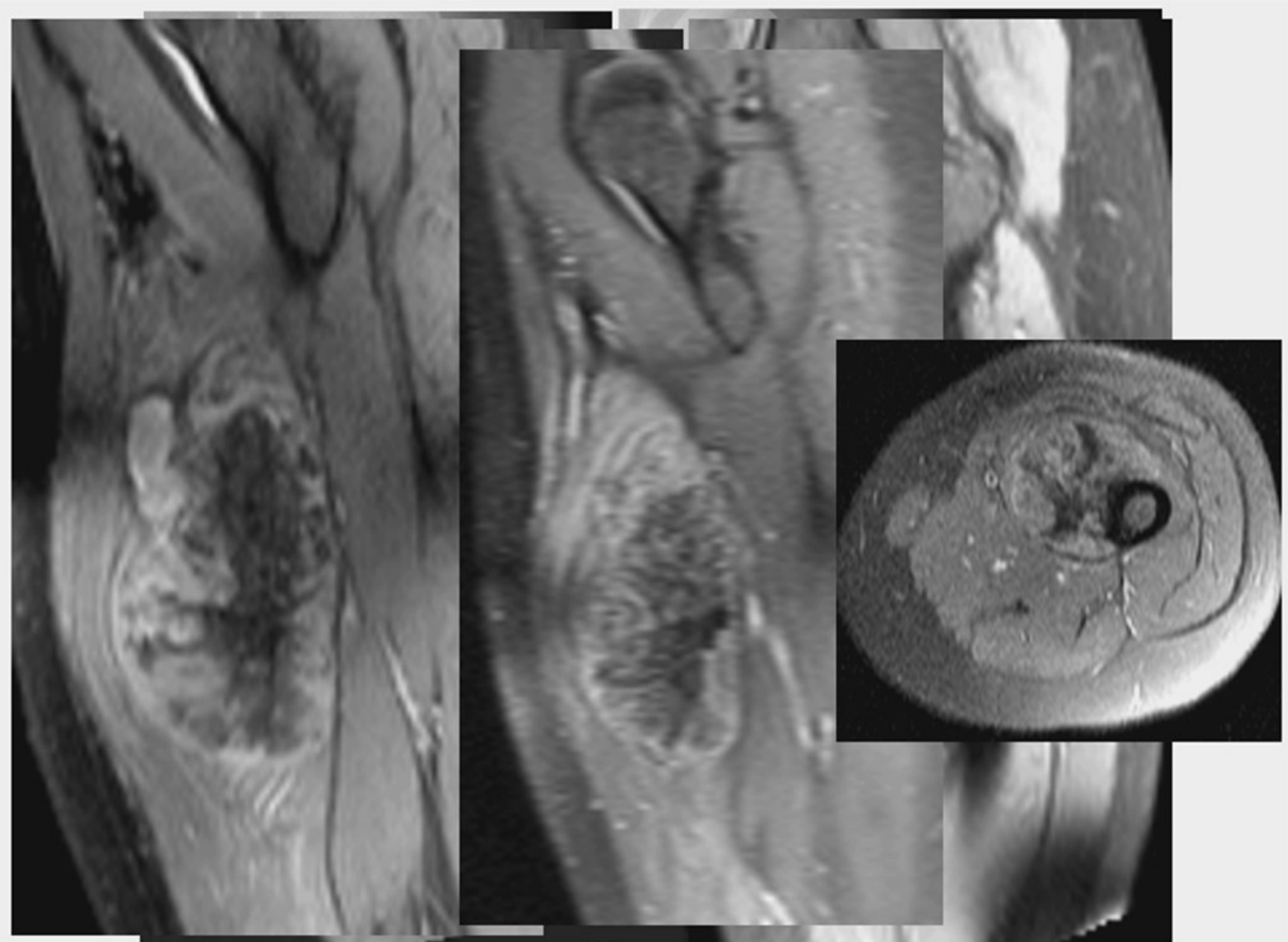


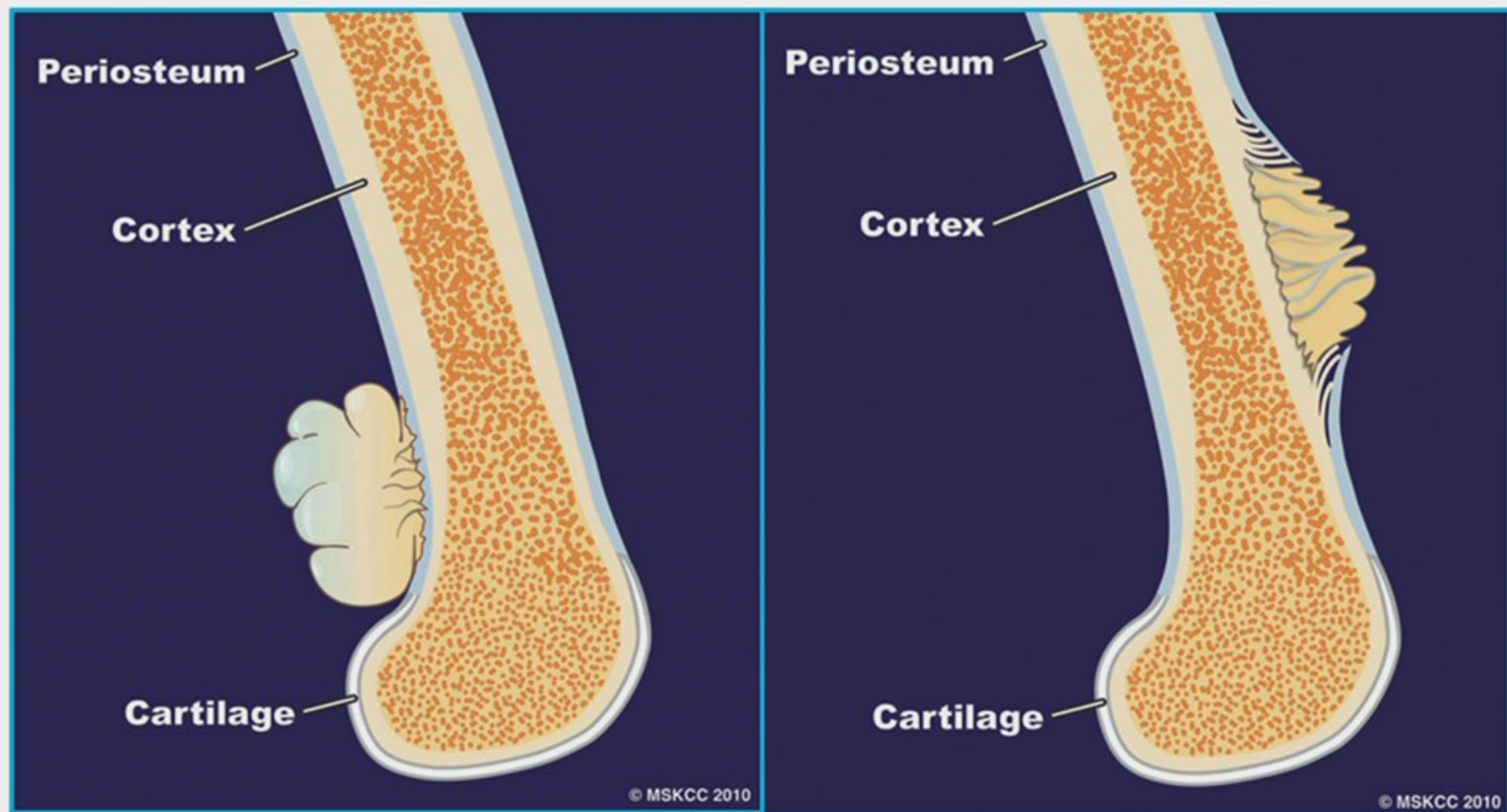












RadioGraphics 2010; 30:1653–1672

FIBROHISTIOCYTIC TUMOURS

Benign fibrous histiocyoma

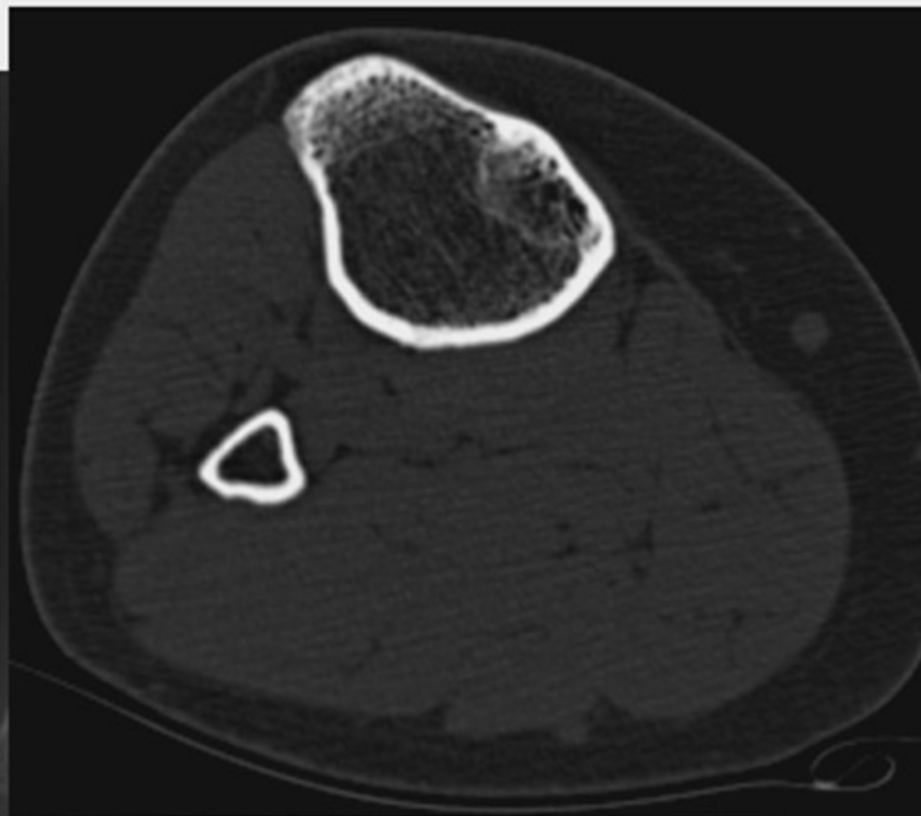
8830/0

Malignant fibrous histiocyoma

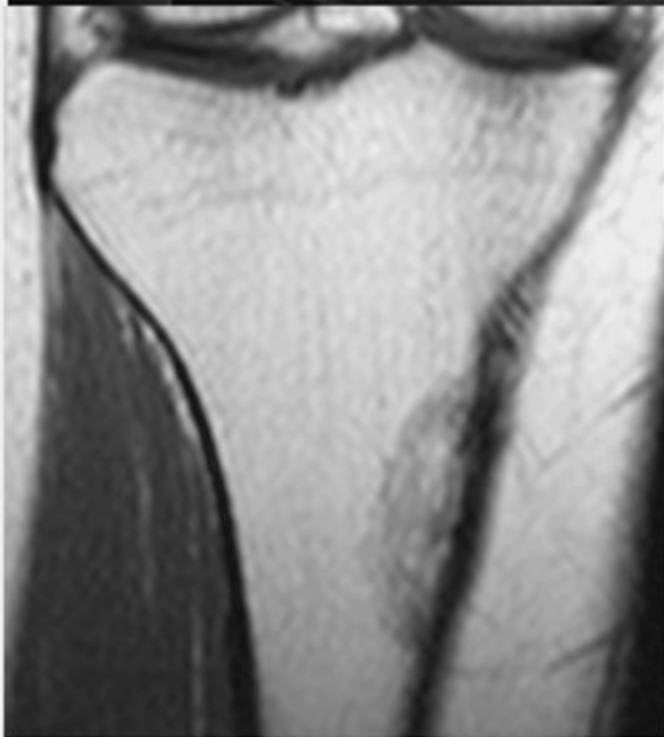
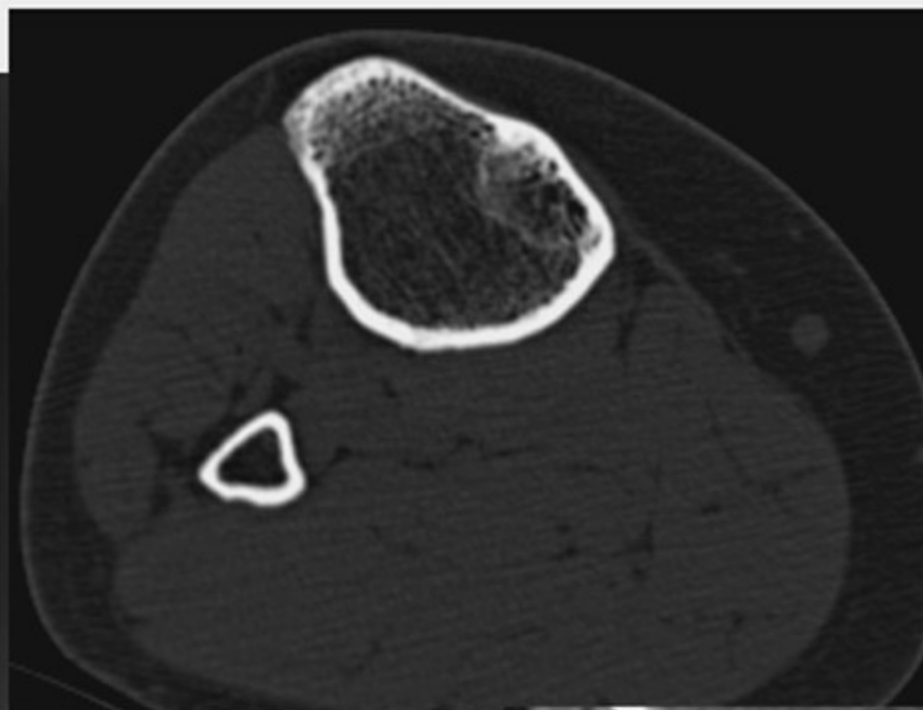
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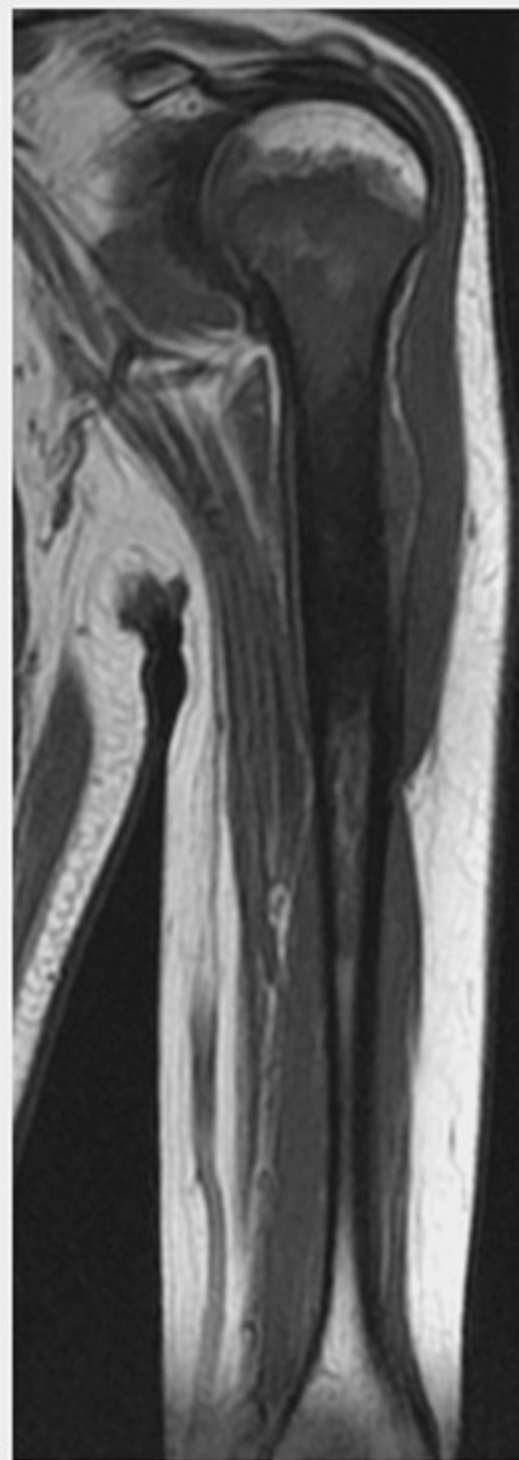
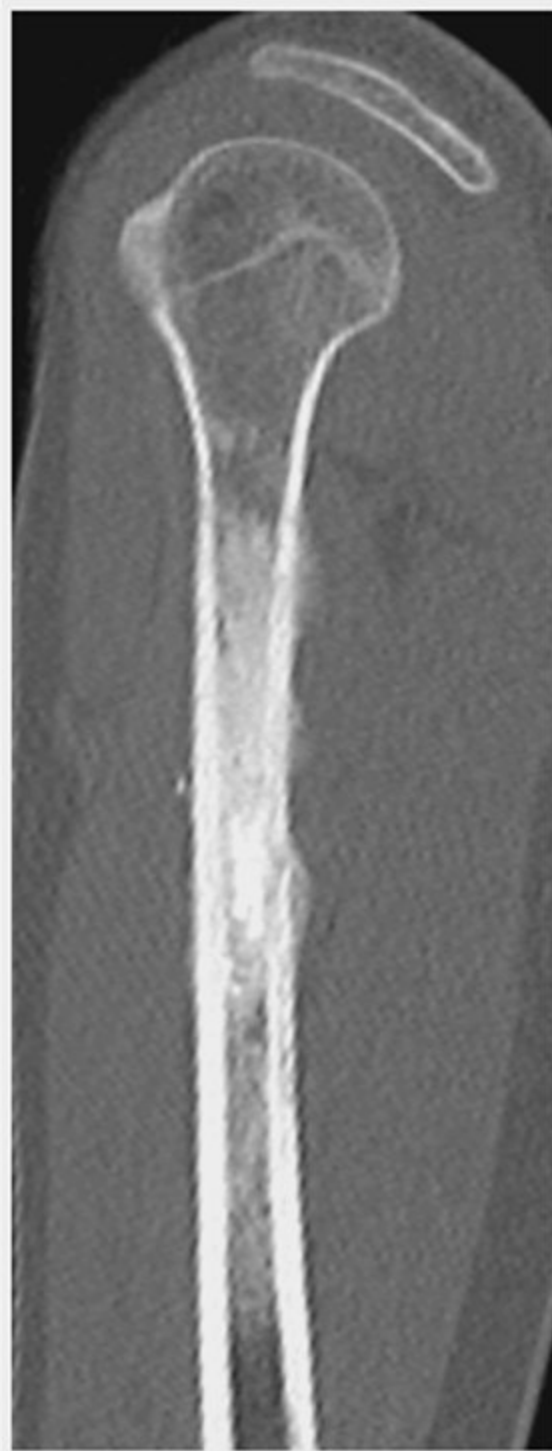


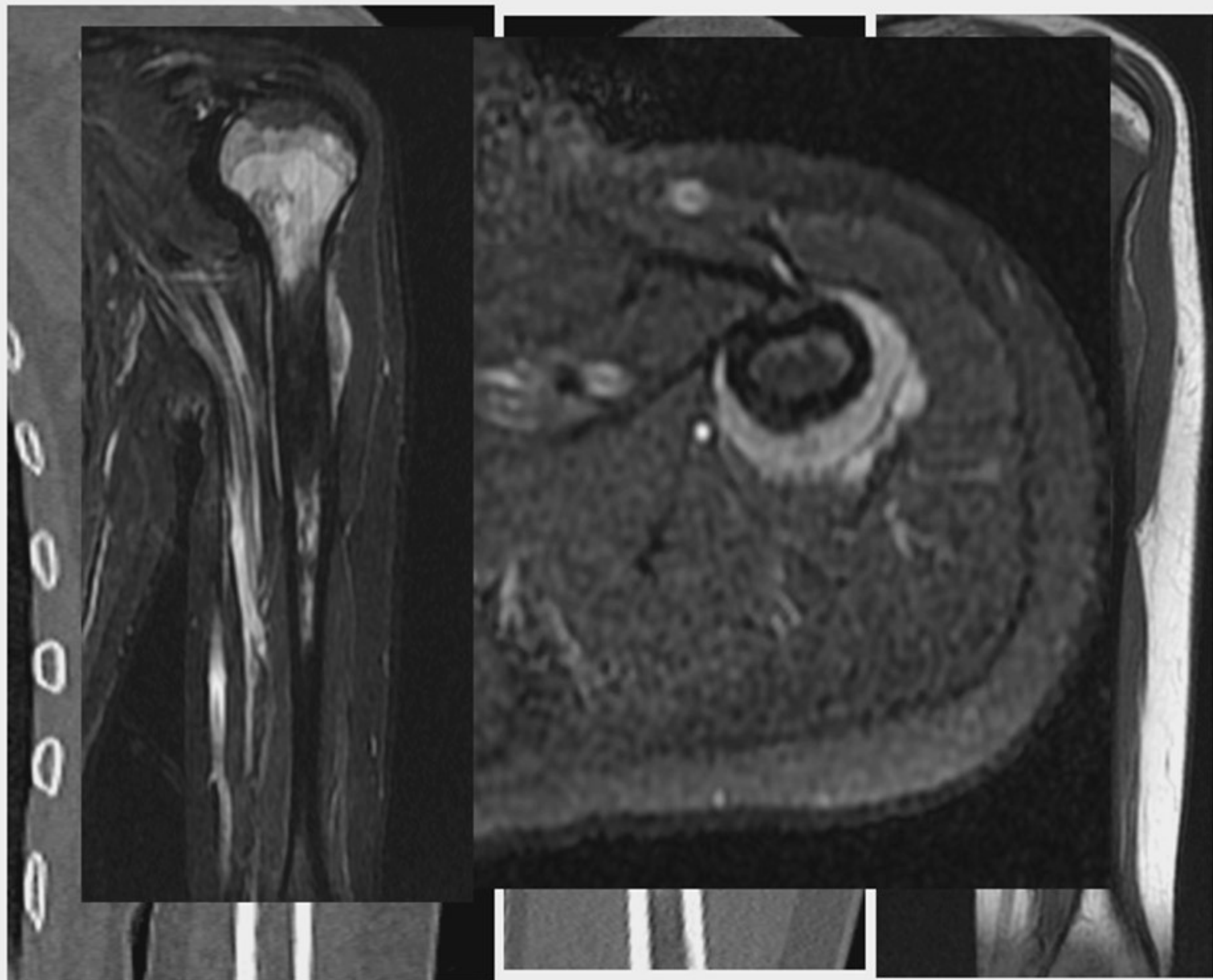
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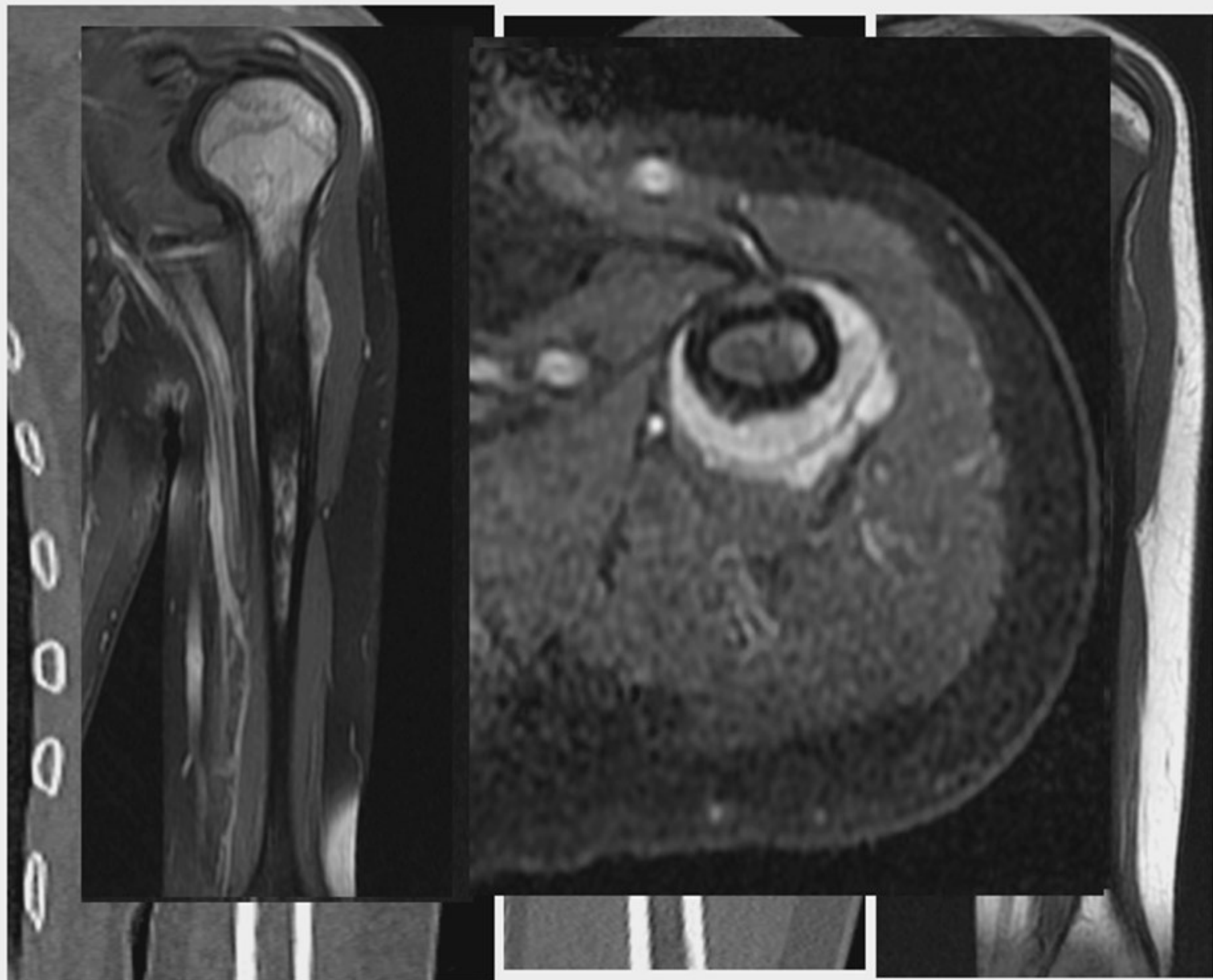


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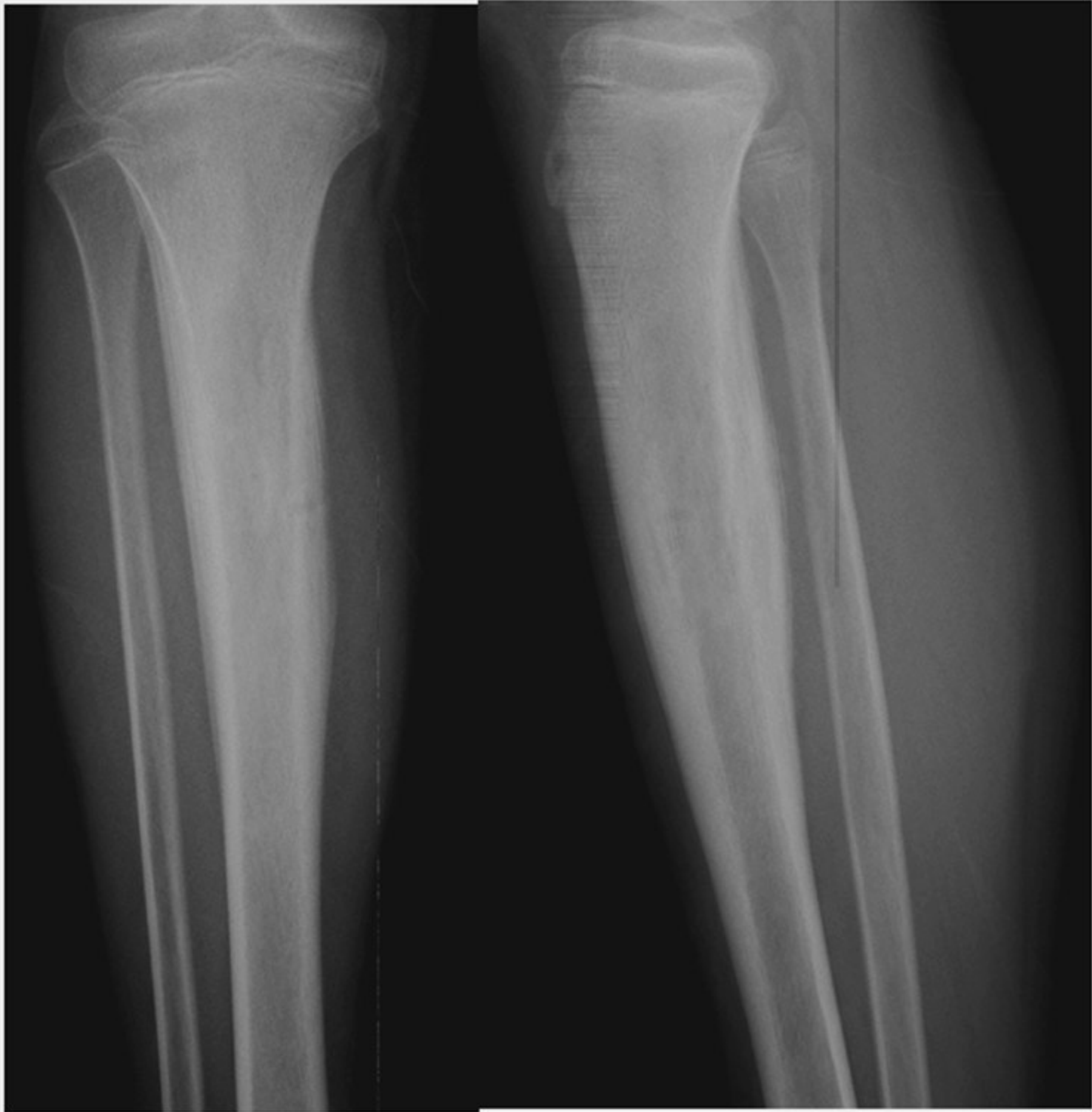


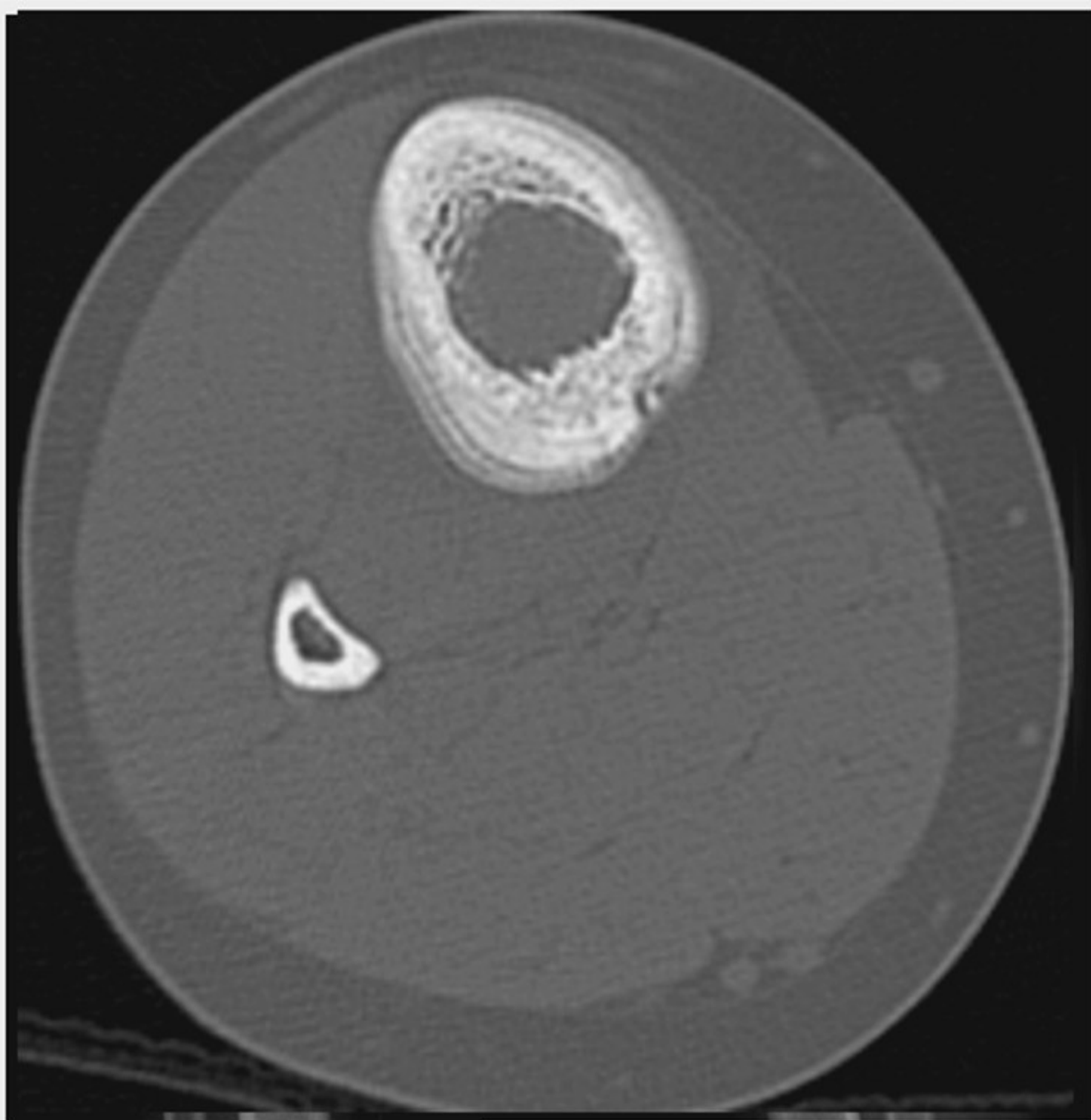


**EWING SARCOMA/PRIMITIVE
NEUROECTODERMAL TUMOUR**

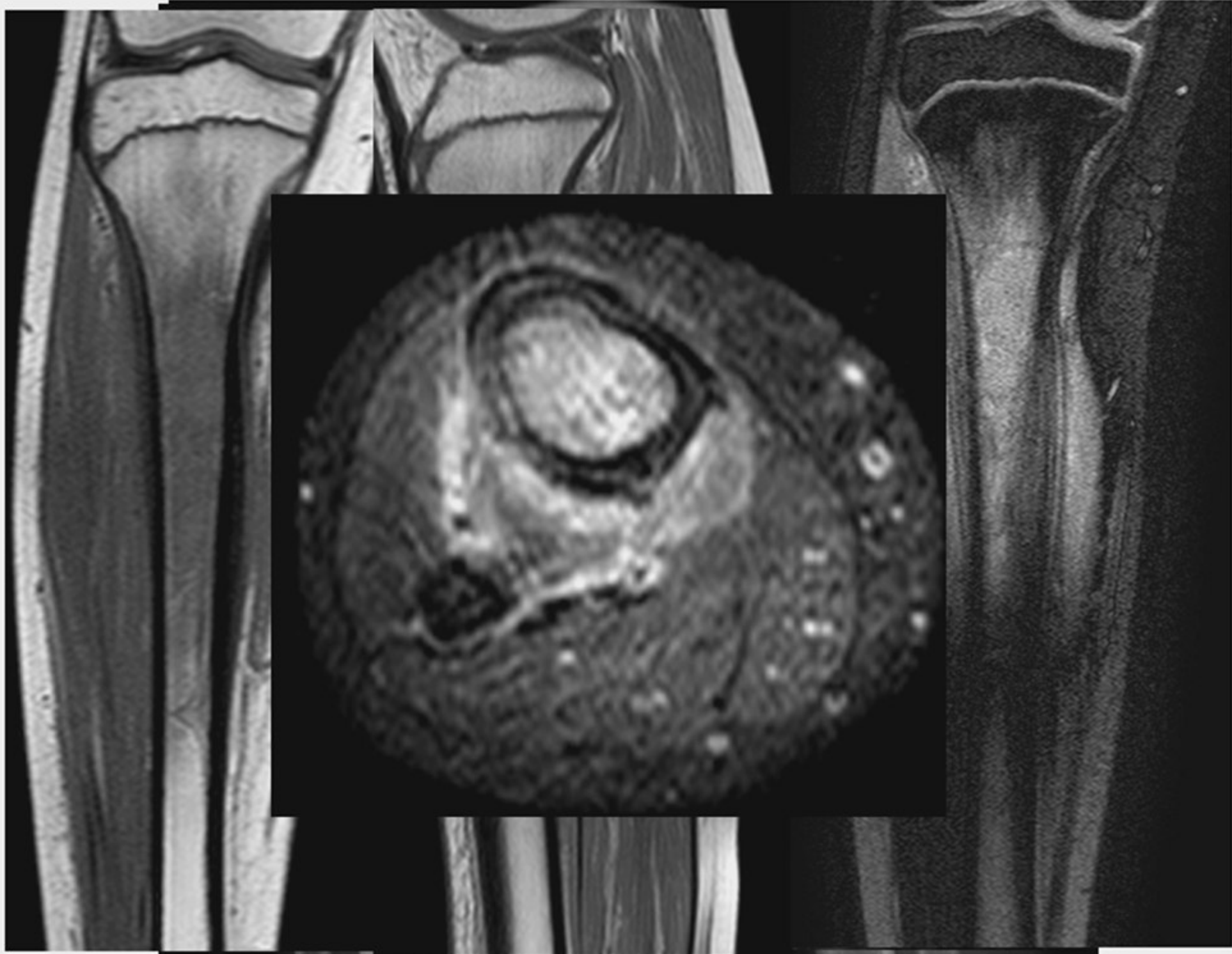
Ewing sarcoma

9260/3









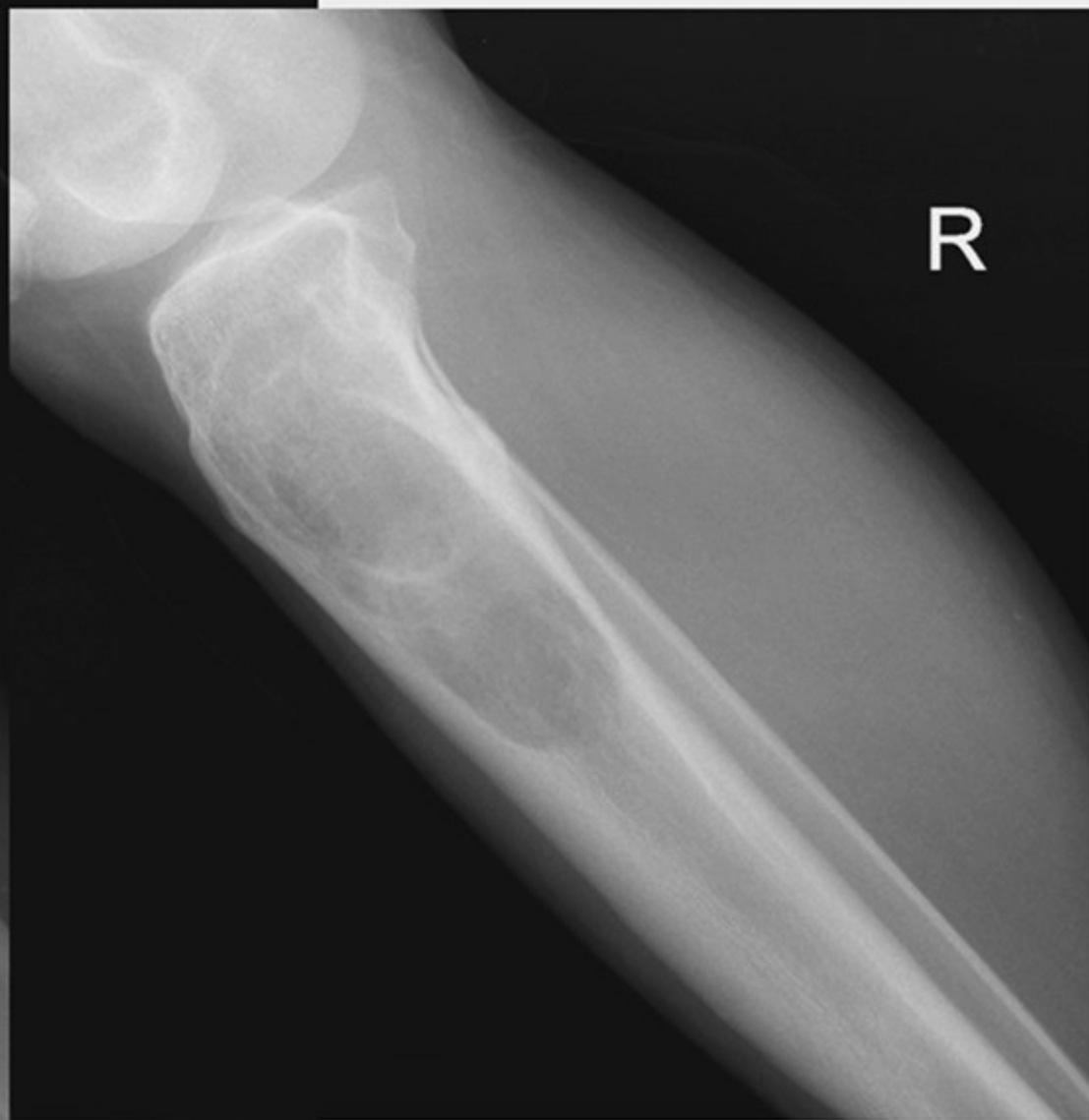
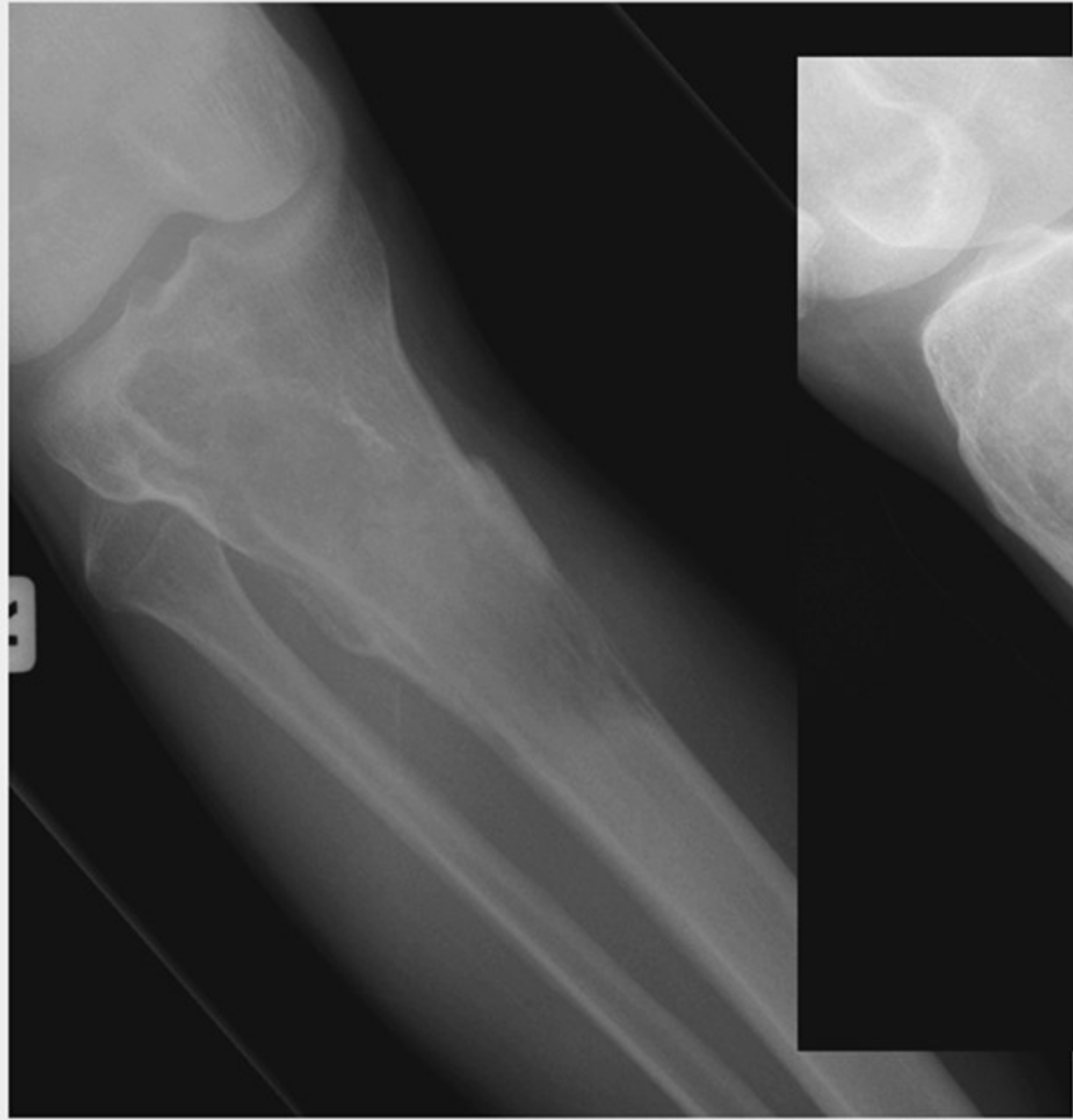
HAEMATOPOIETIC TUMOURS

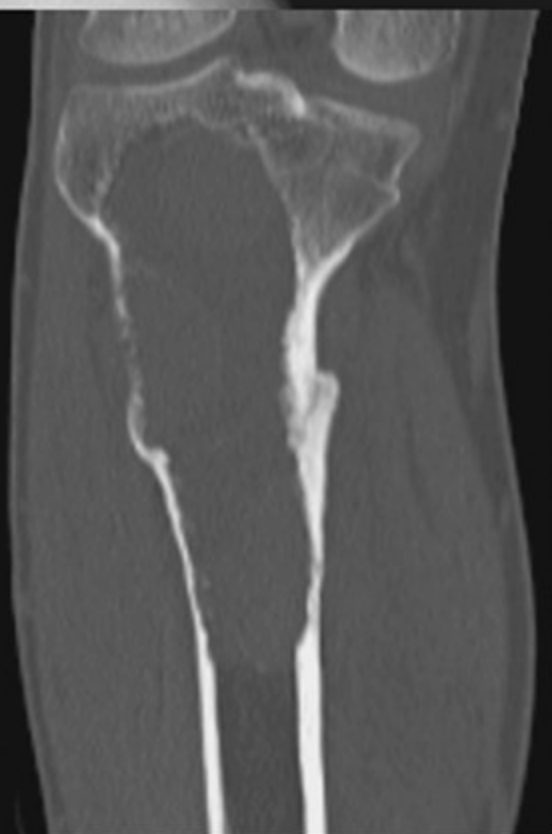
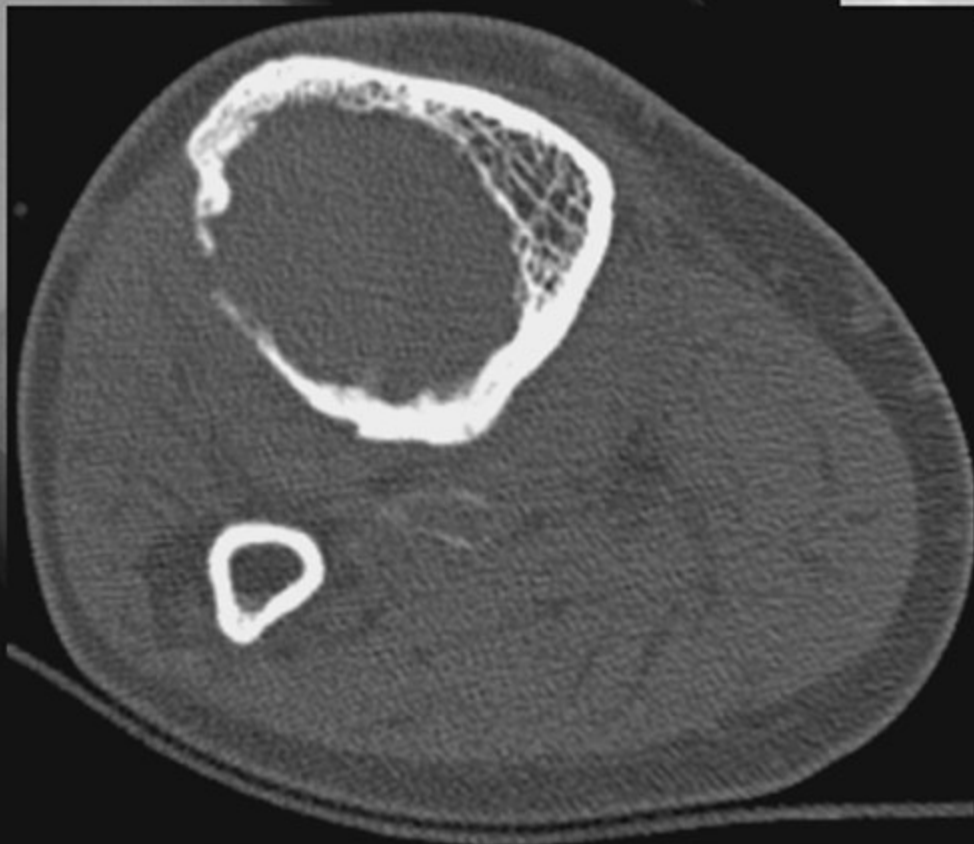
Plasma cell myeloma

9732/3

Malignant lymphoma, NOS

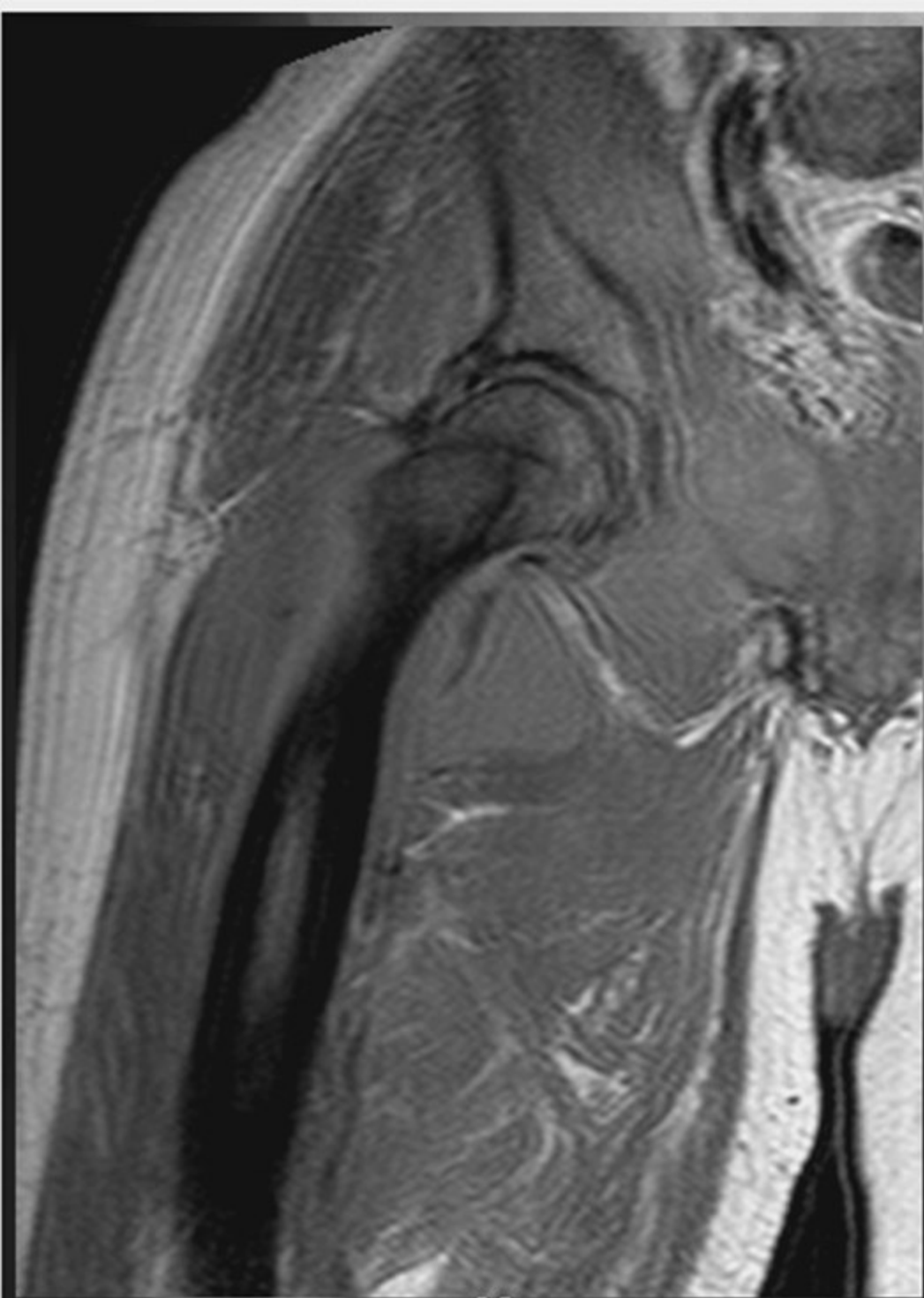
9590/3



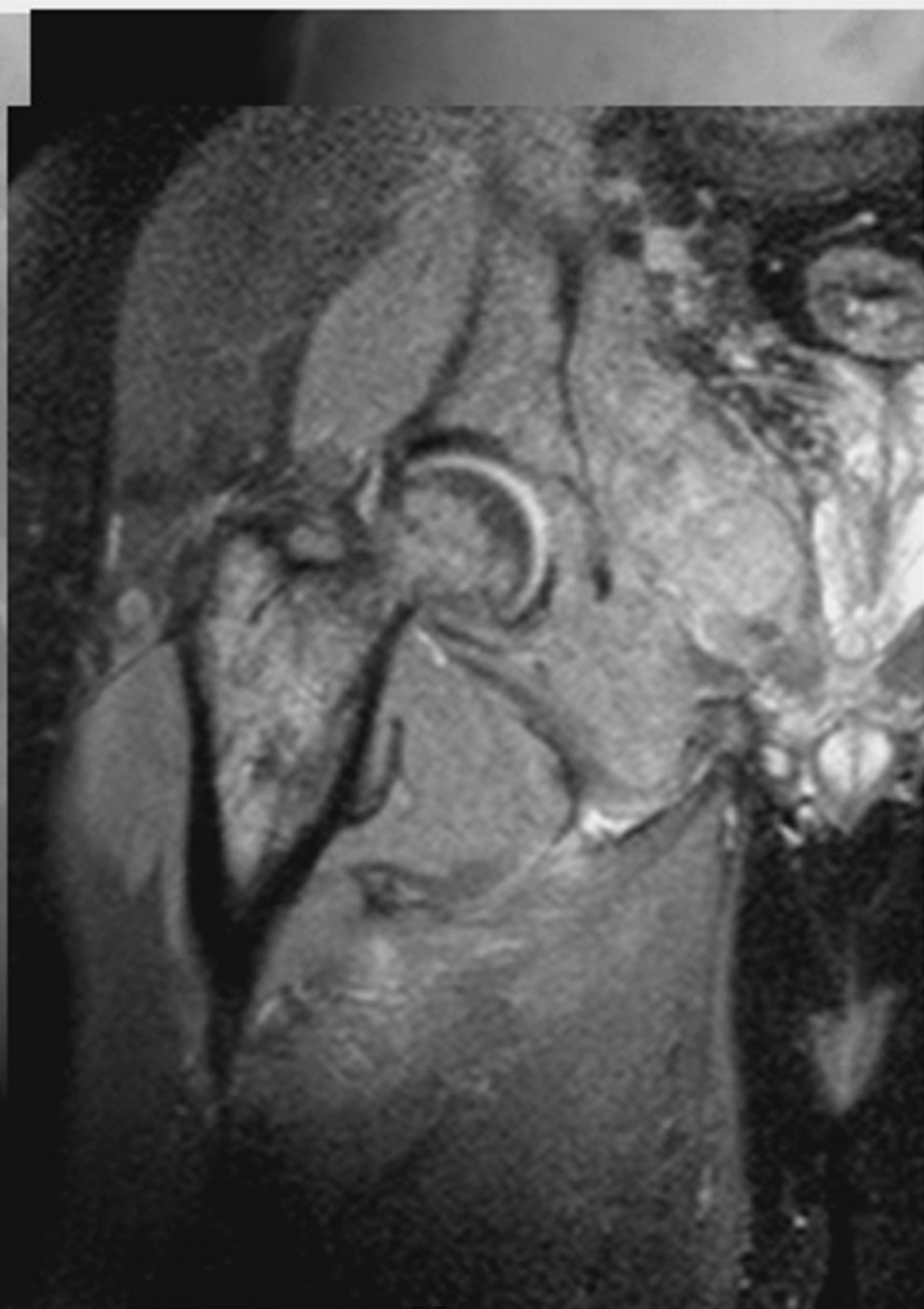


R



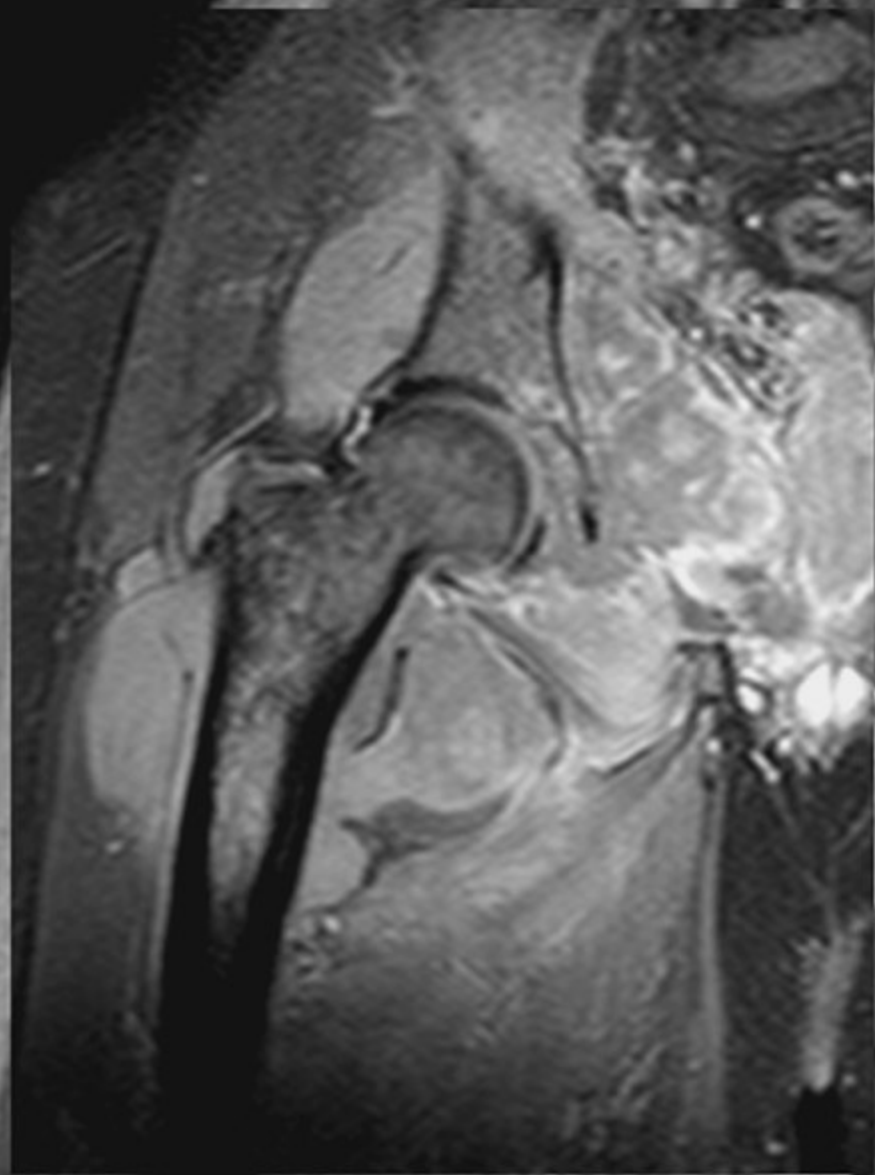


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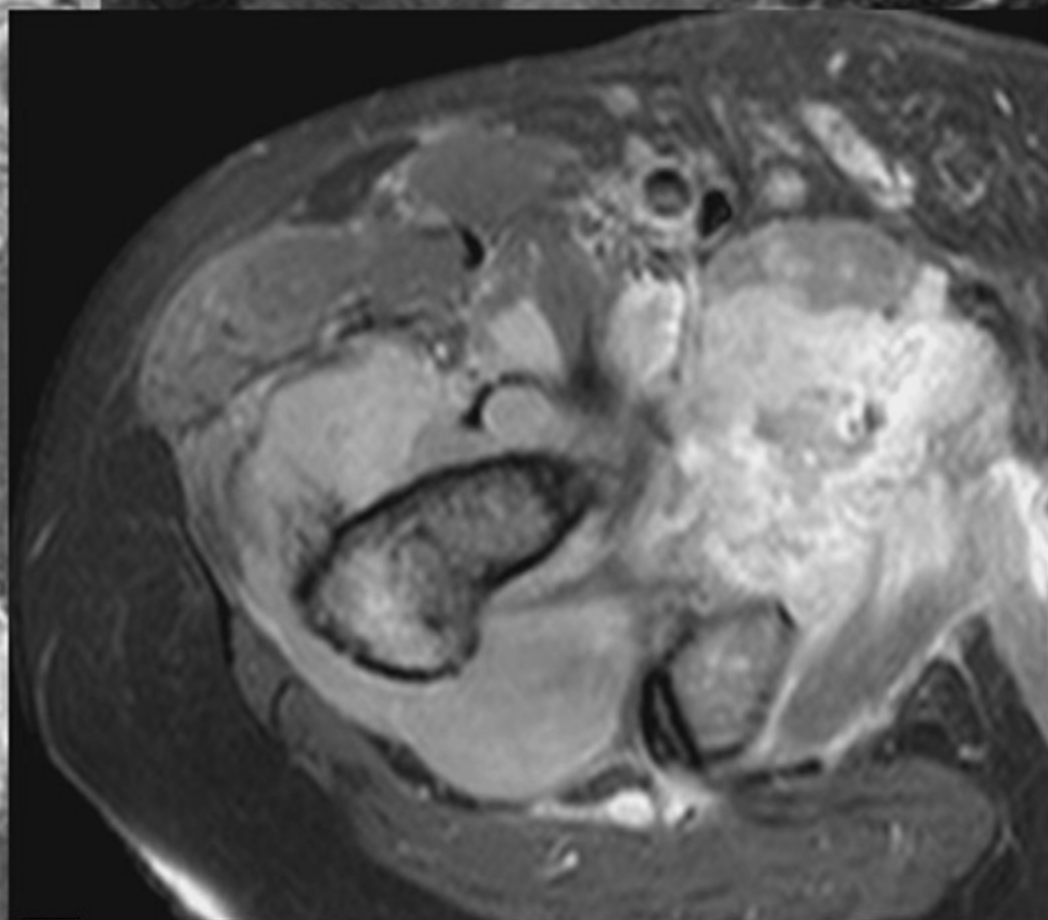


K

med-lat



R



R

med-lat

GIANT CELL TUMOUR

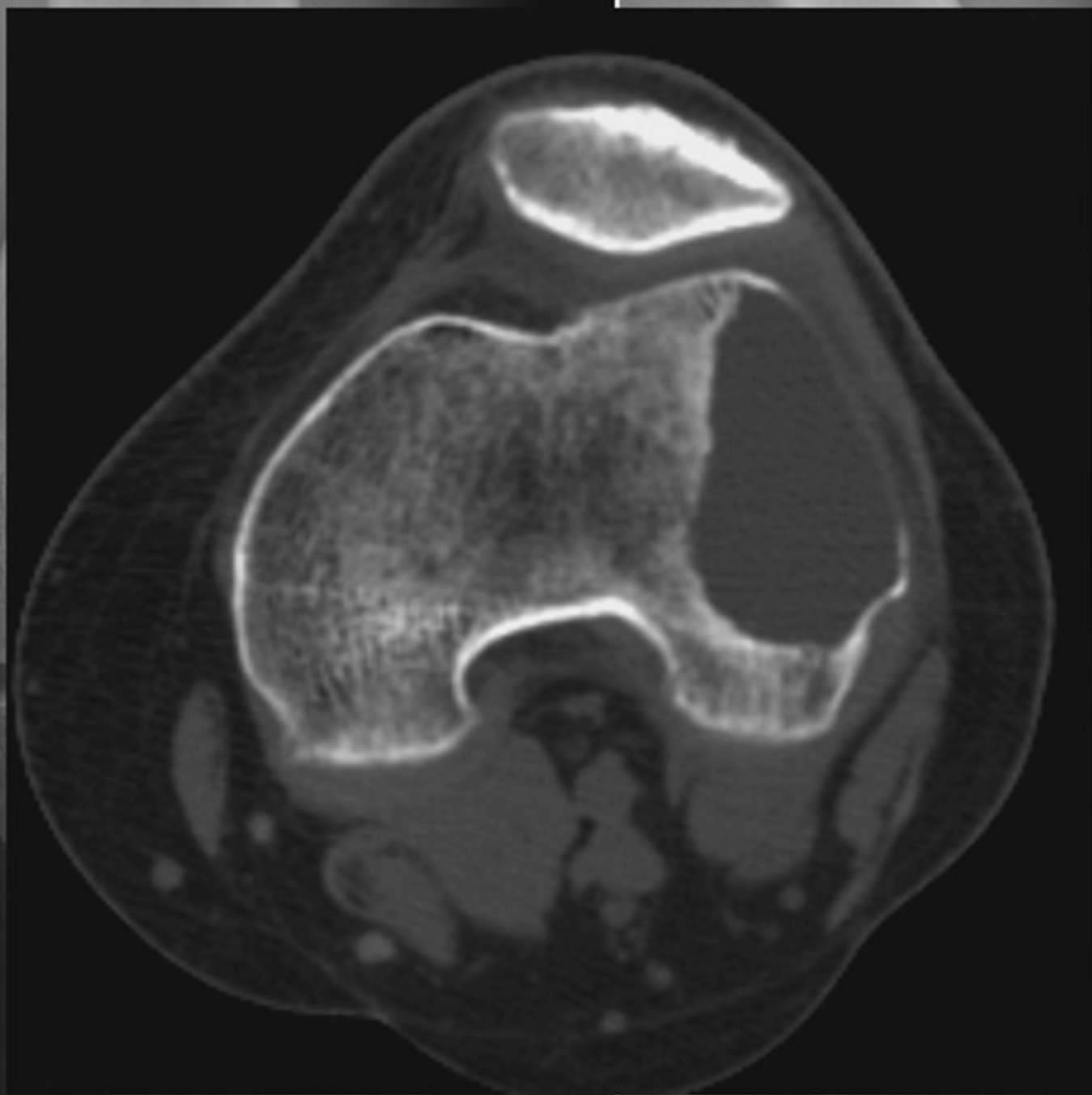
Giant cell tumour

9250/1

Malignancy in giant cell tumour

9250/3





VASCULAR TUMOURS

Haemangioma

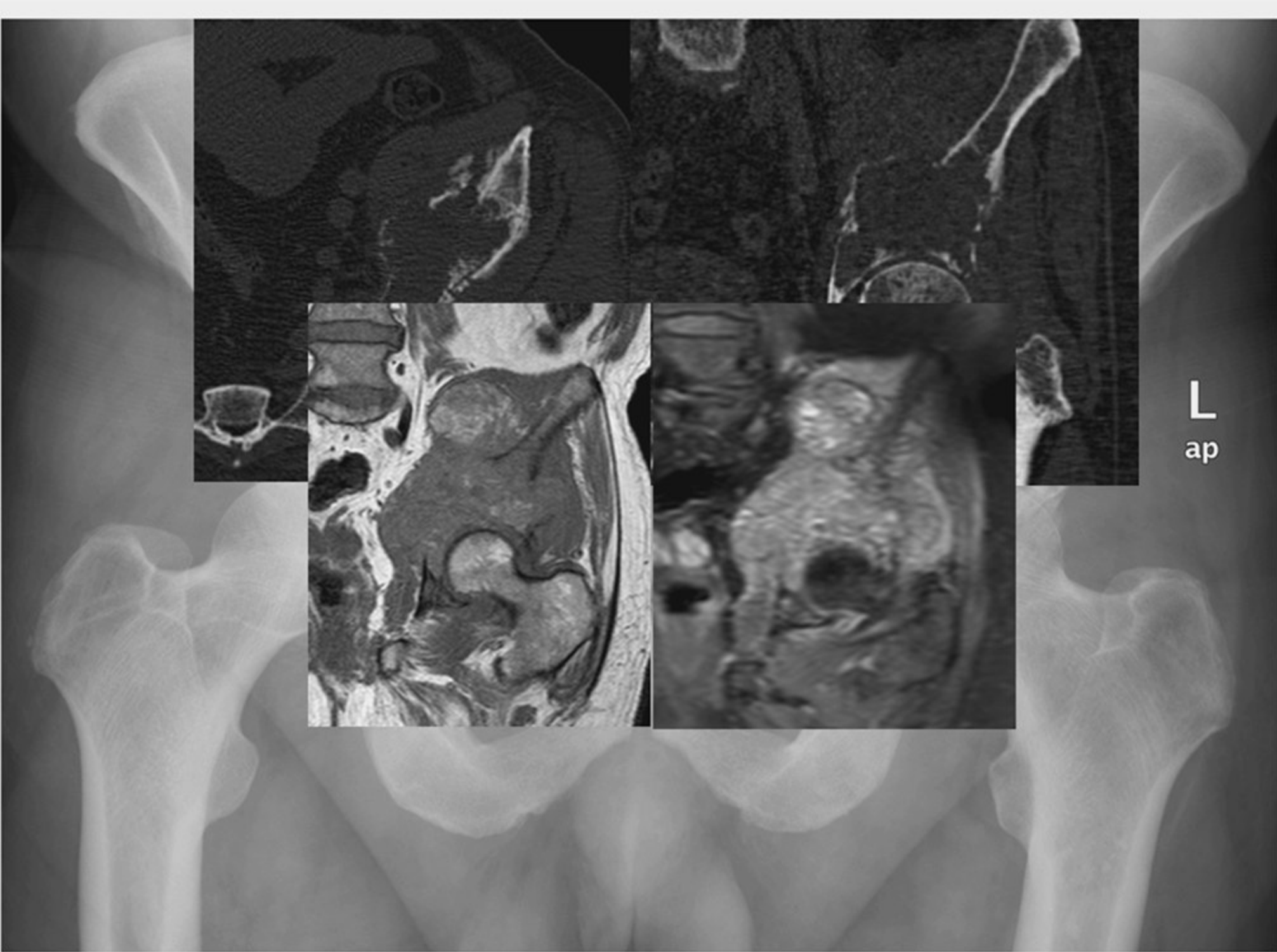
9120/0

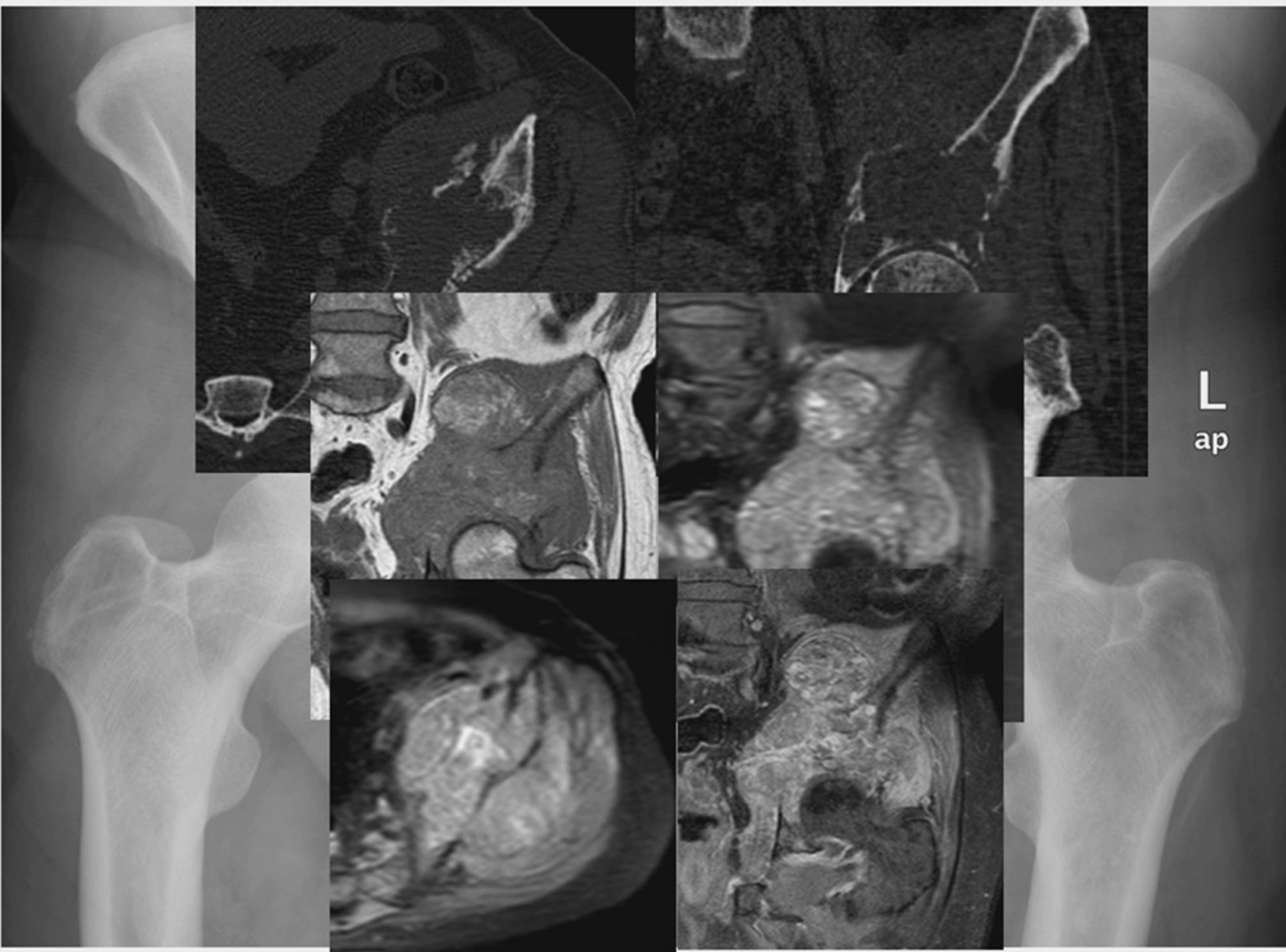
Angiosarcoma

9120/3









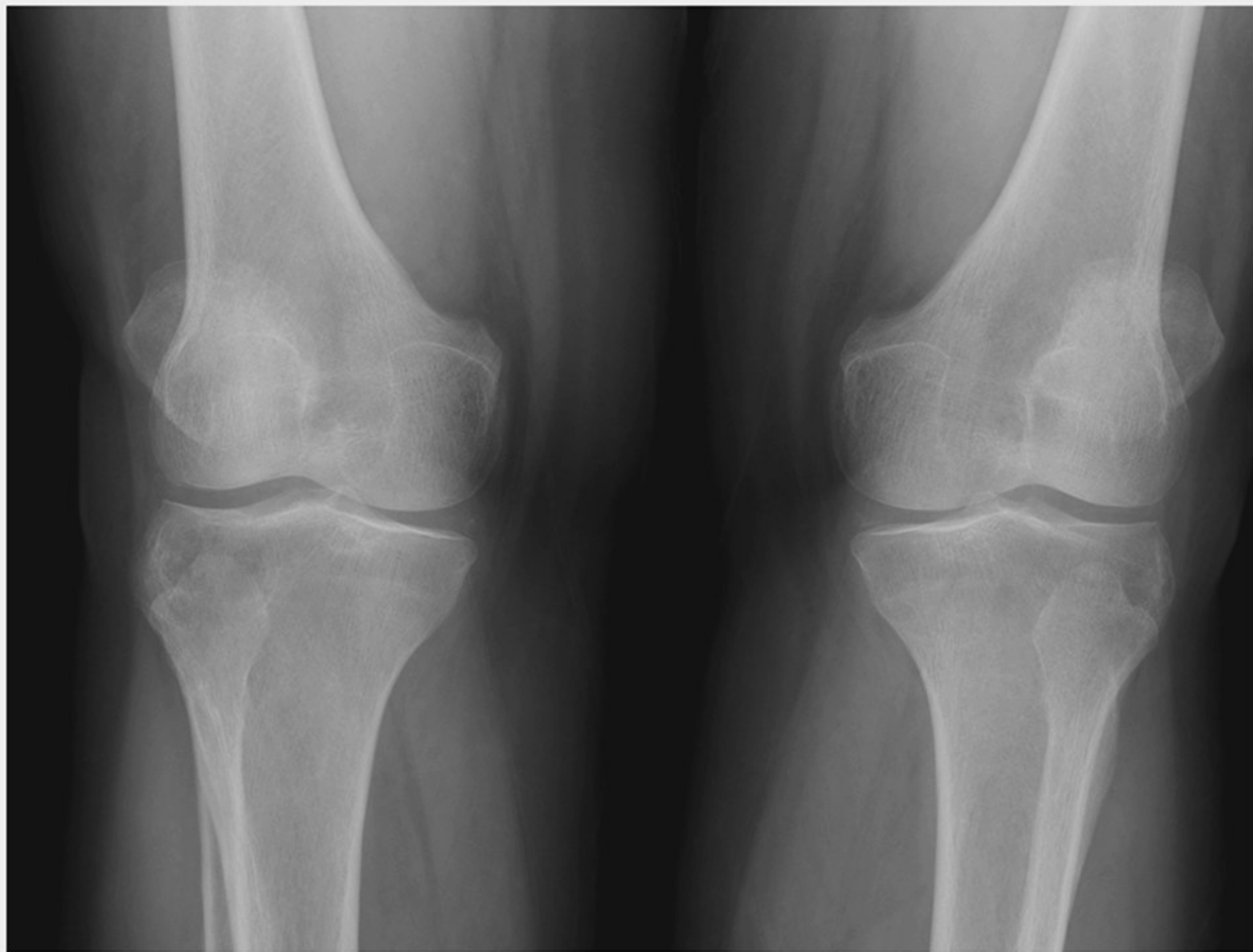
LIPOGENIC TUMOURS

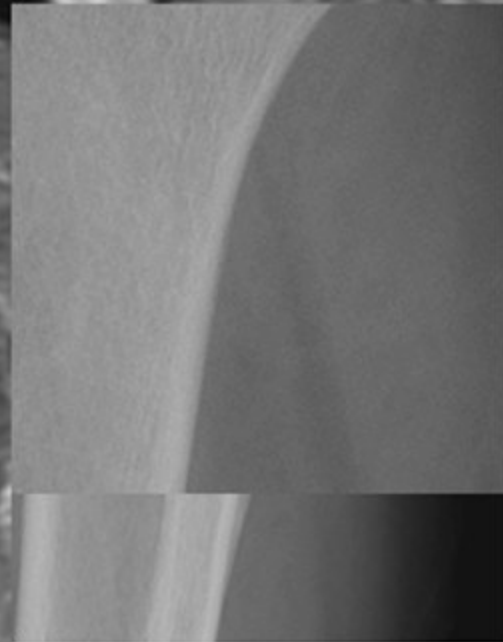
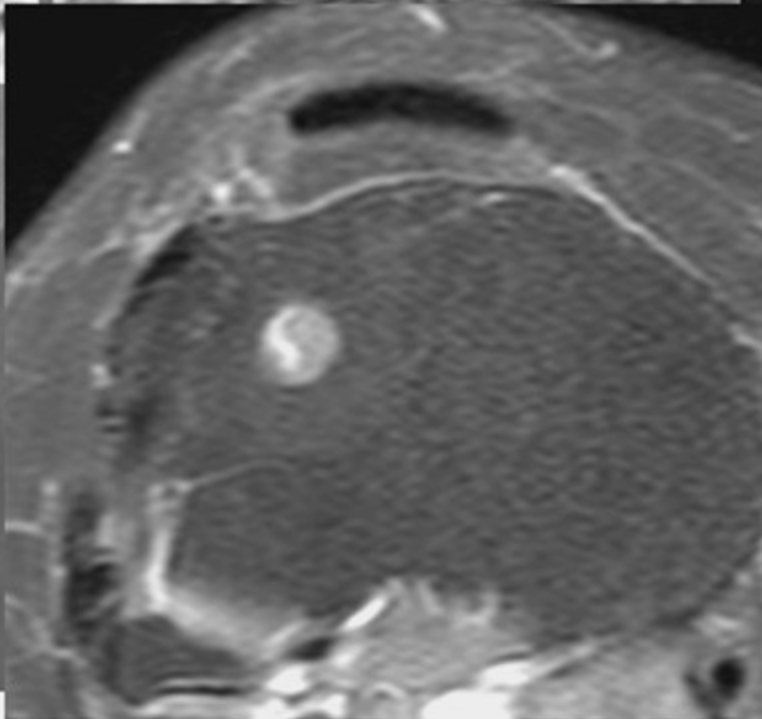
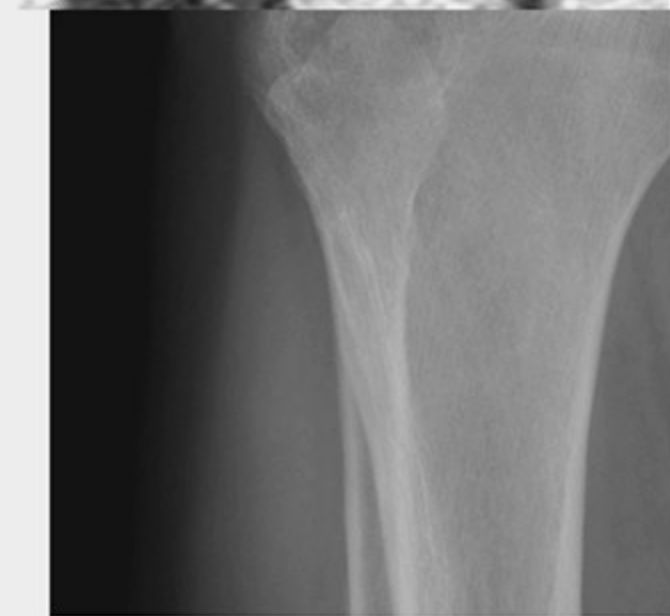
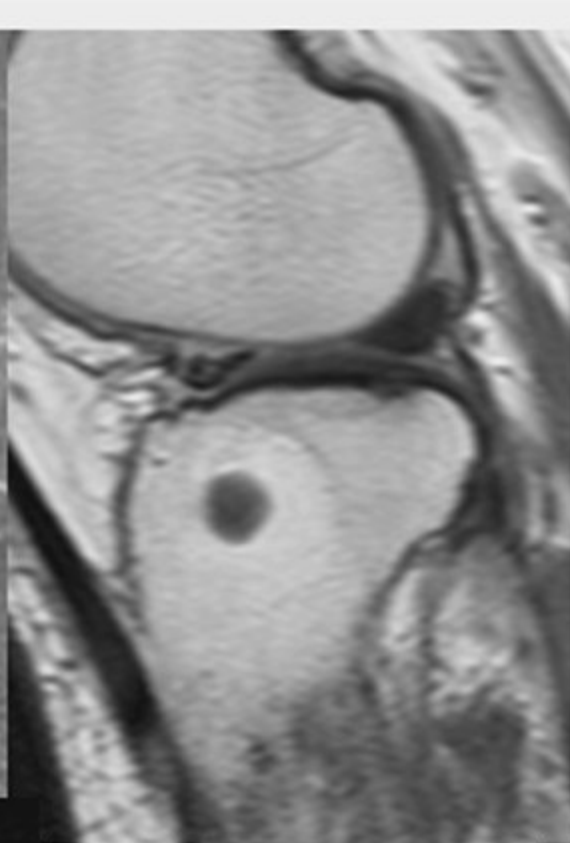
Lipoma

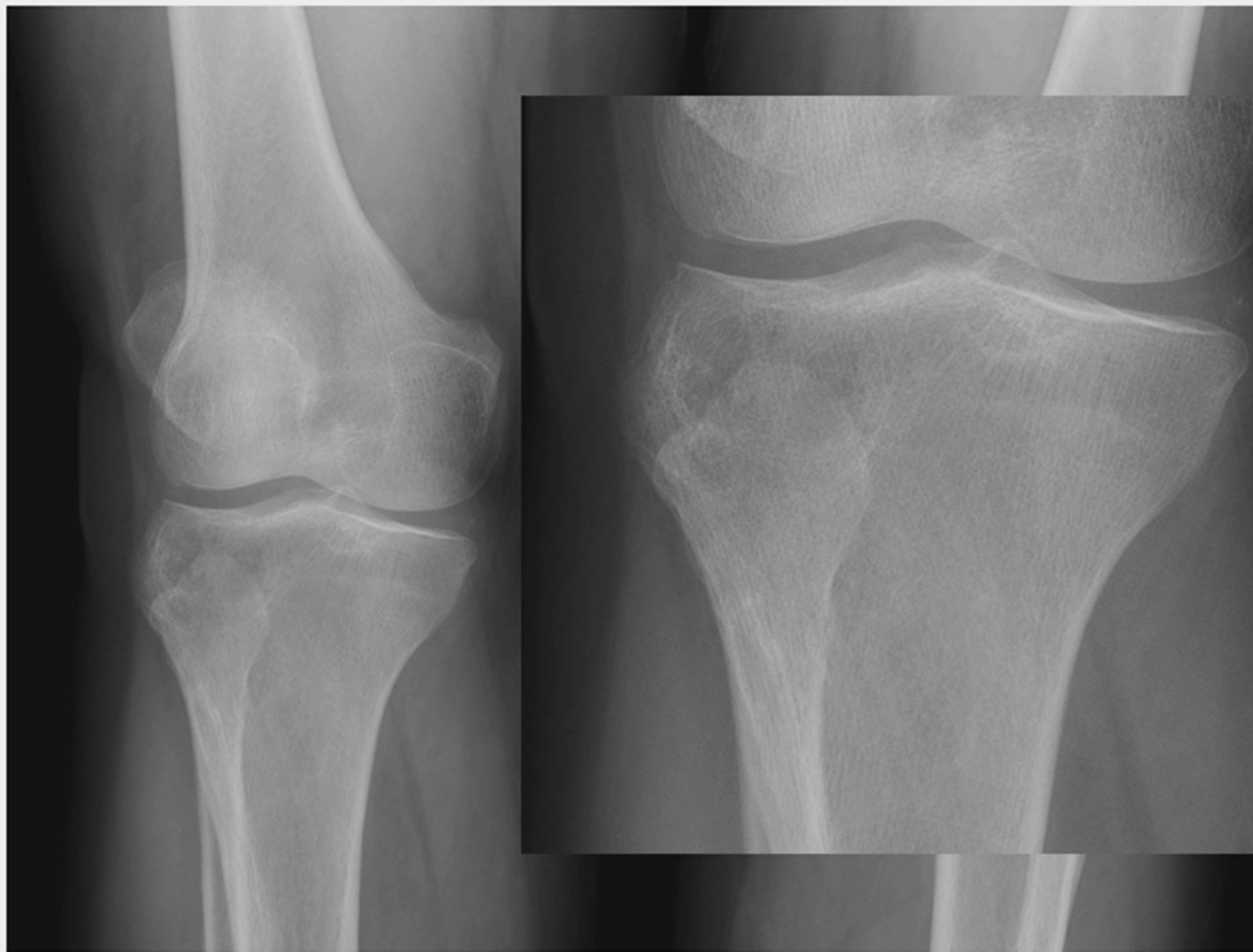
8850/0

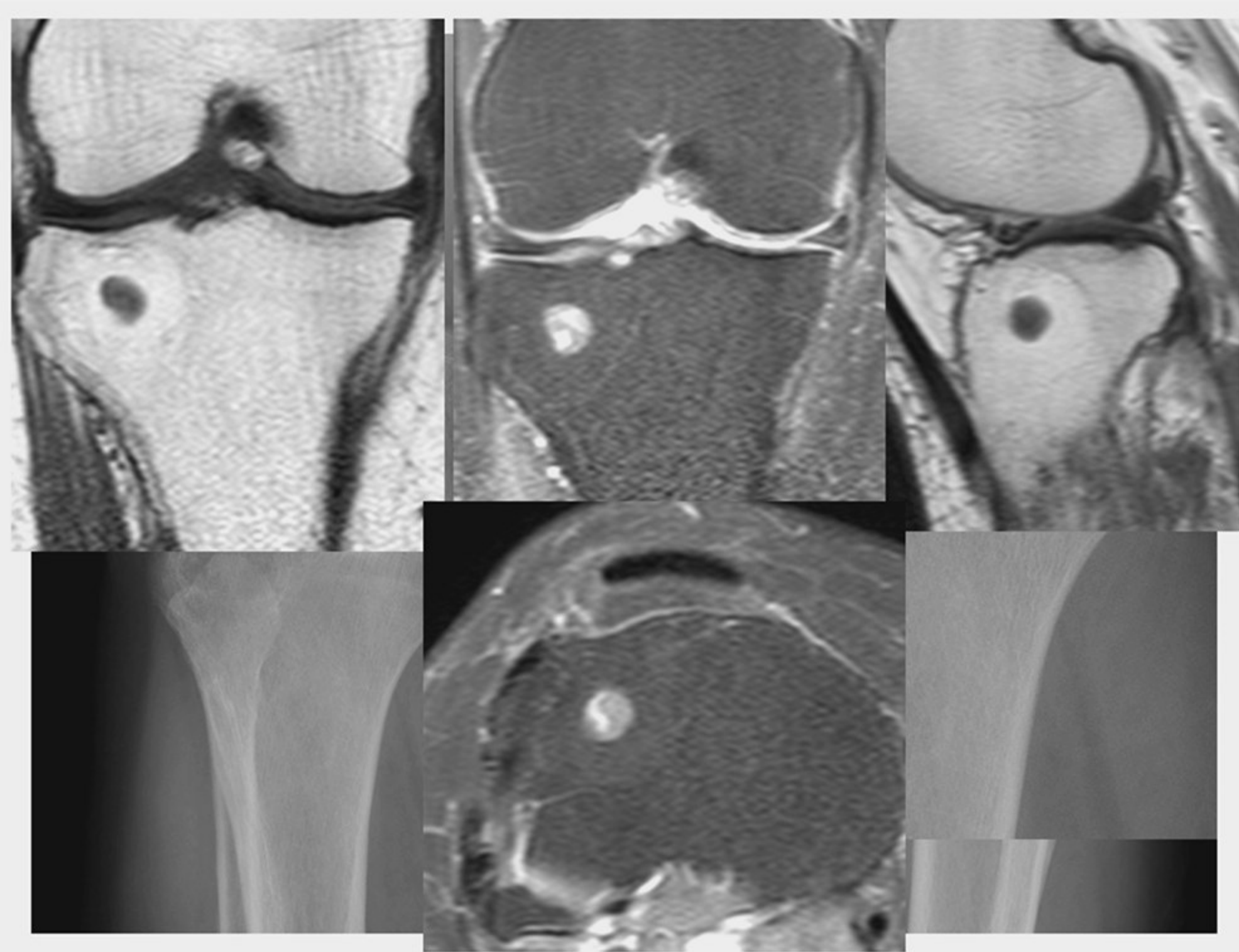
Liposarcoma

8850/3









MISCELLANEOUS LESIONS

Aneurysmal bone cyst

Simple cyst

Fibrous dysplasia

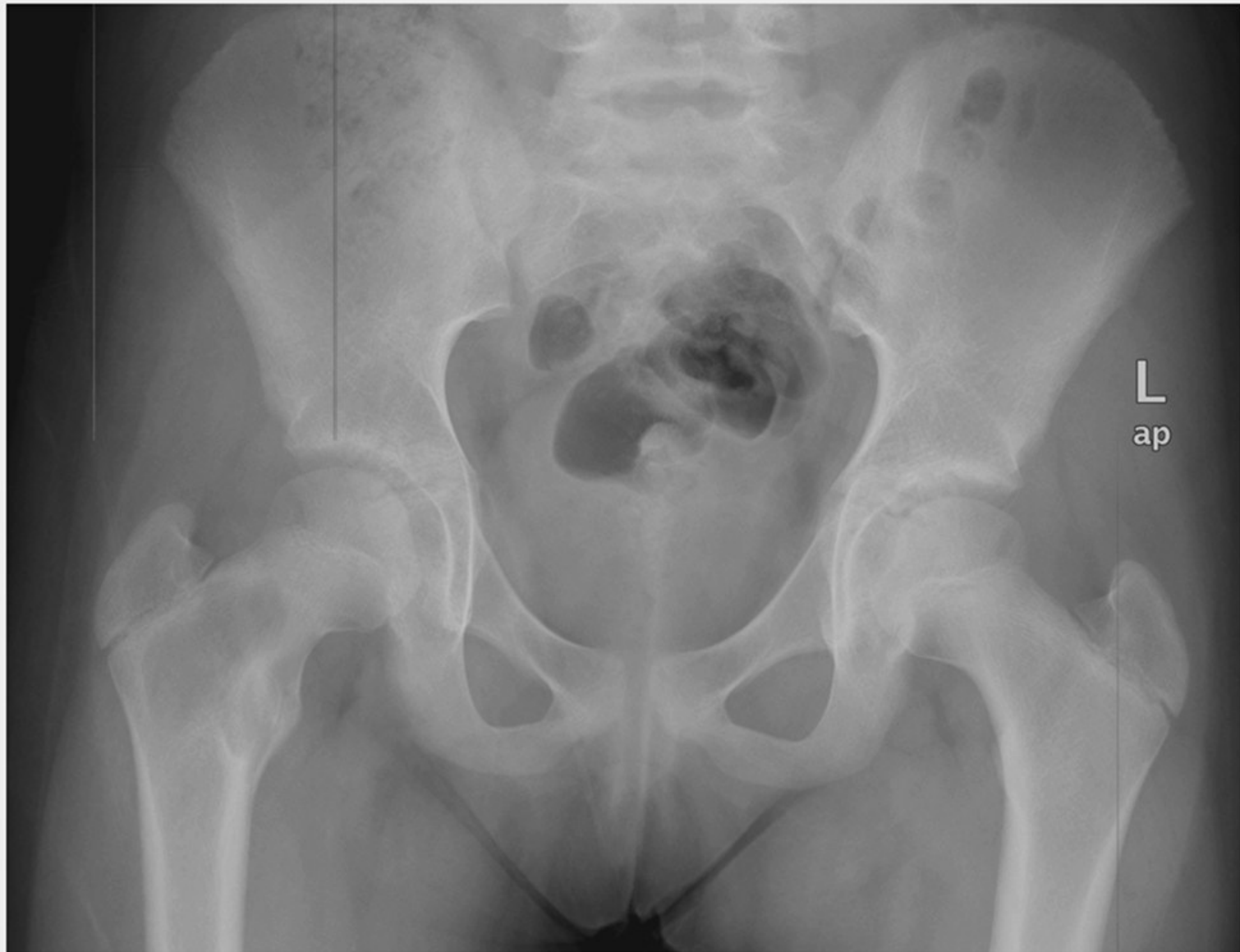
Osteofibrous dysplasia

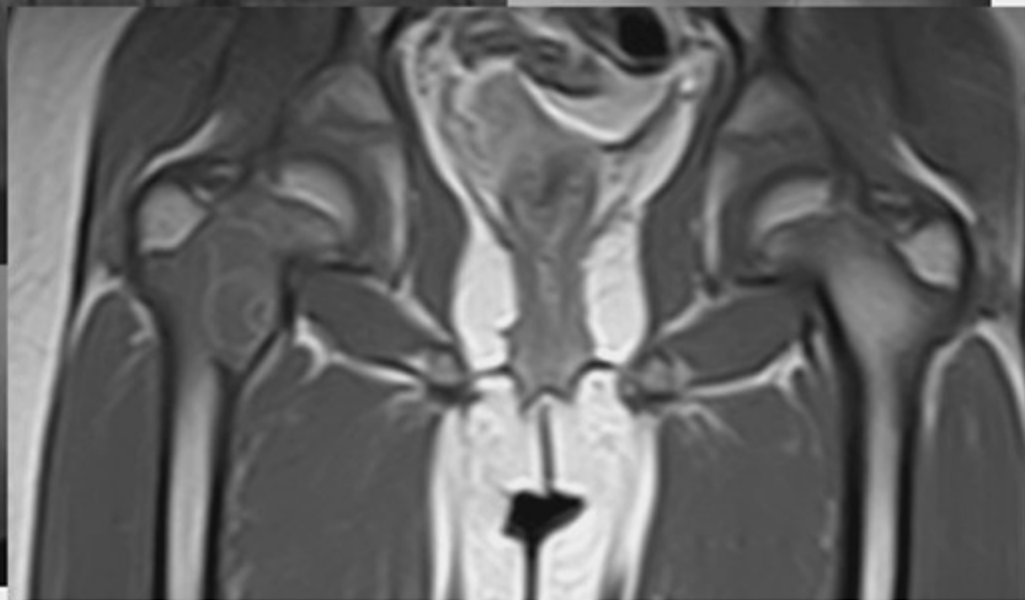
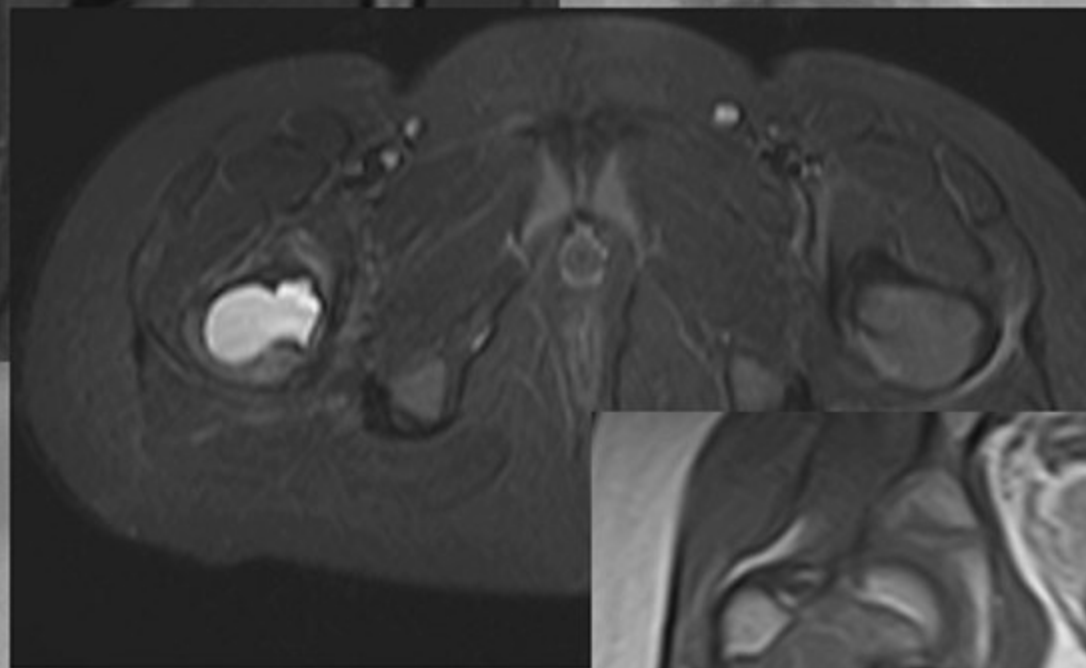
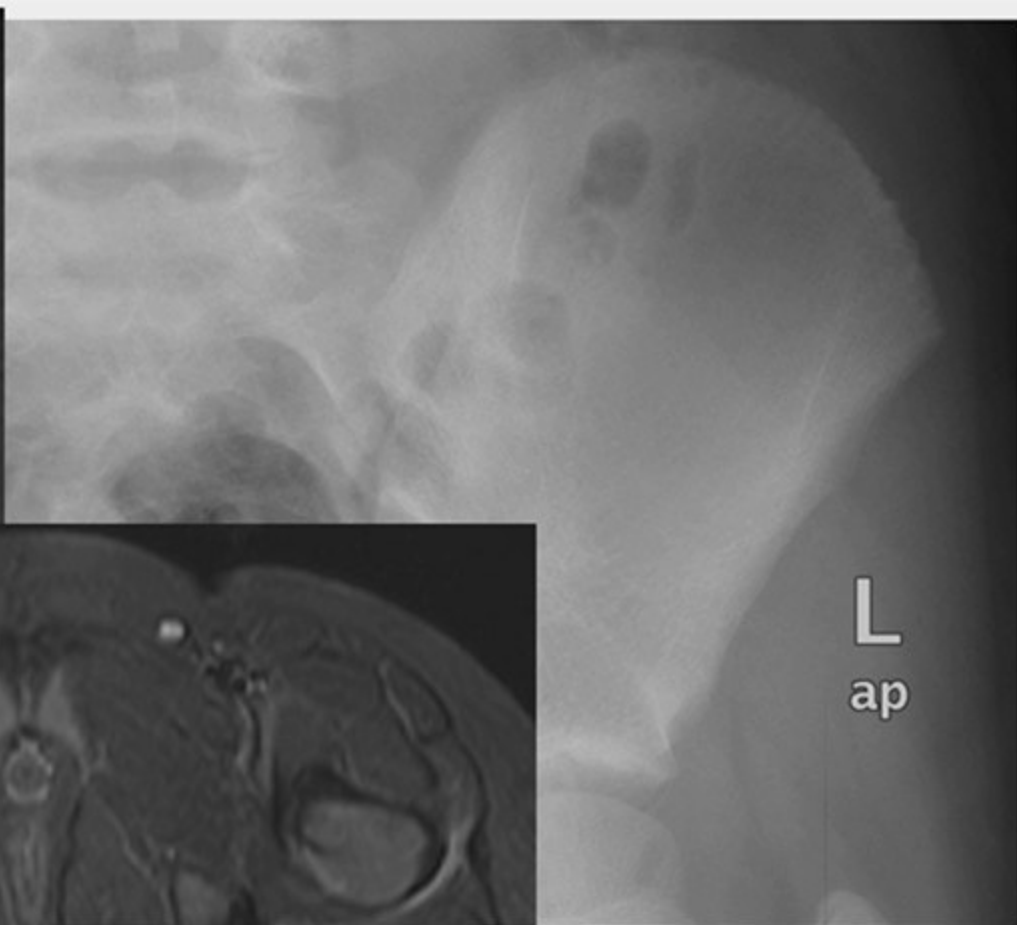
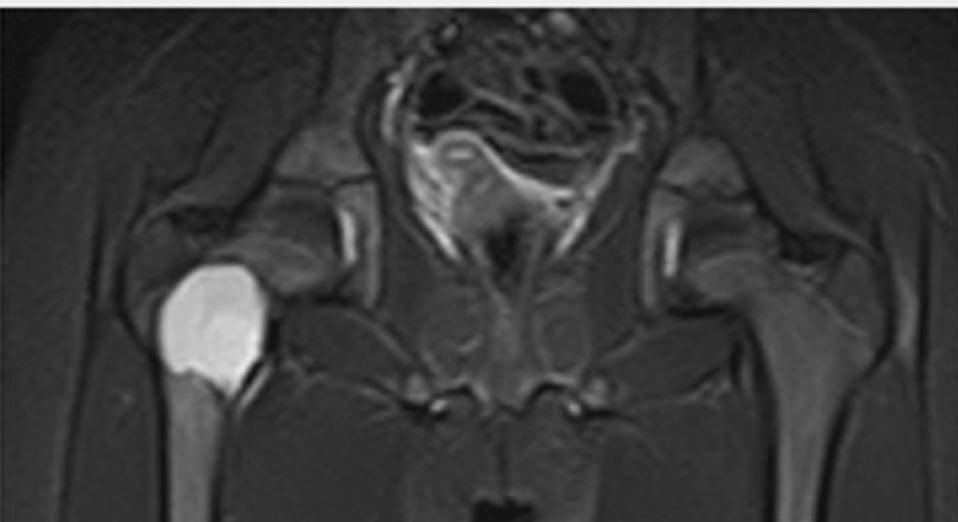
Langerhans cell histiocytosis

Erdheim-Chester disease

Chest wall hamartoma

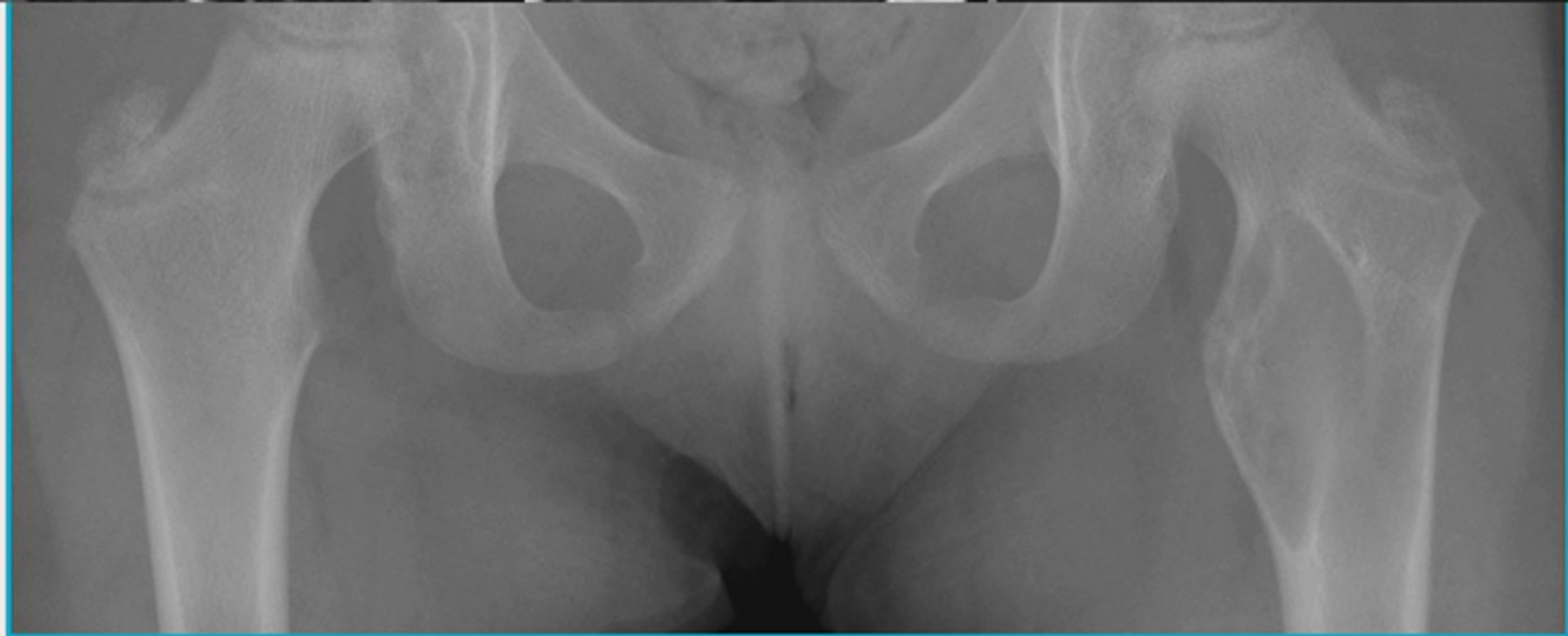
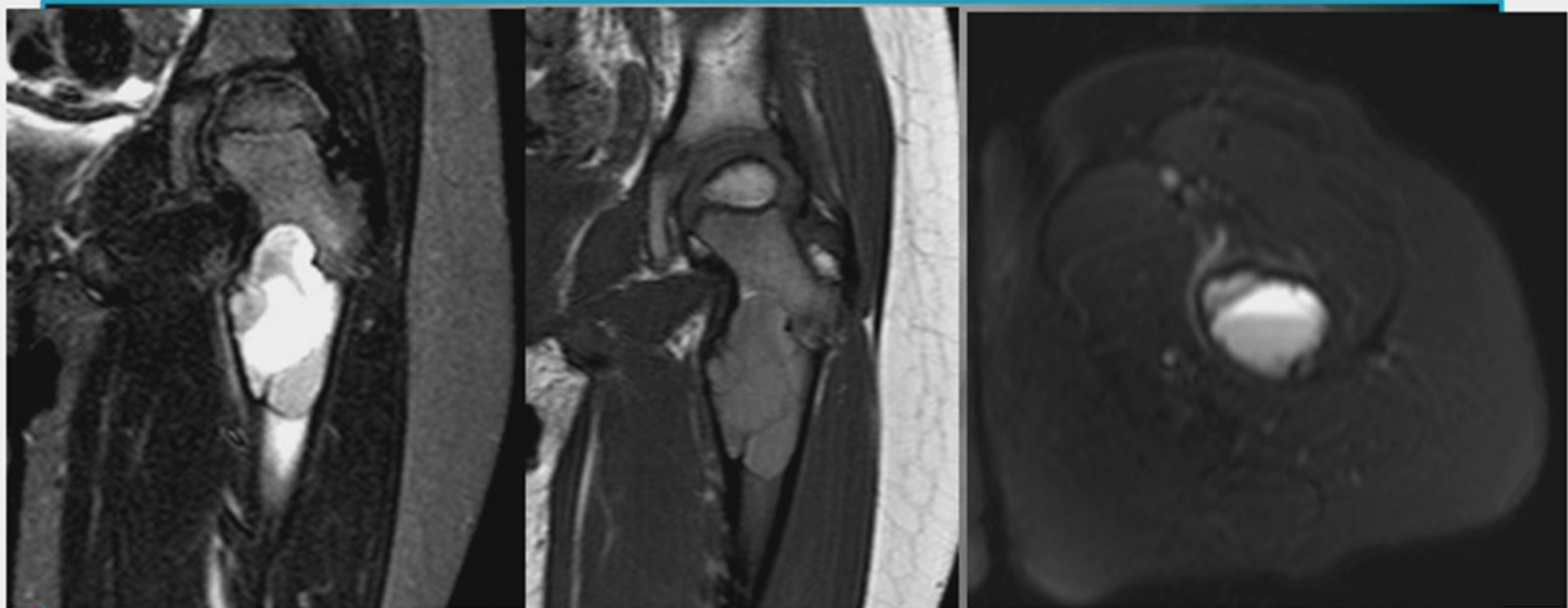
9751/1

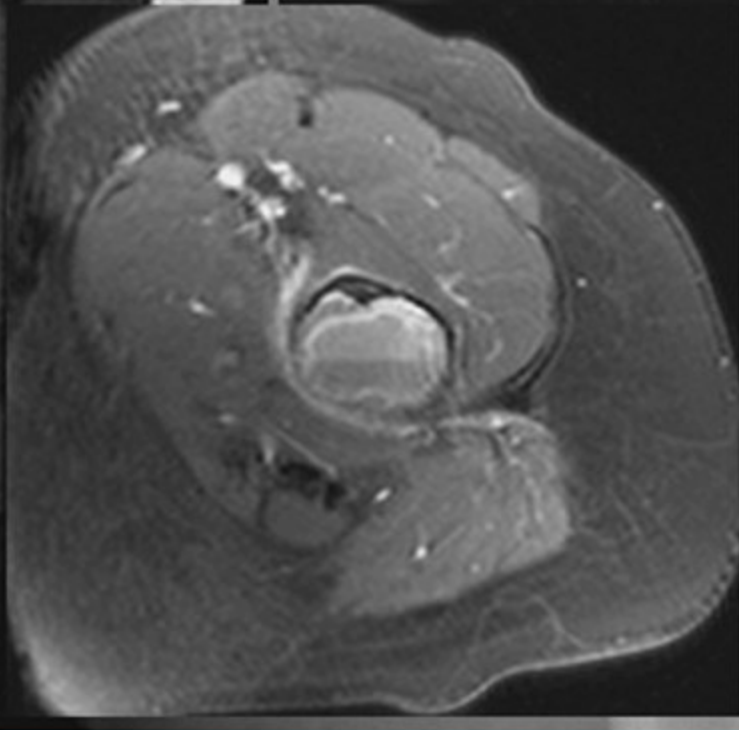
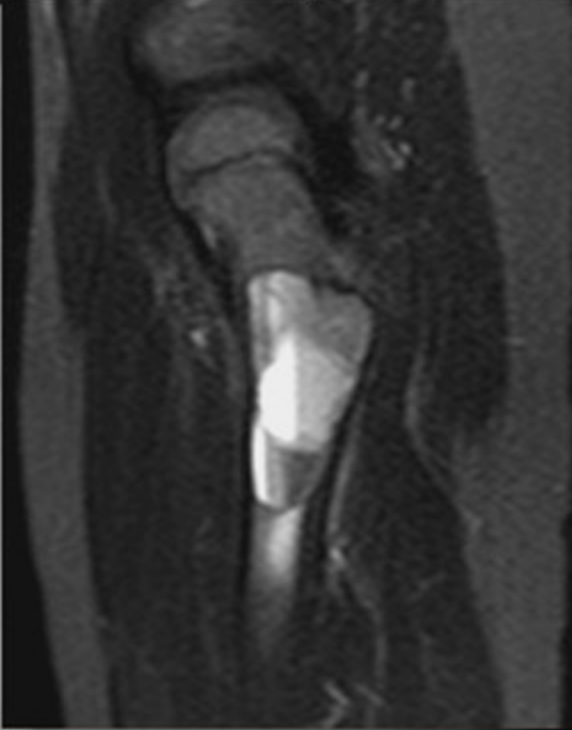
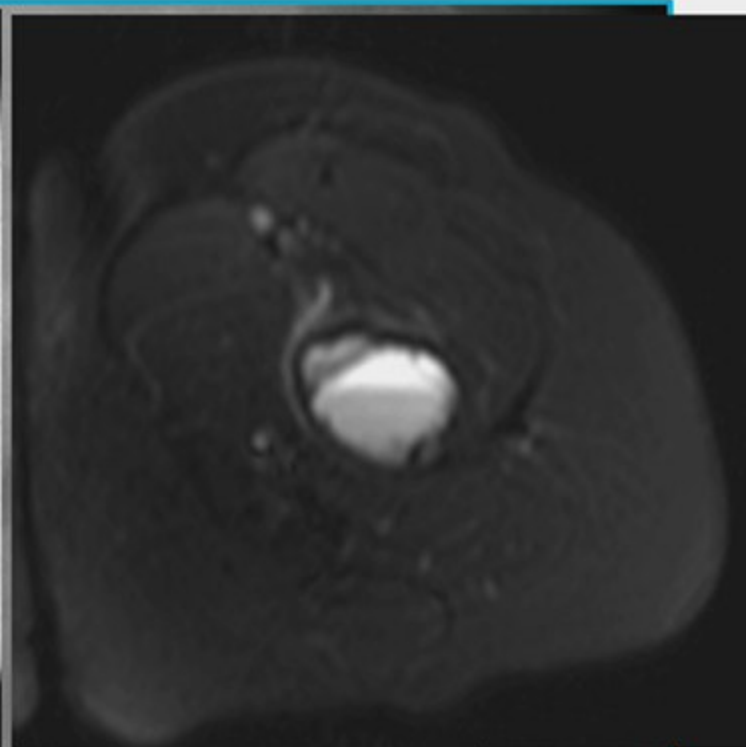
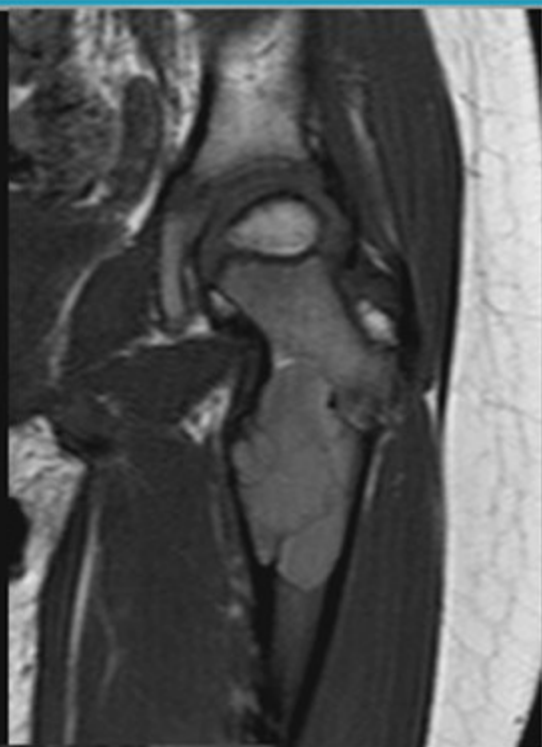




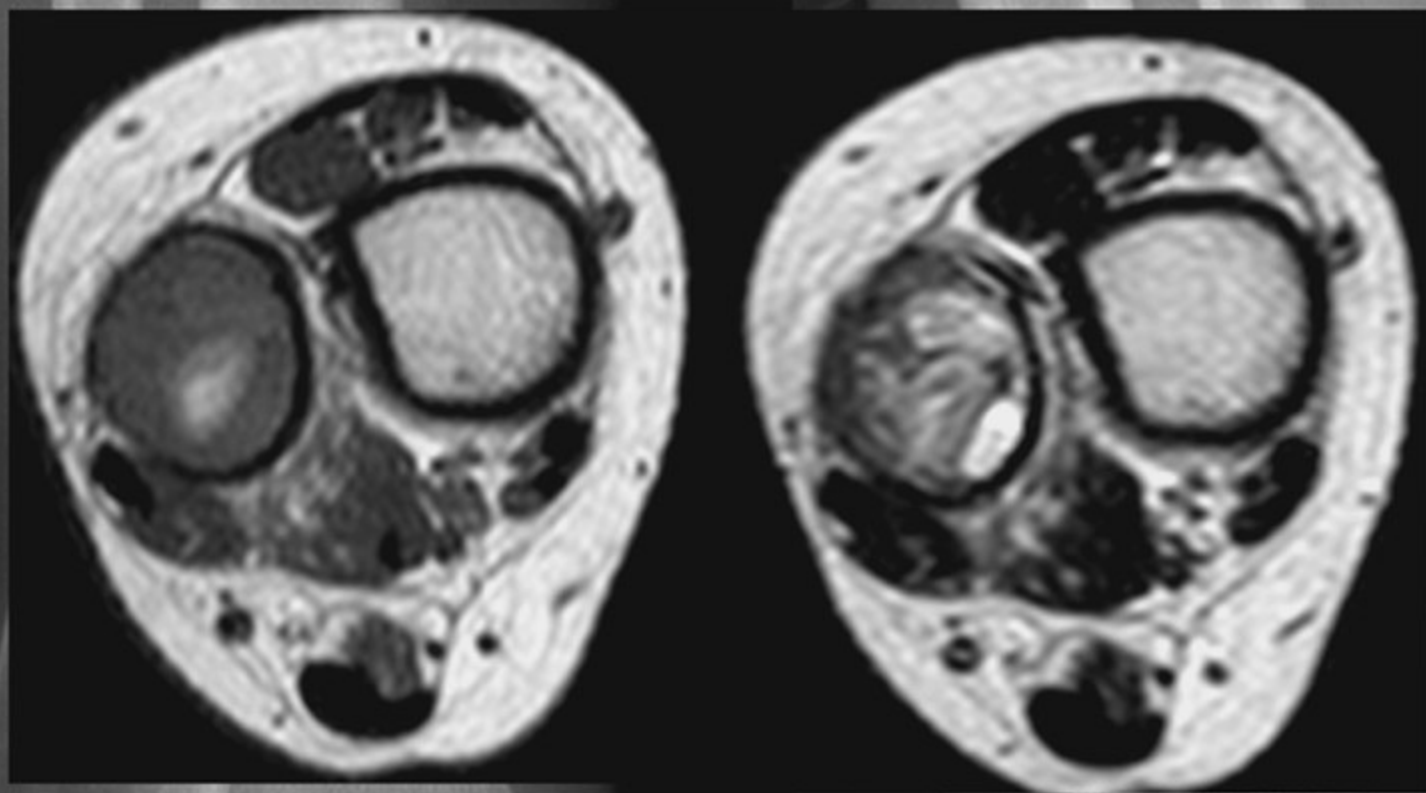


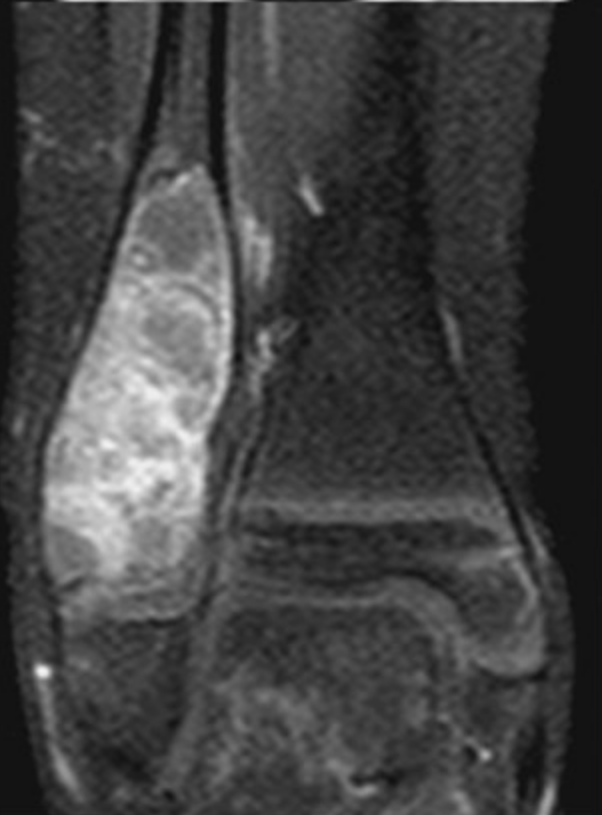
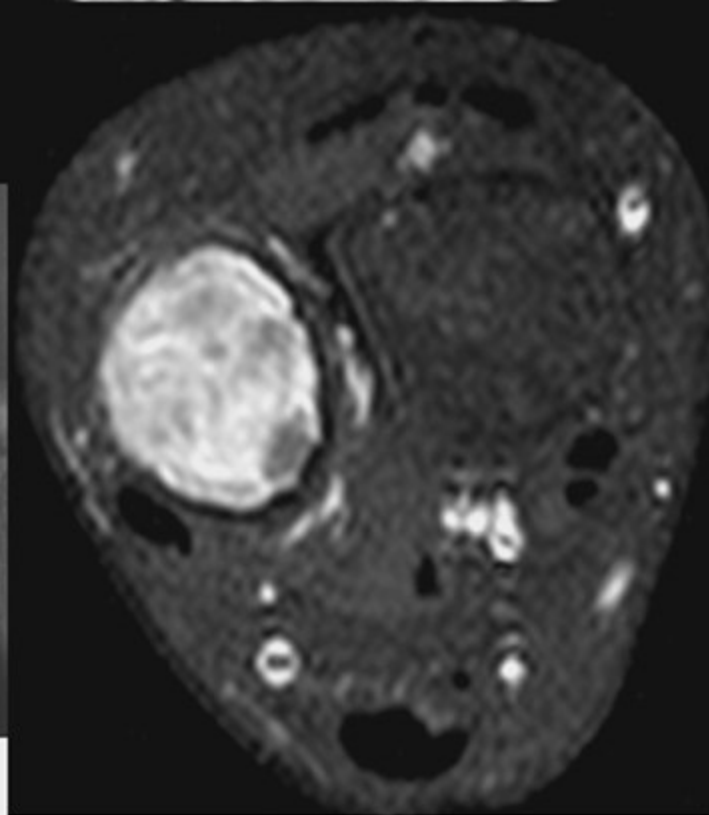
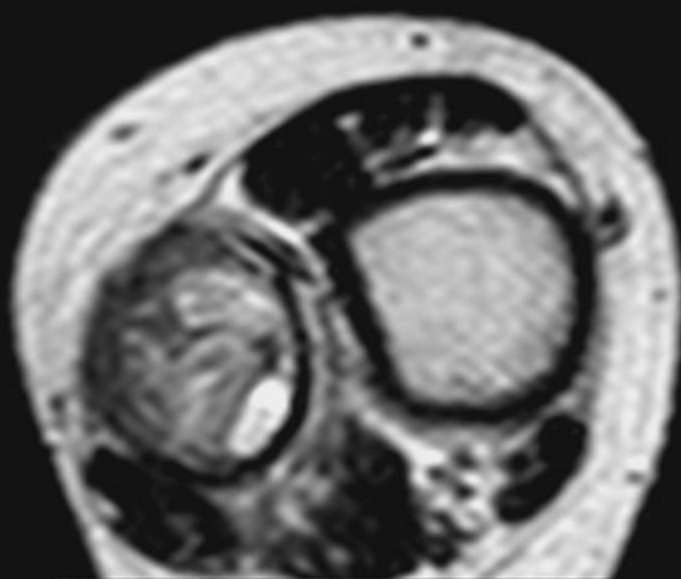
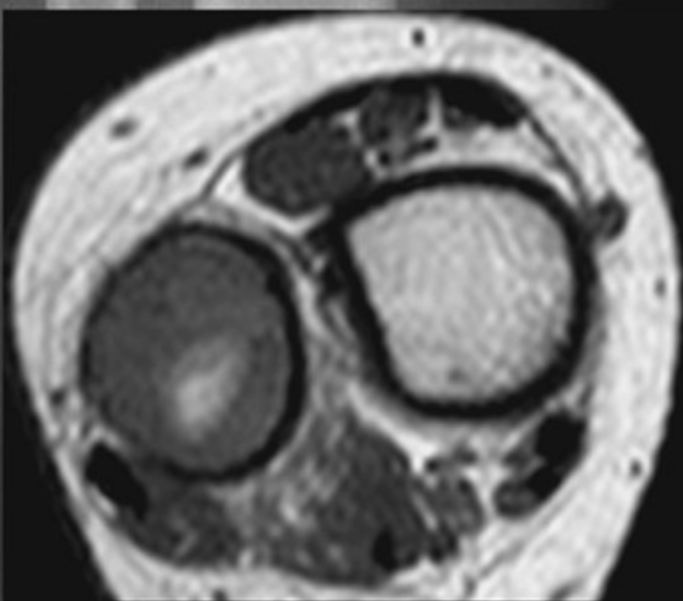
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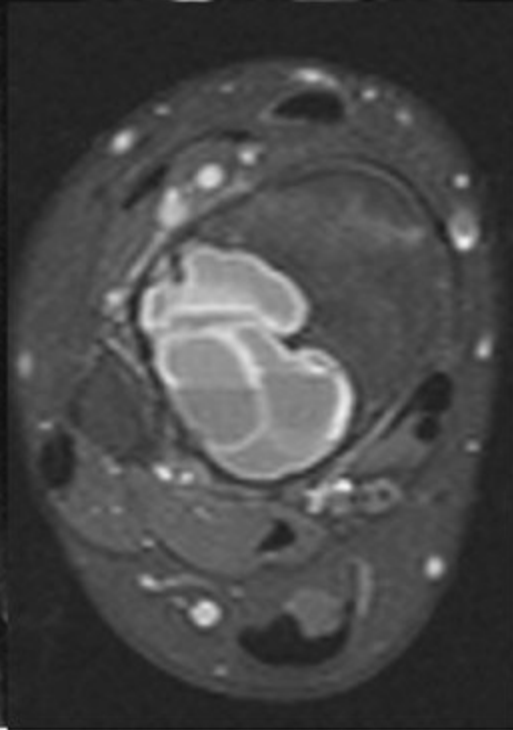
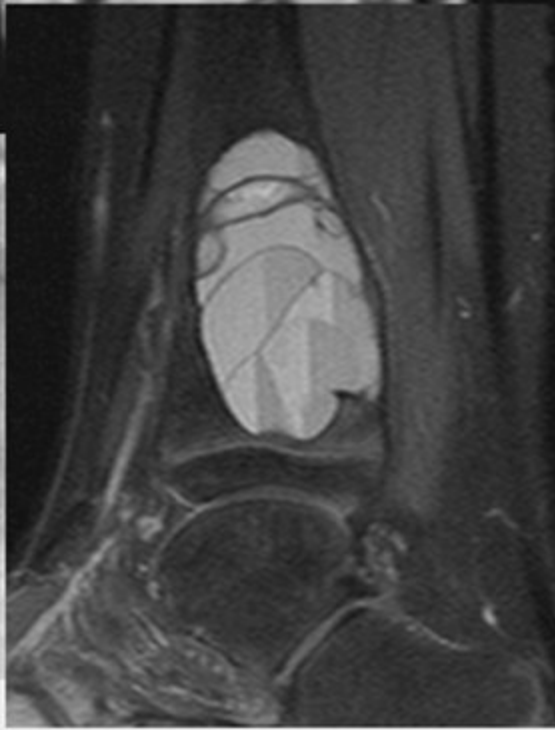
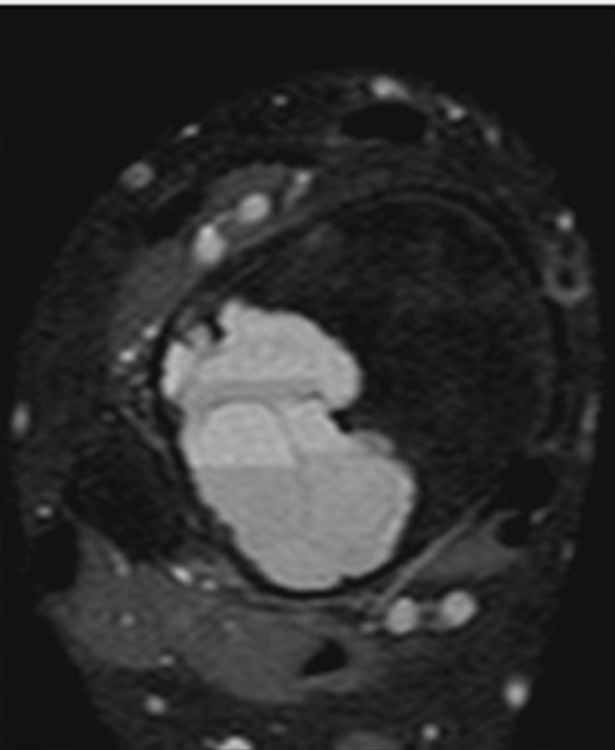




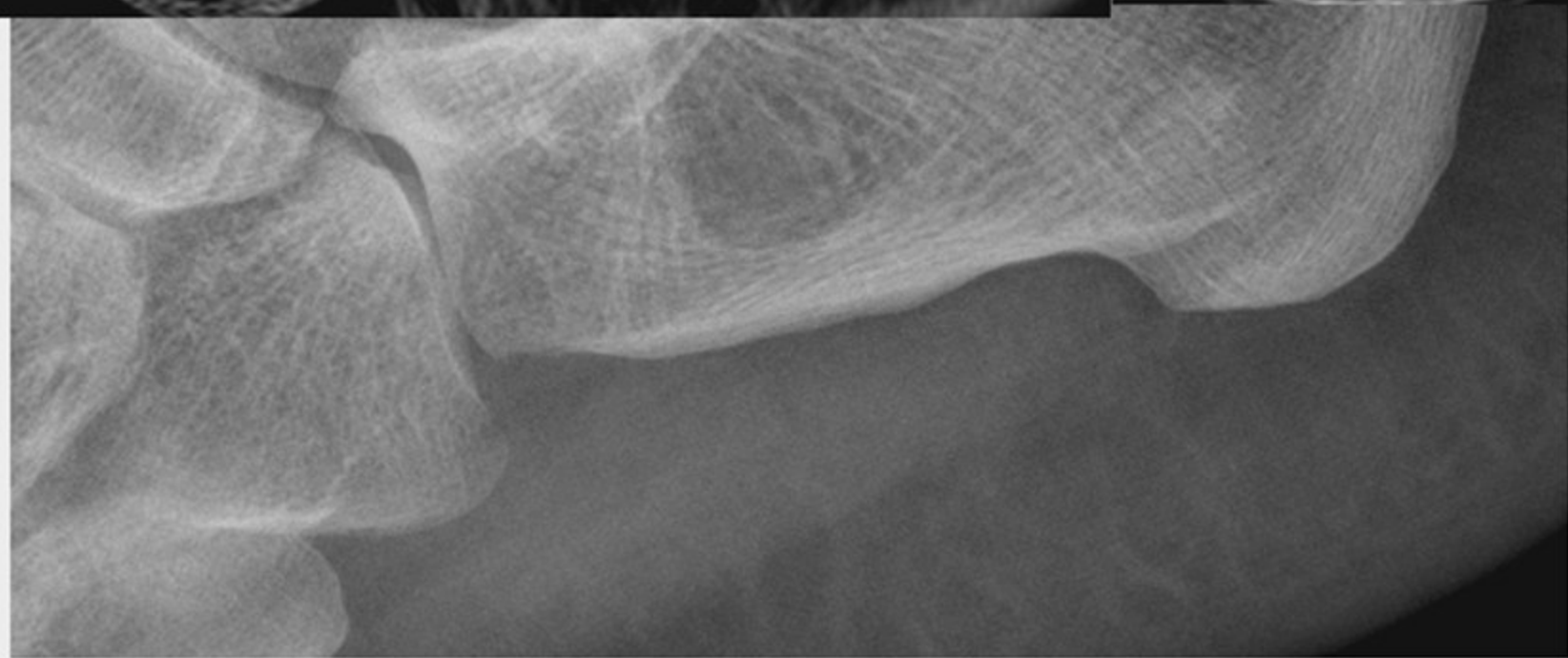
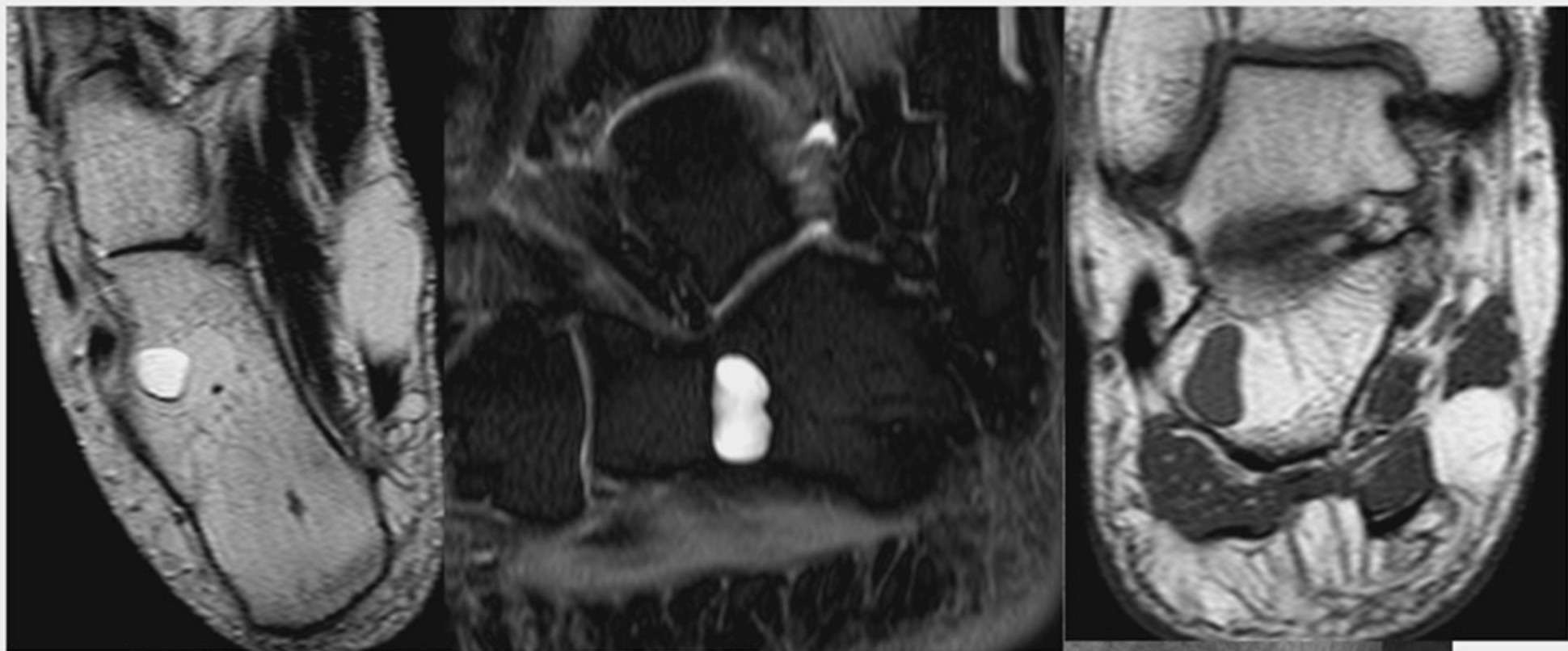


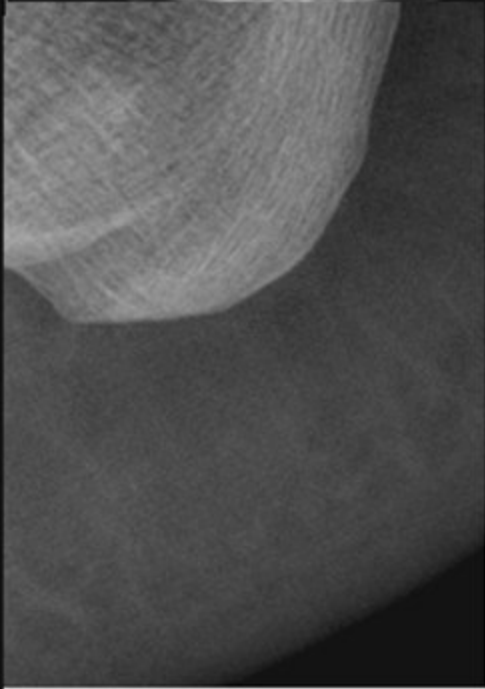
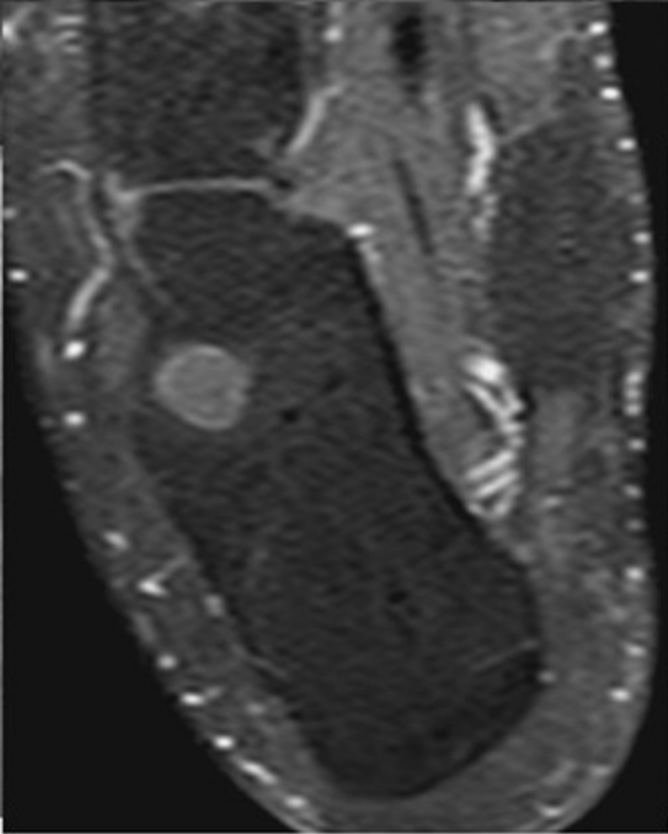
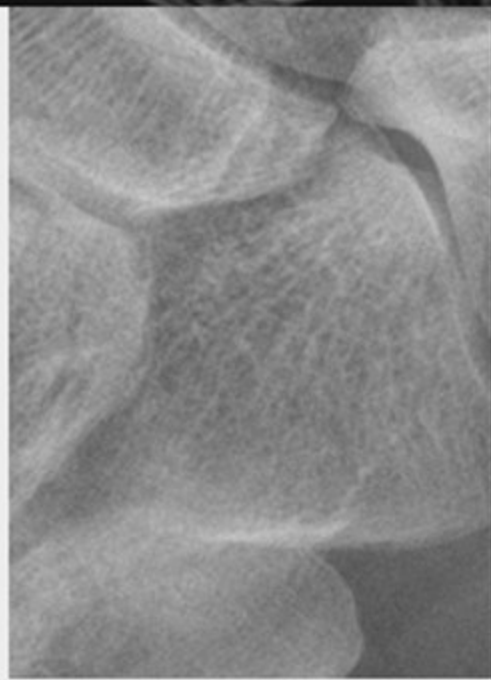
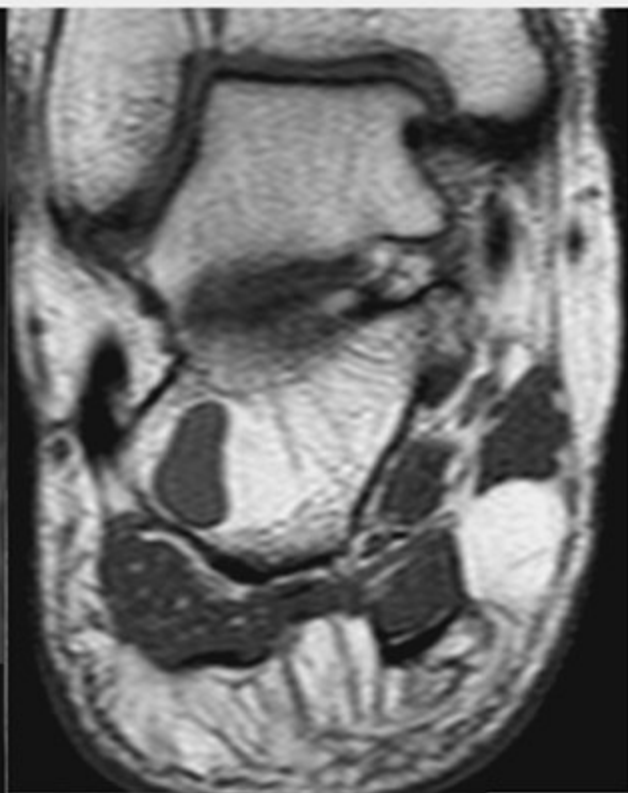
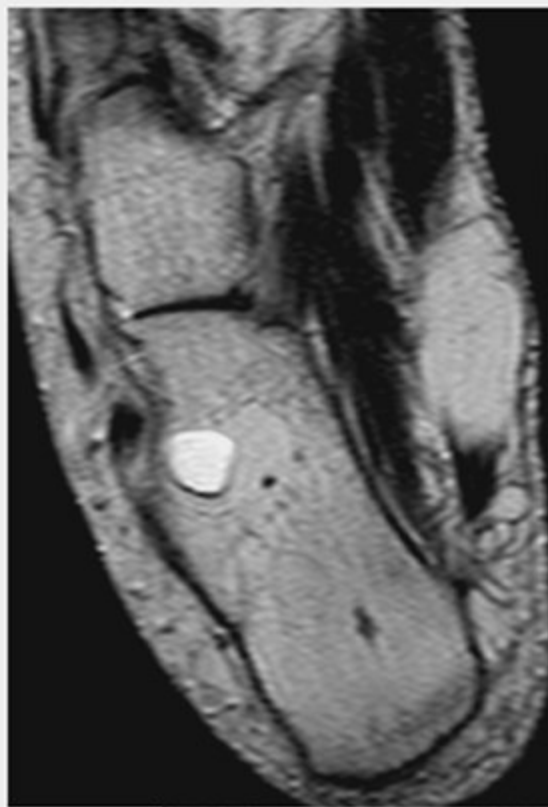




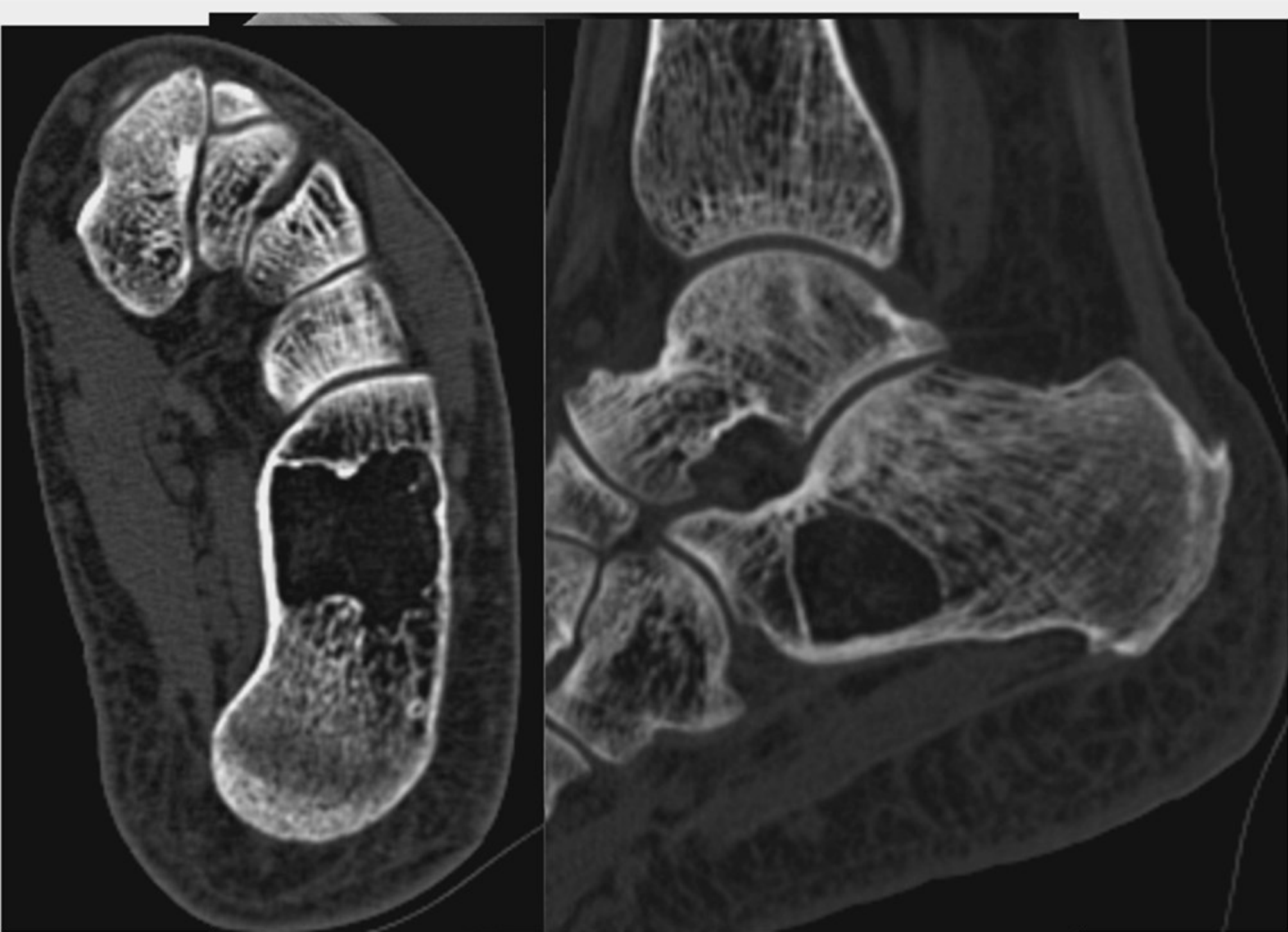




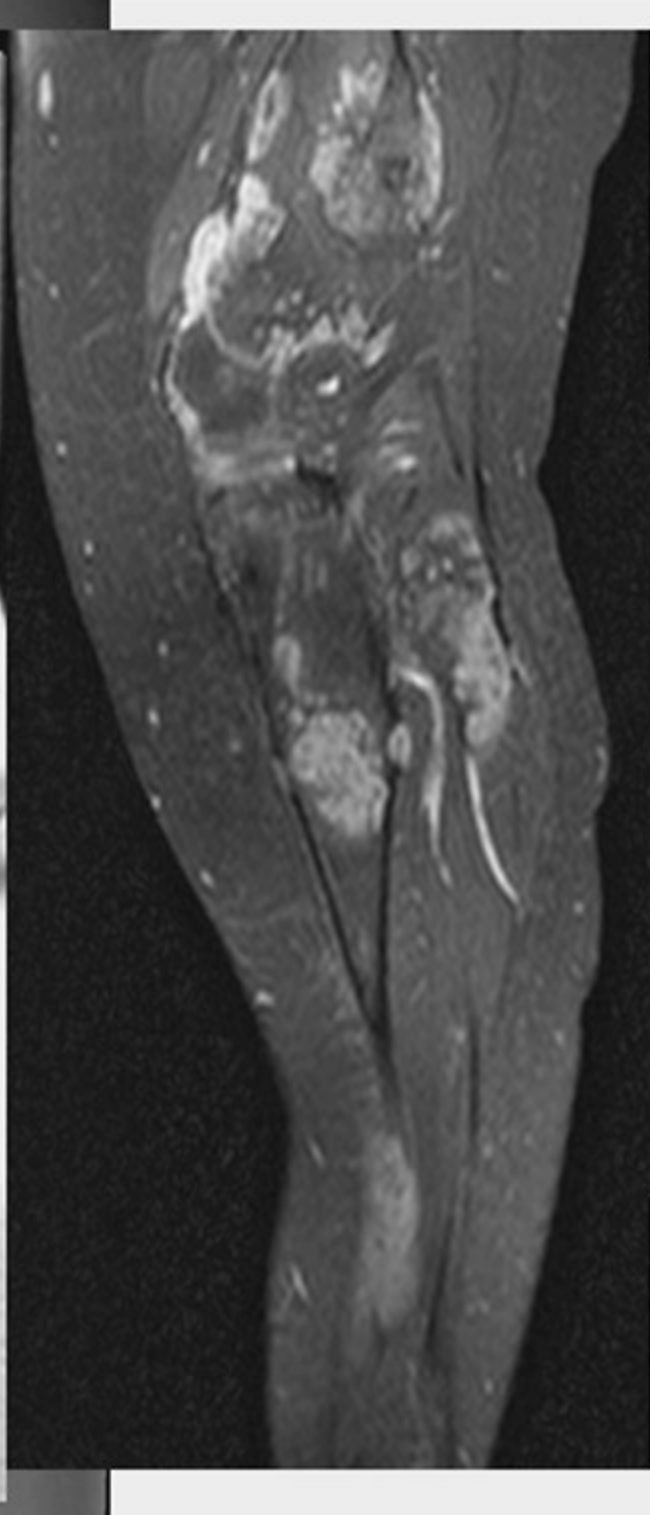
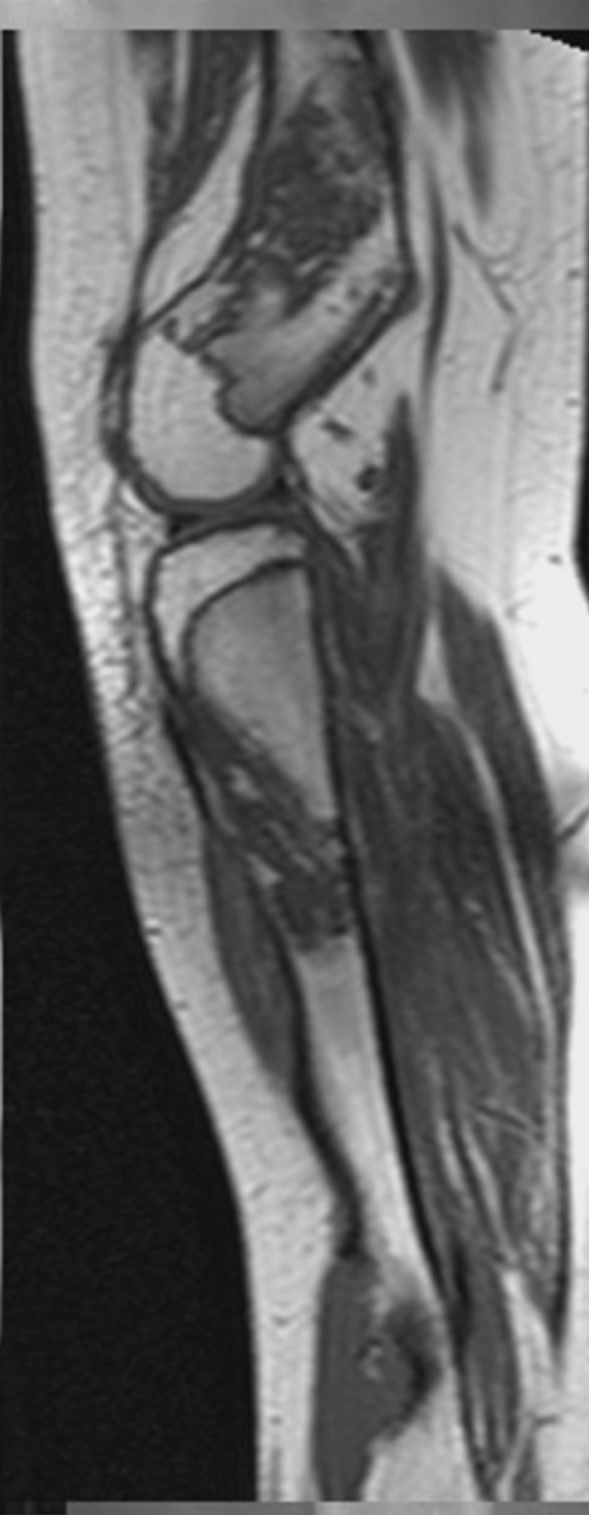




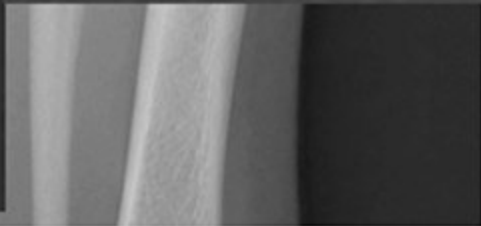
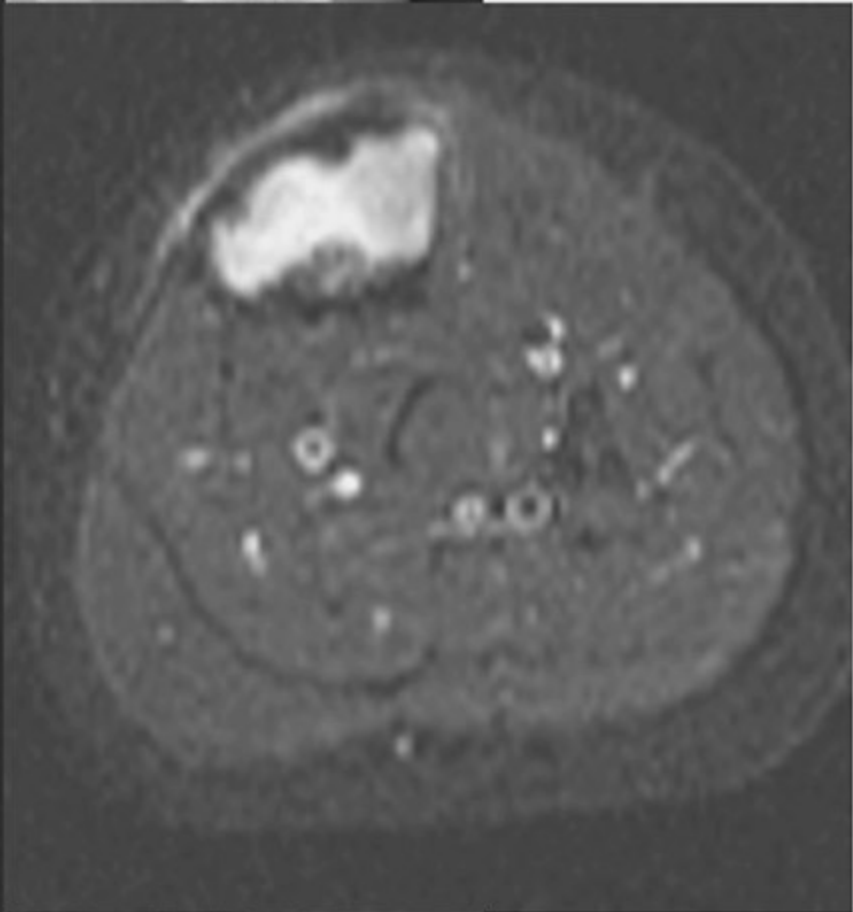
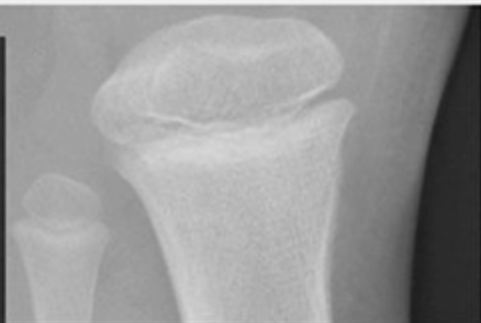
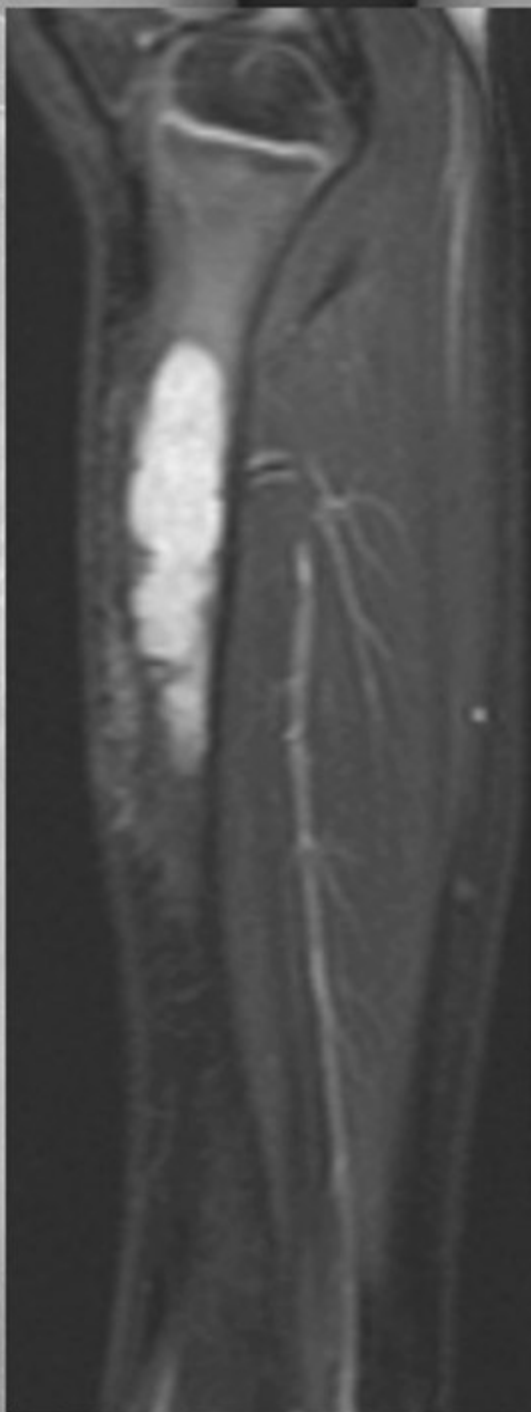












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YD Tümörleri

ADIPOCYTIC TUMOURS

Benign

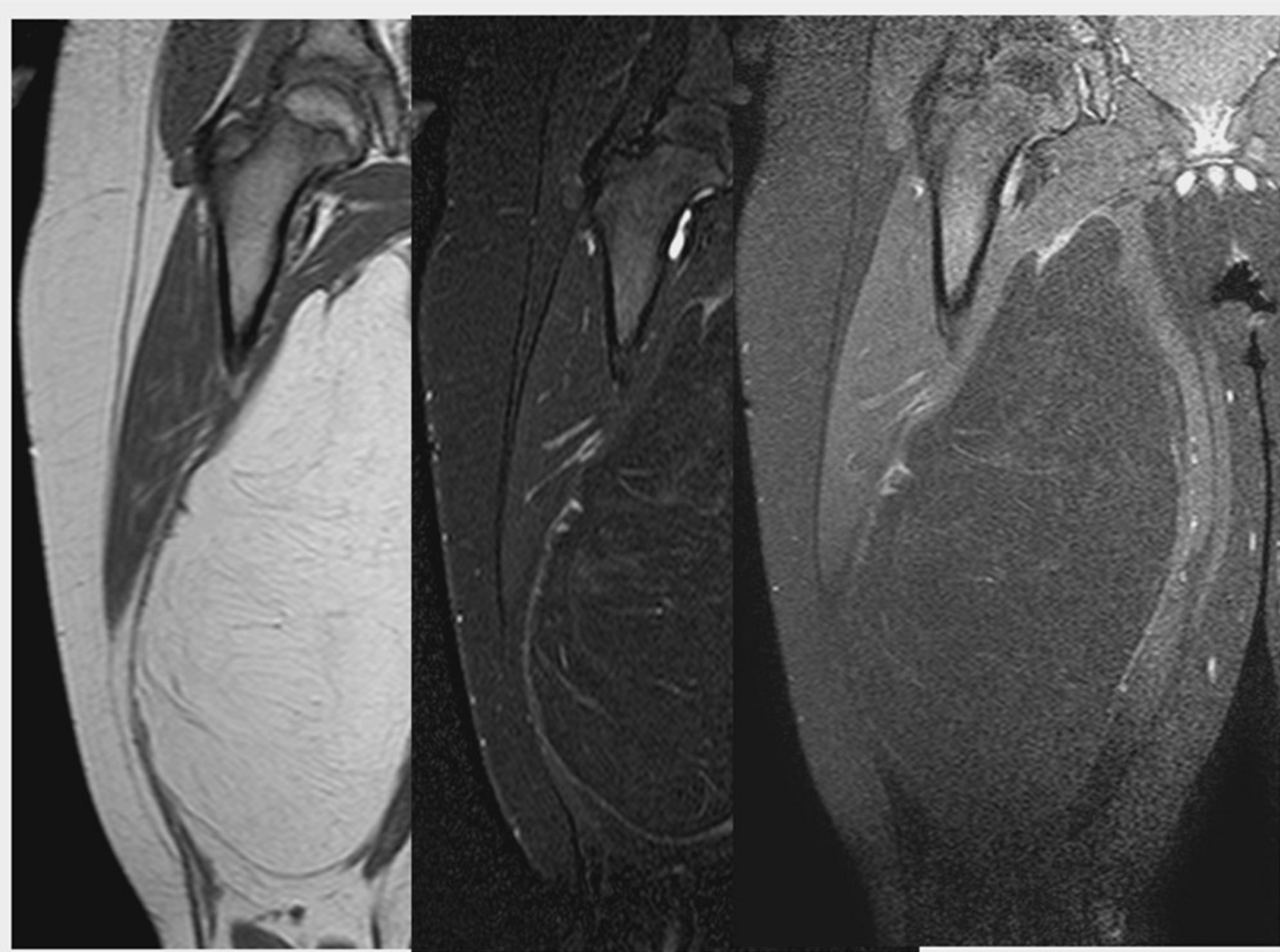
Lipoma	8850/0*
Lipomatosis	8850/0
Lipomatosis of nerve	8850/0
Lipoblastoma / Lipoblastomatosis	8881/0
Angiolipoma	8861/0
Myolipoma	8890/0
Chondroid lipoma	8862/0
Extrarenal angiomyolipoma	8860/0
Extra-adrenal myelolipoma	8870/0
Spindle cell/ Pleomorphic lipoma	8857/0 8854/0
Hibernoma	8880/0

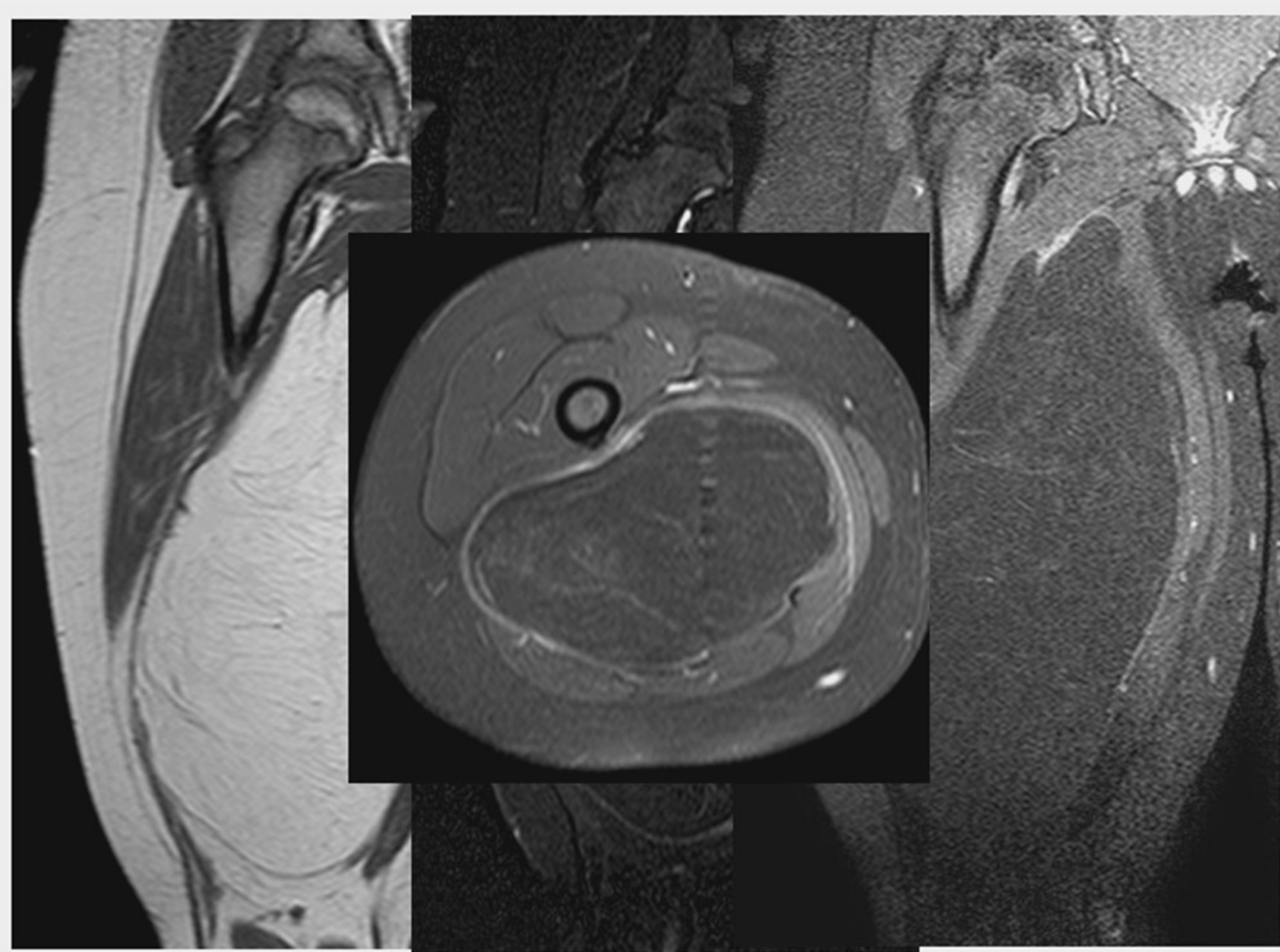
Intermediate (locally aggressive)

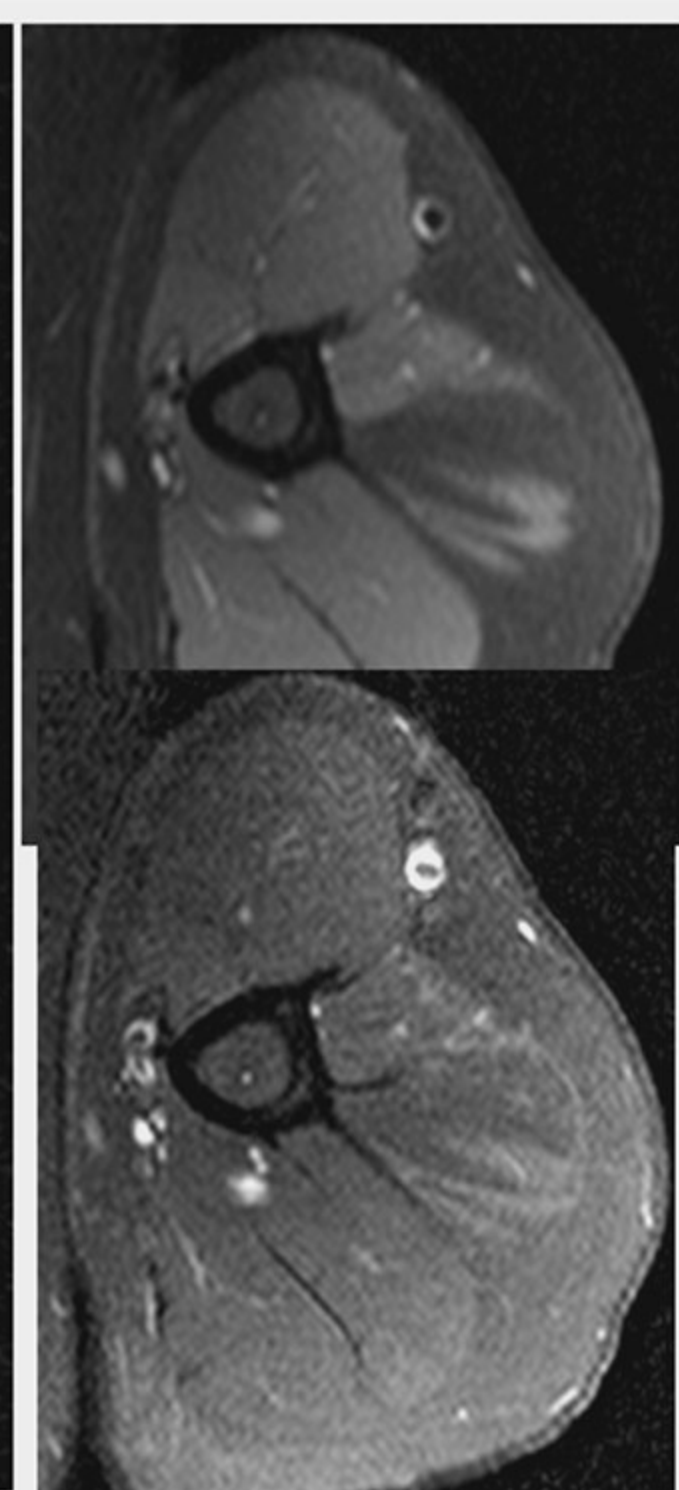
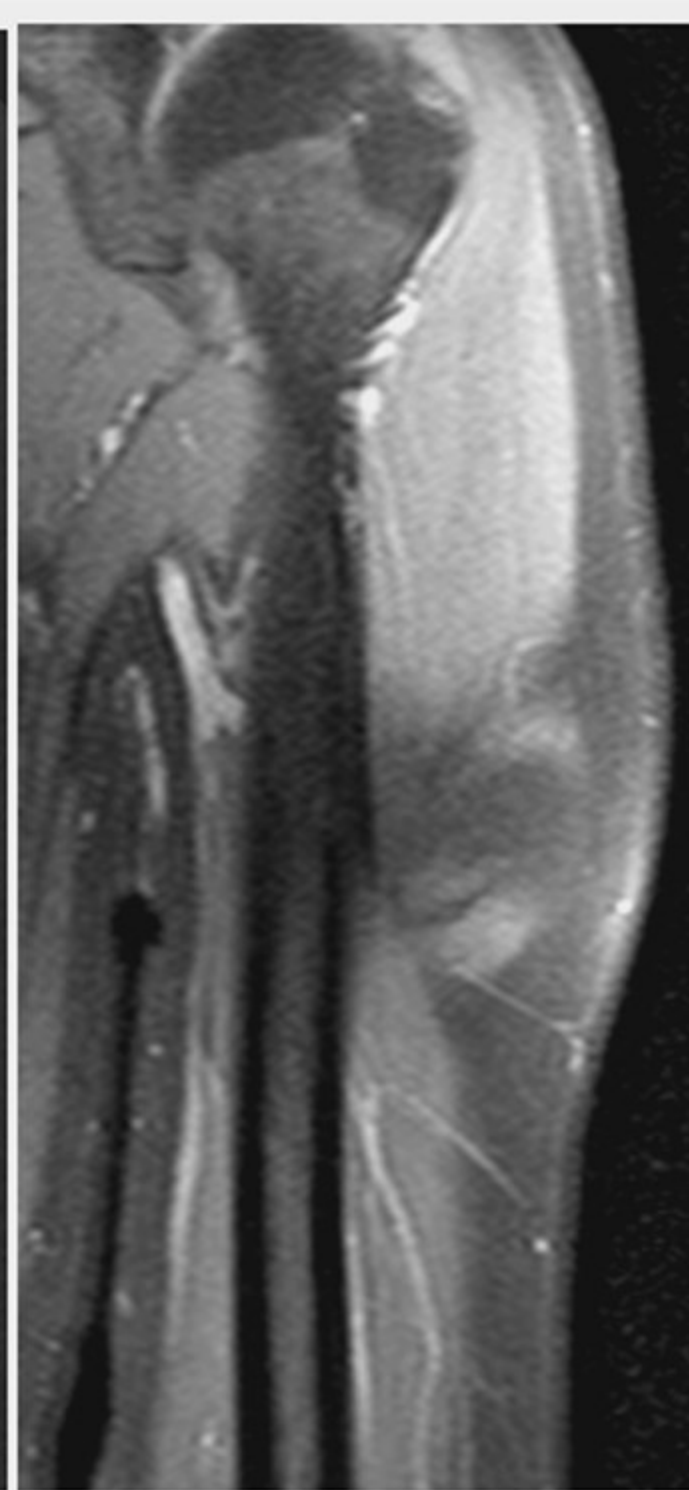
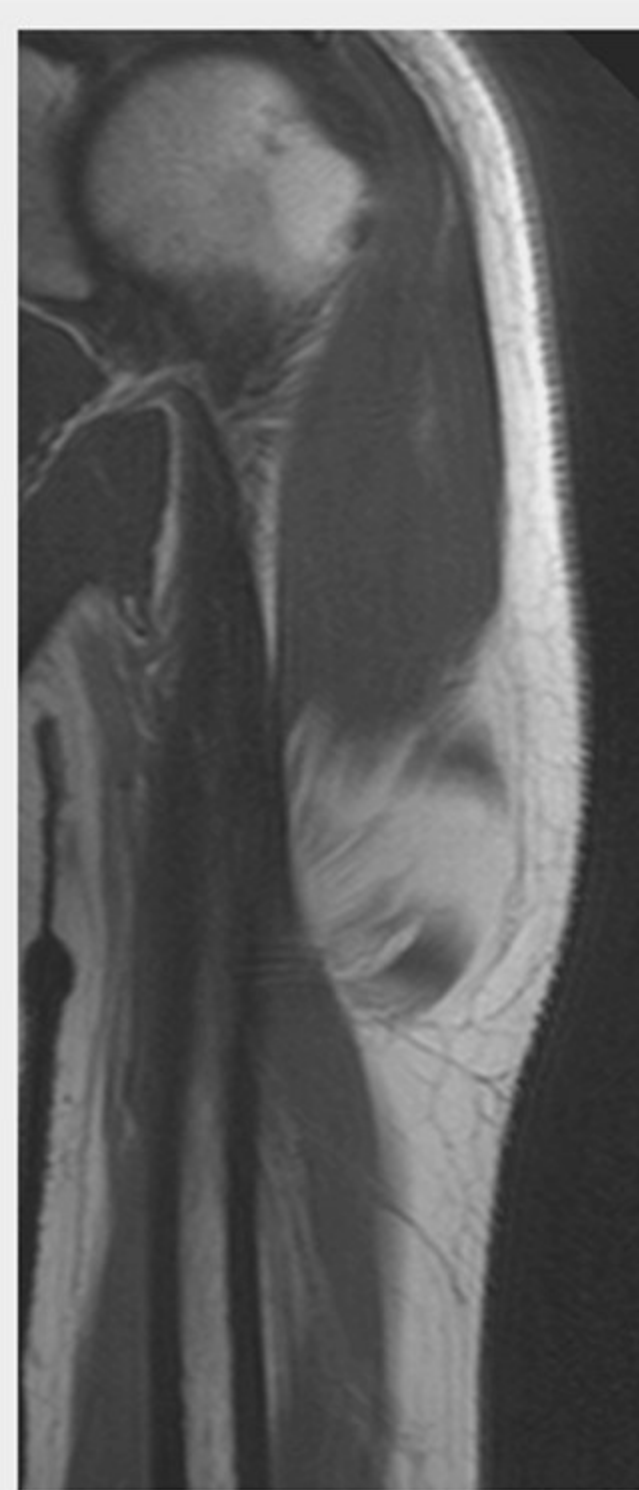
Atypical lipomatous tumour/ Well differentiated liposarcoma	8851/3
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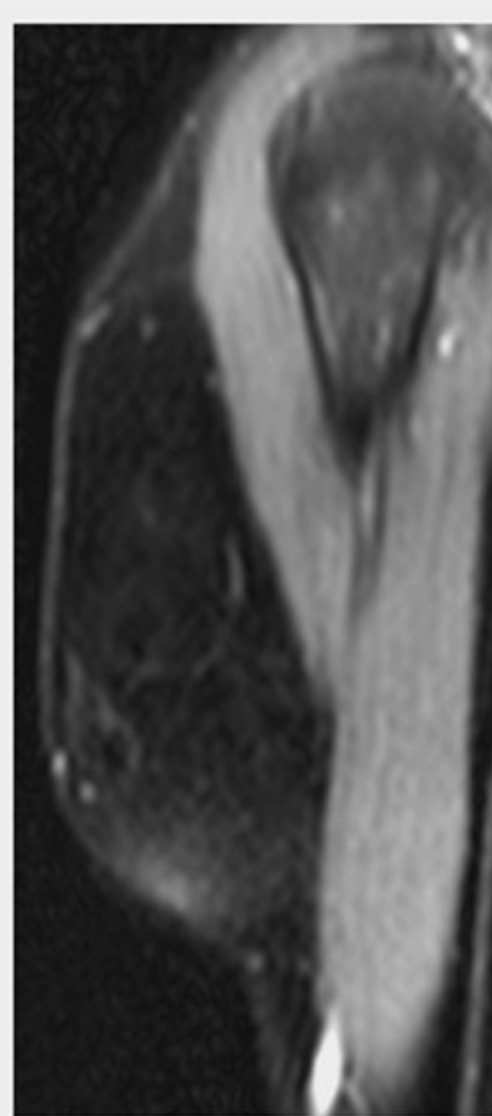
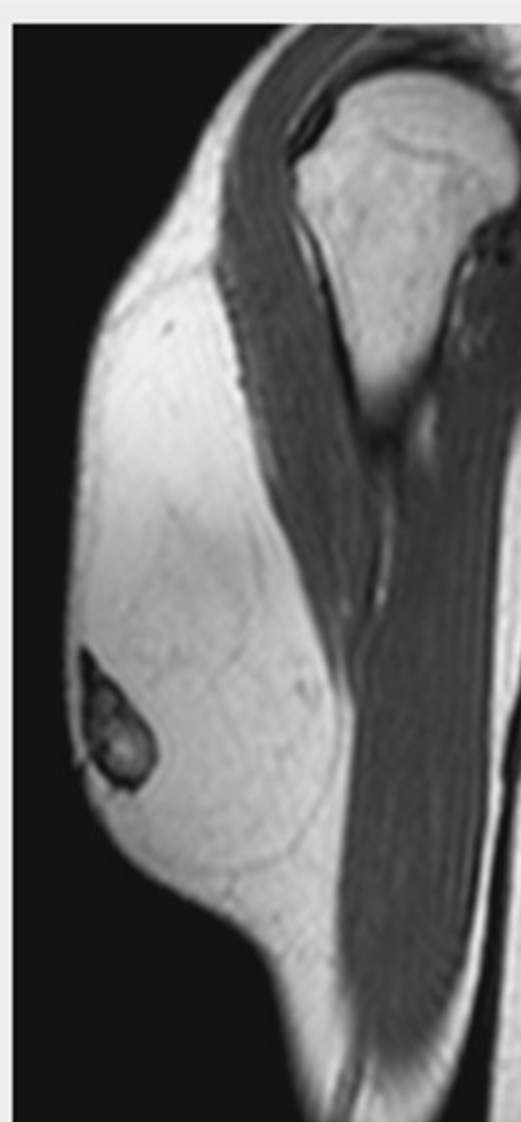
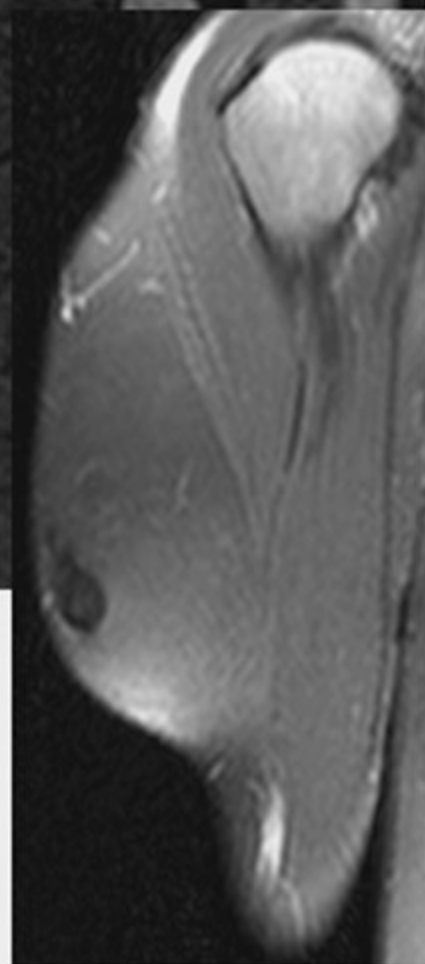
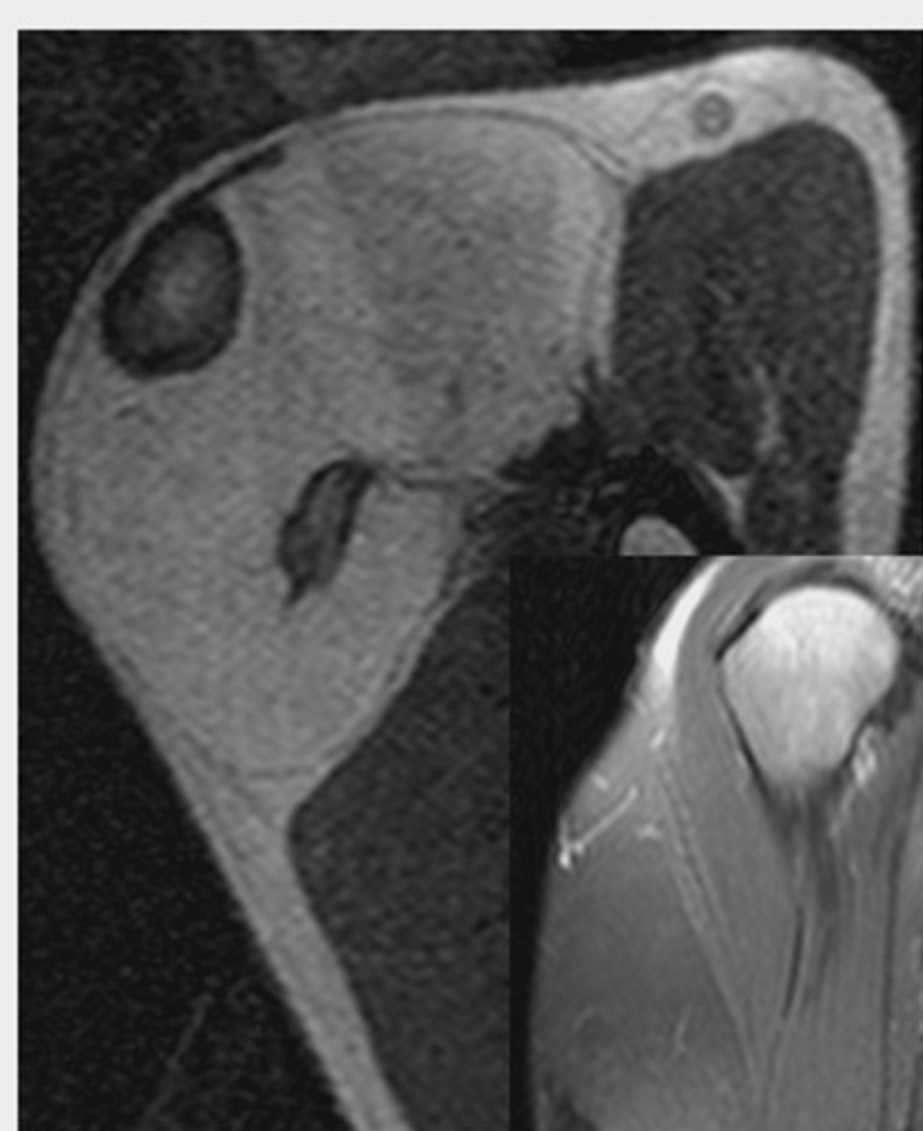
Malignant

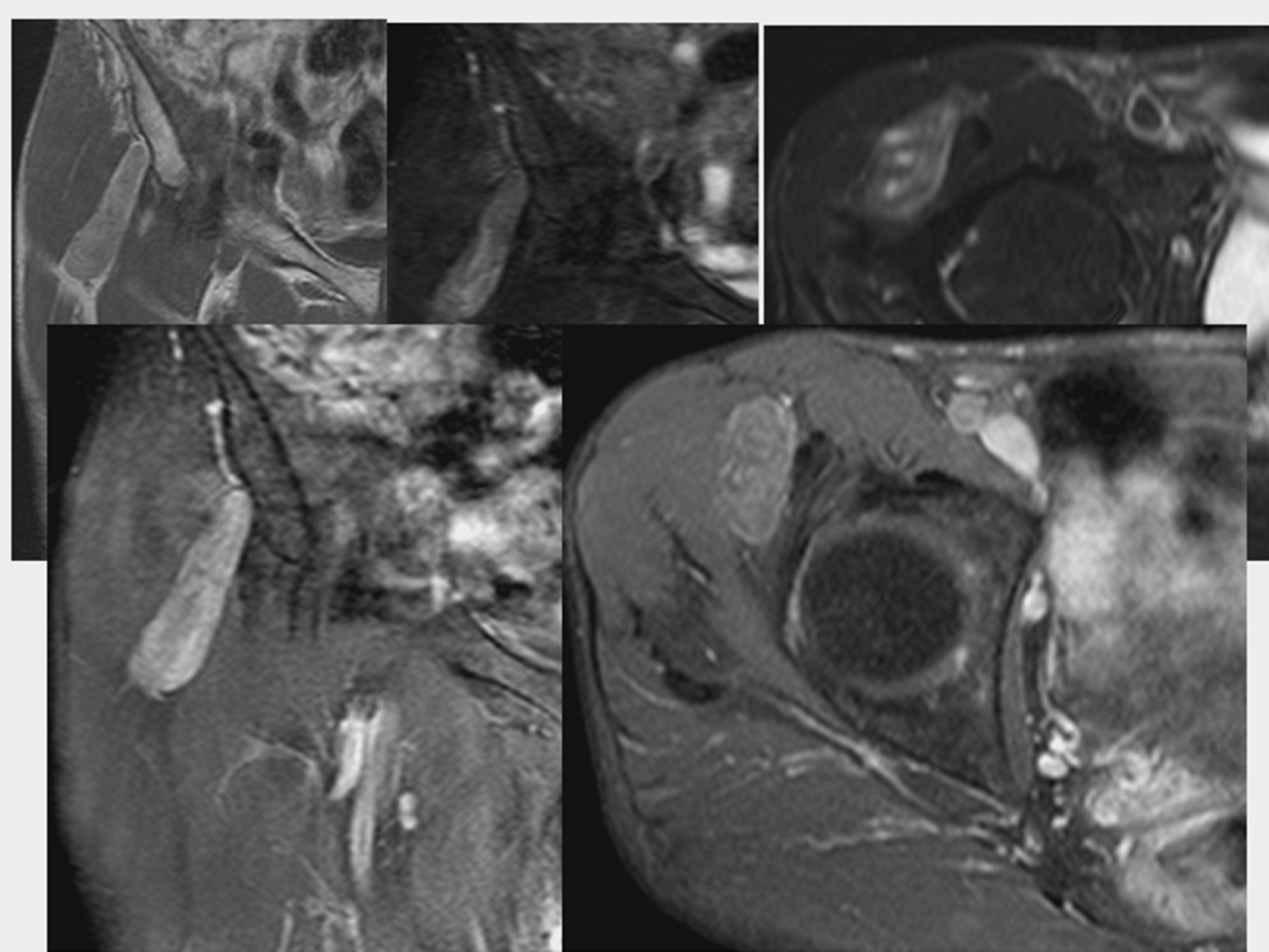
Dedifferentiated liposarcoma	8858/3
Myxoid liposarcoma	8852/3
Round cell liposarcoma	8853/3
Pleomorphic liposarcoma	8854/3
Mixed-type liposarcoma	8855/3
Liposarcoma, not otherwise specified	8850/3

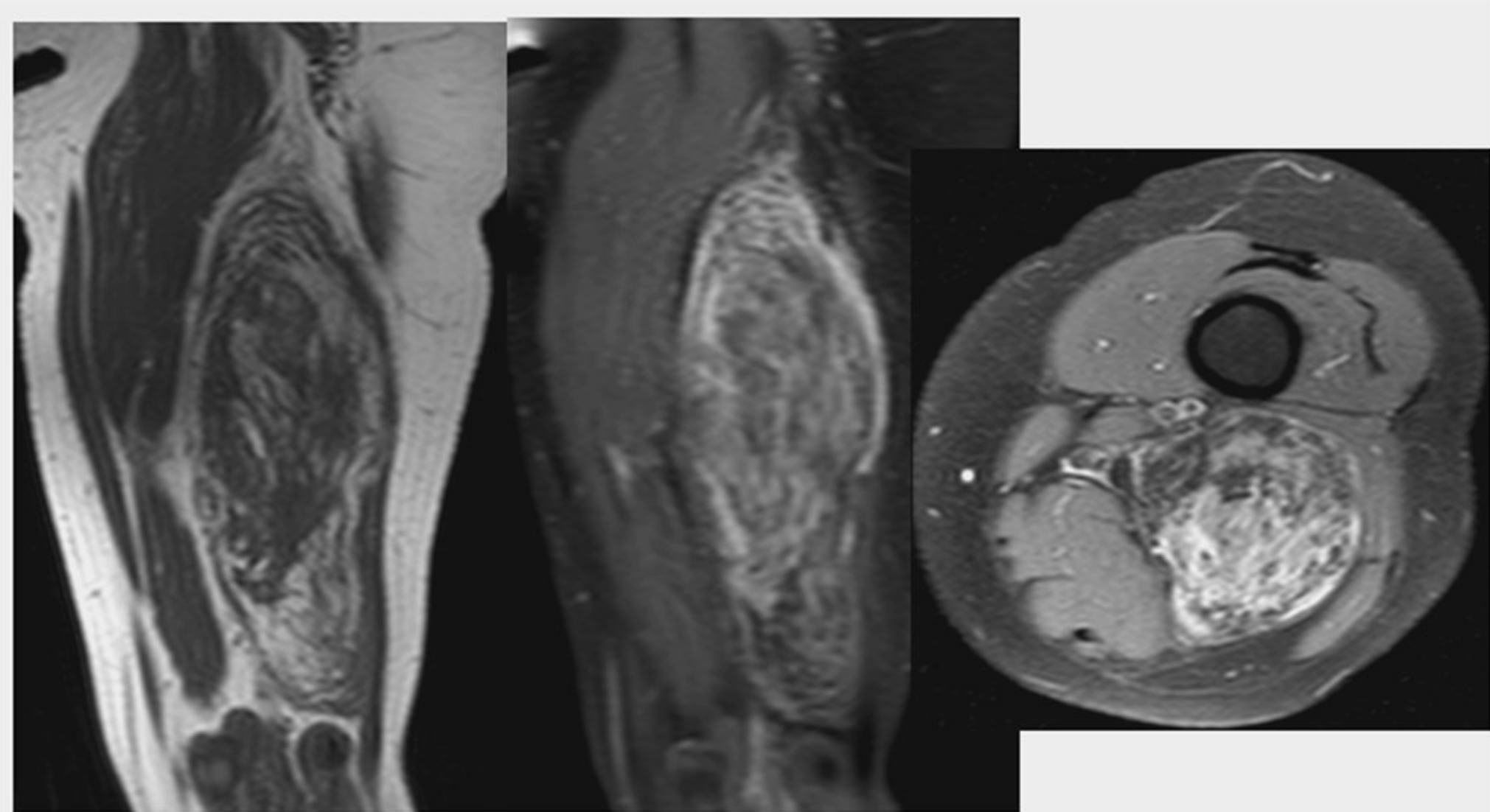


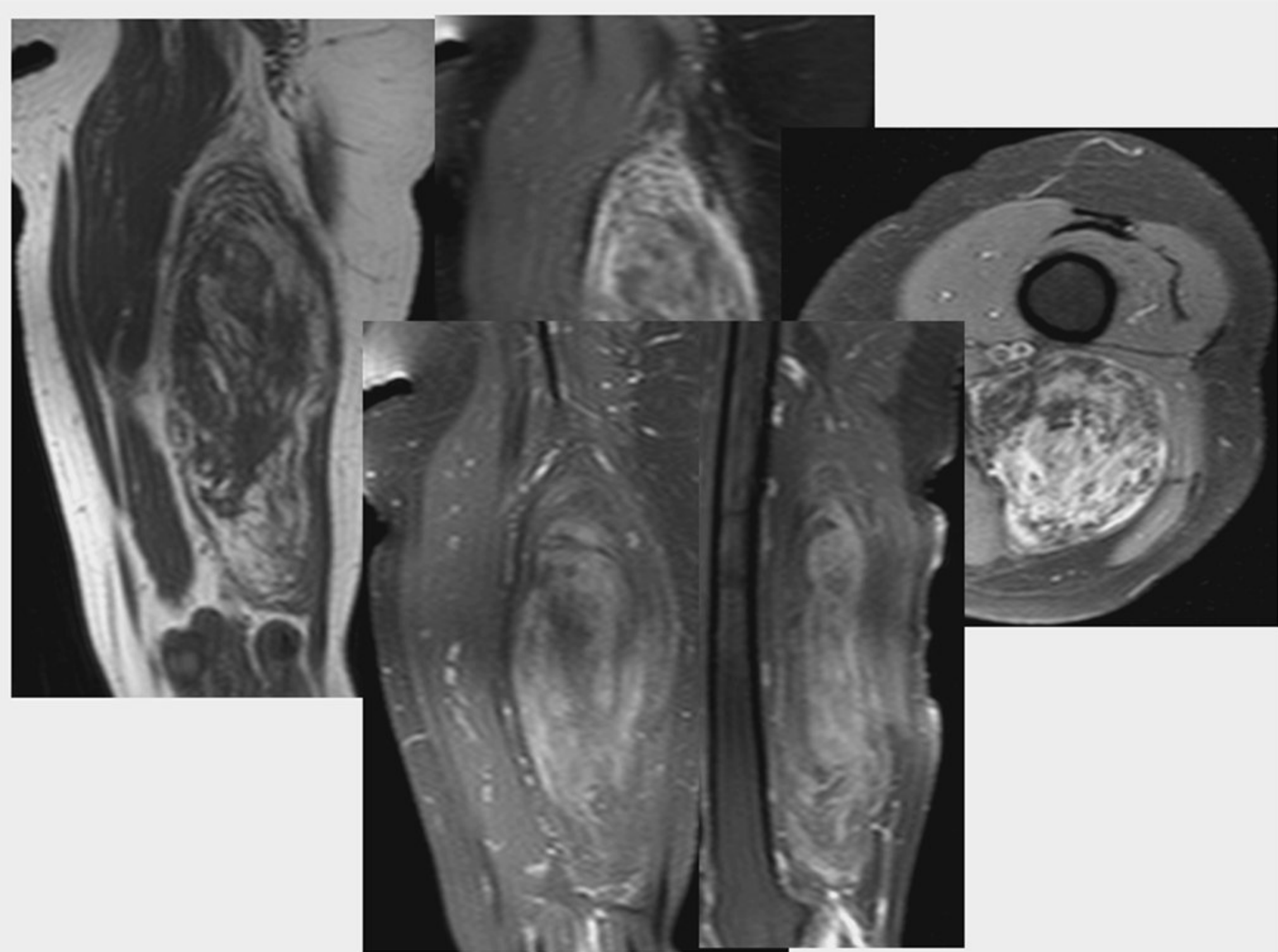


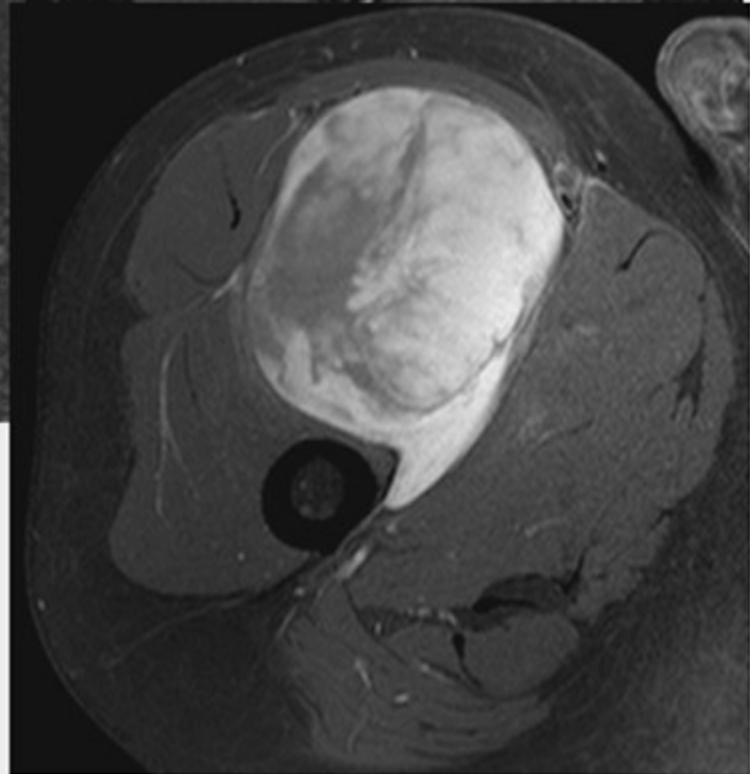
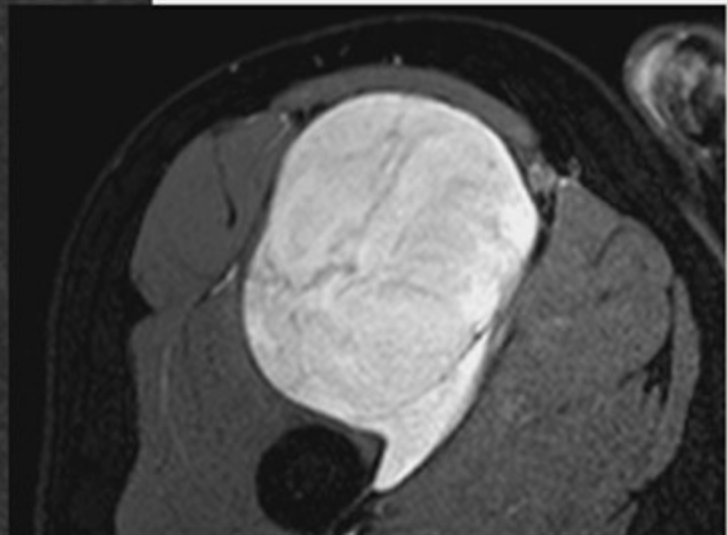
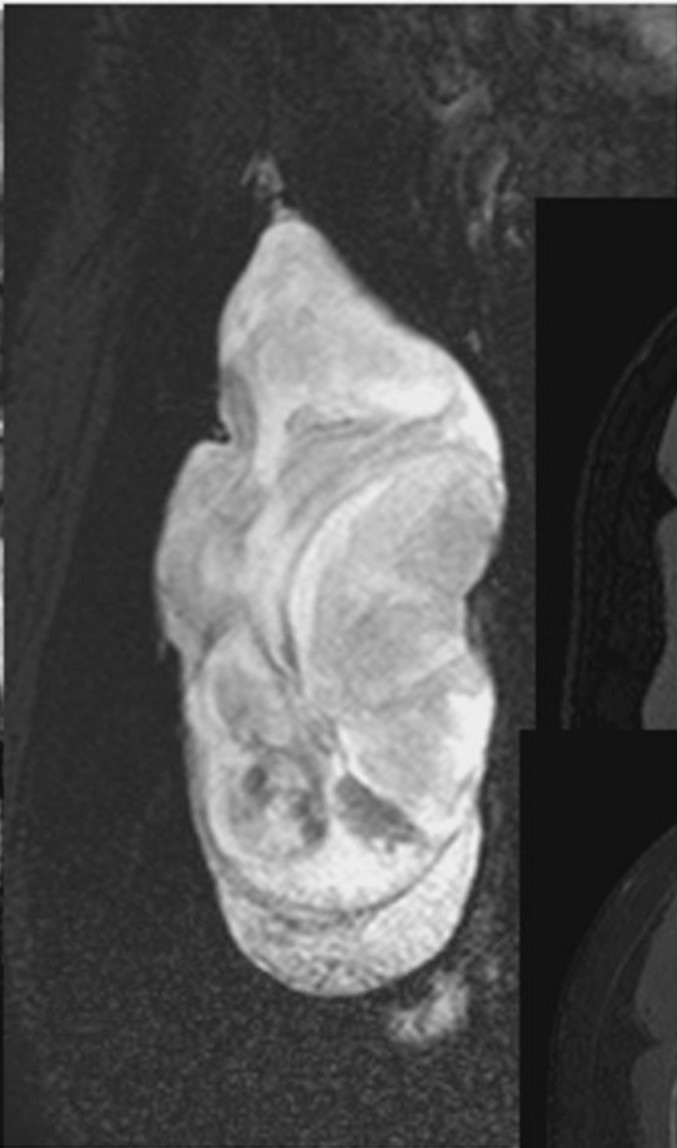
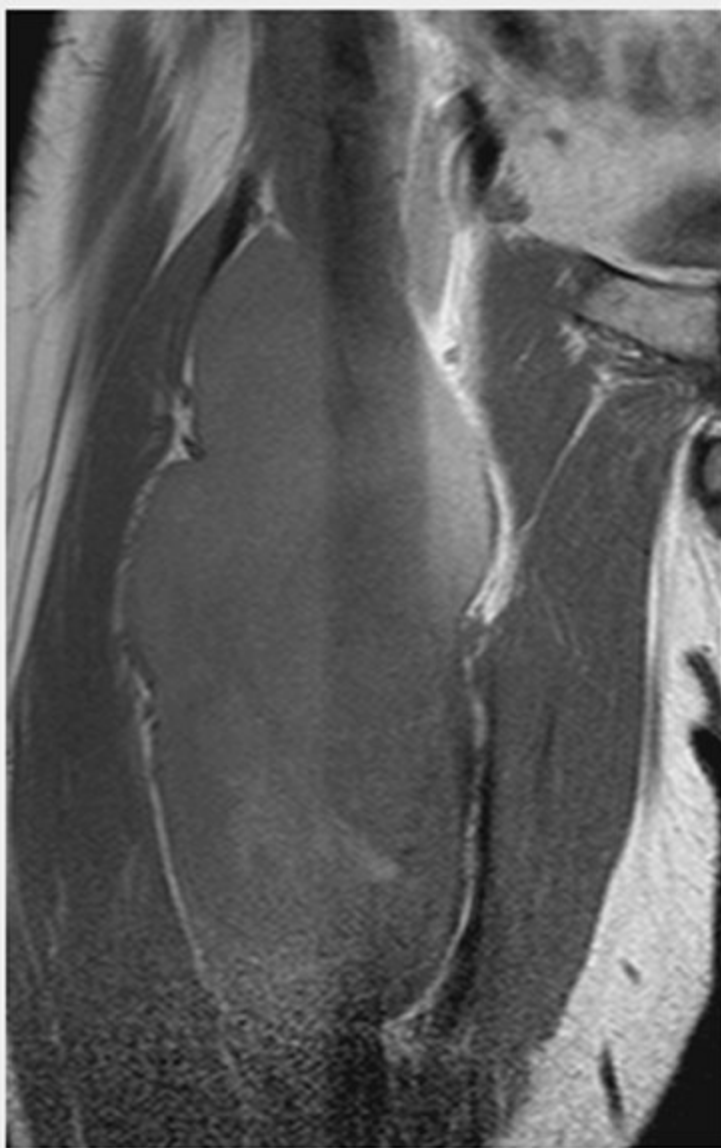


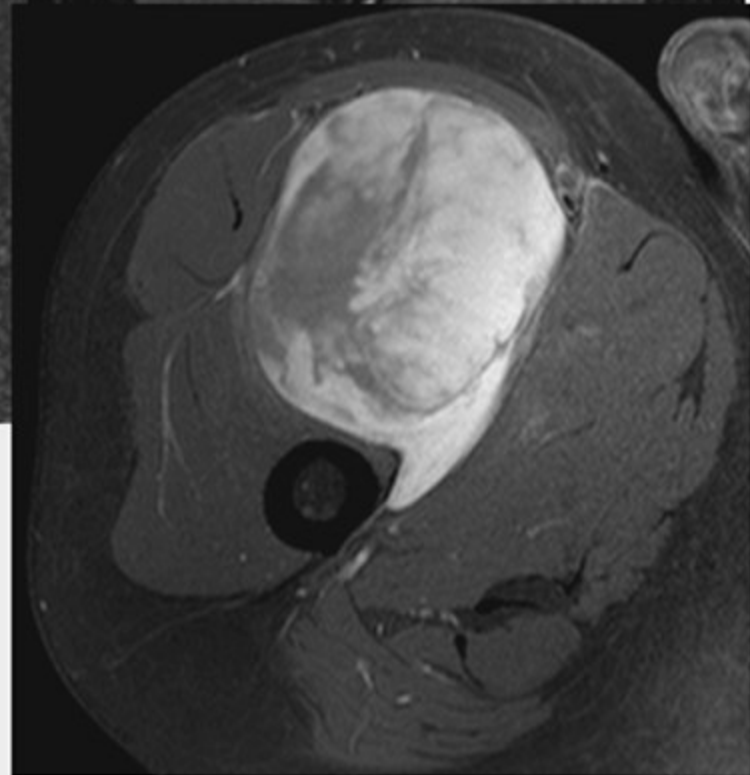
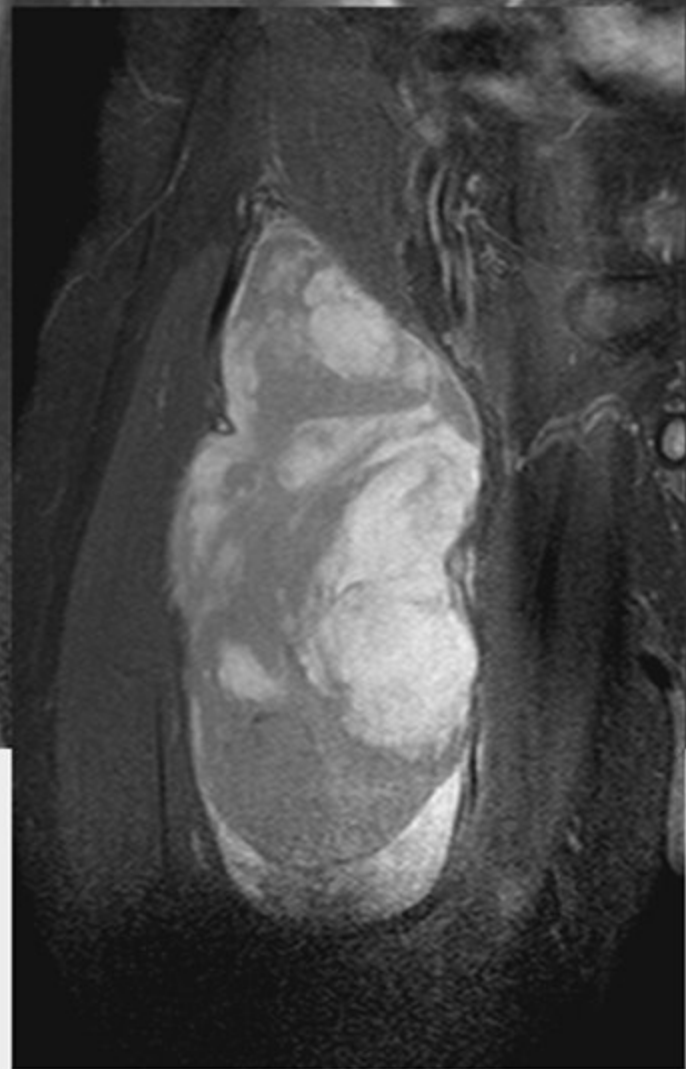
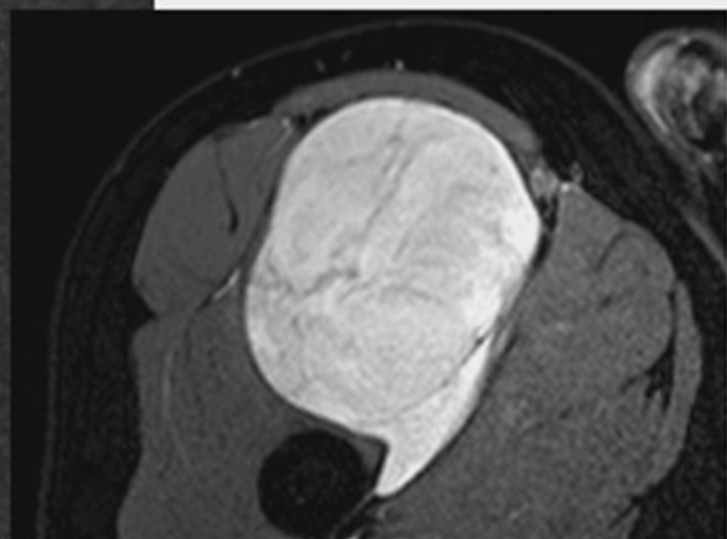
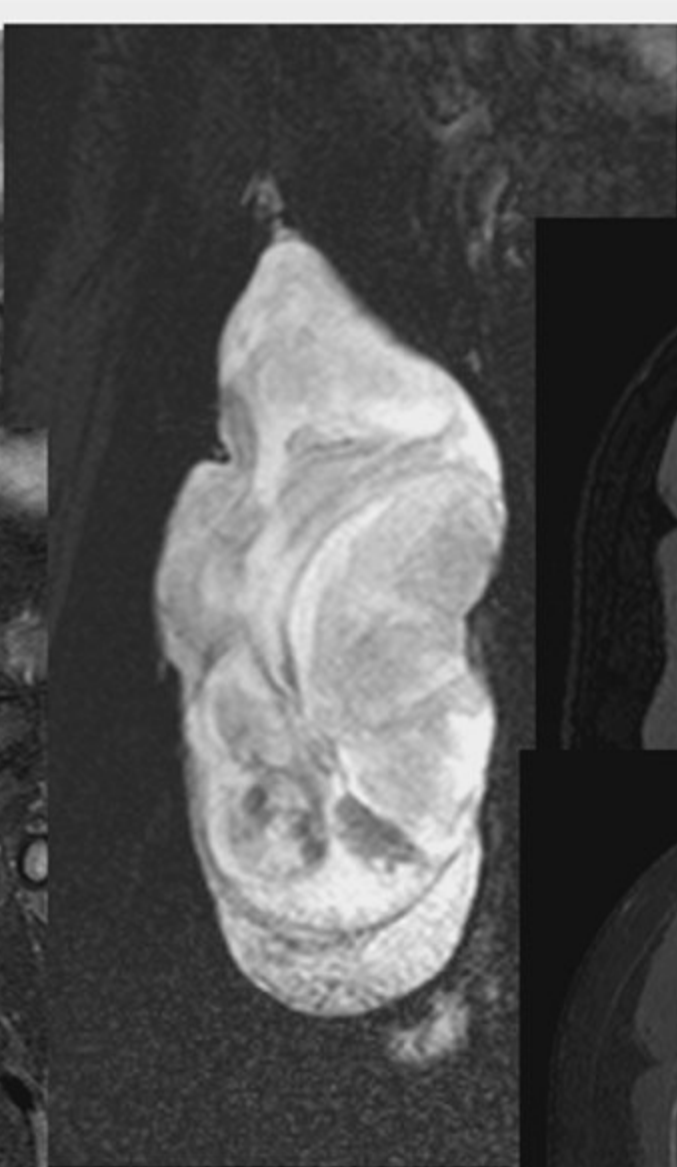
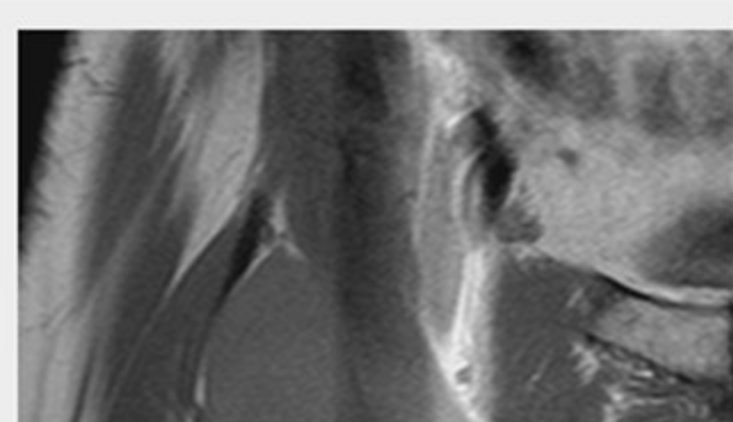


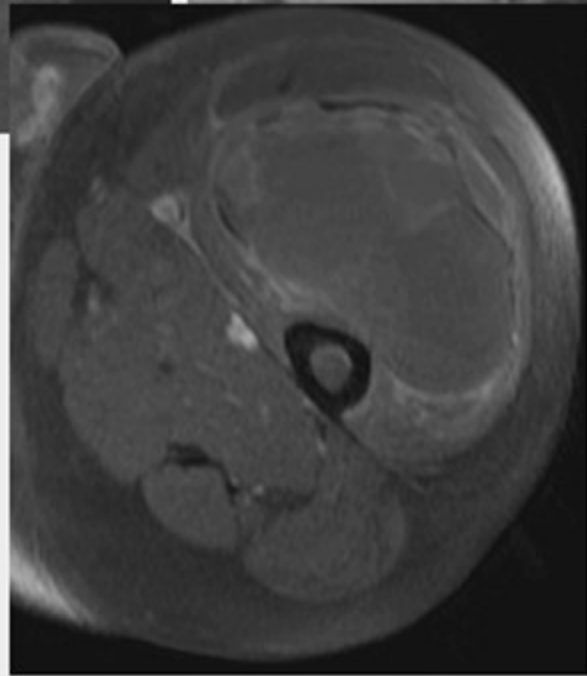
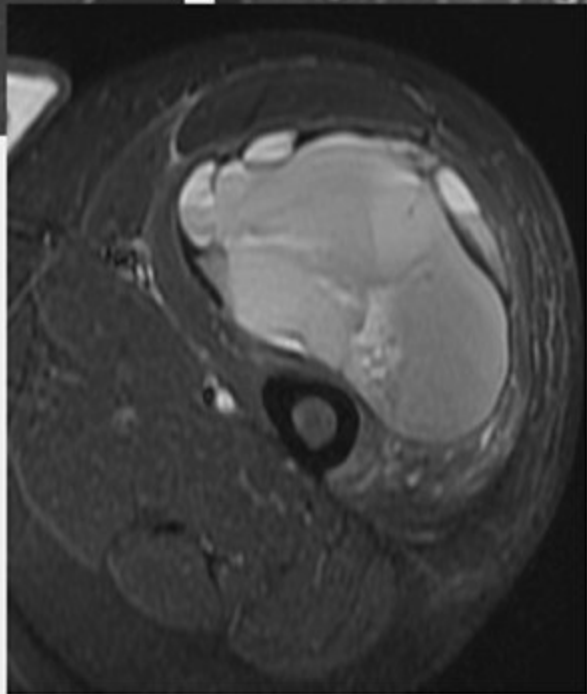
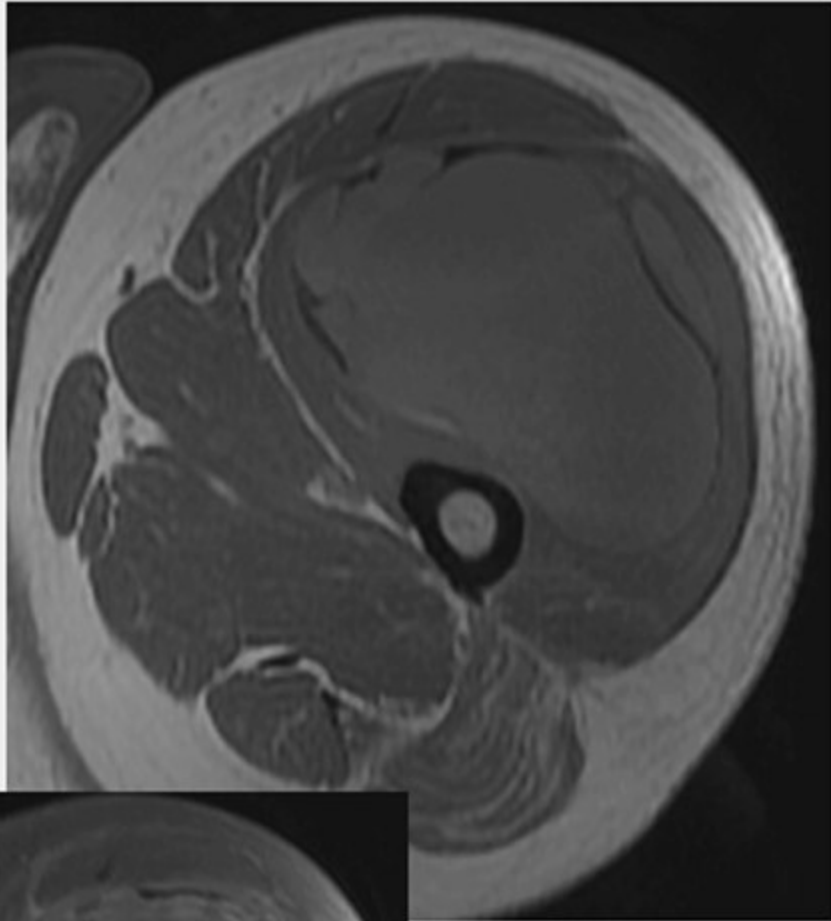
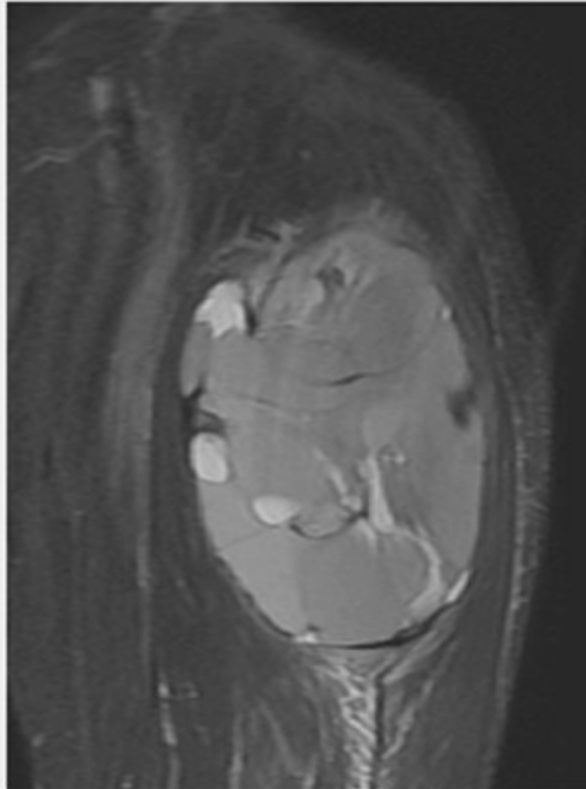
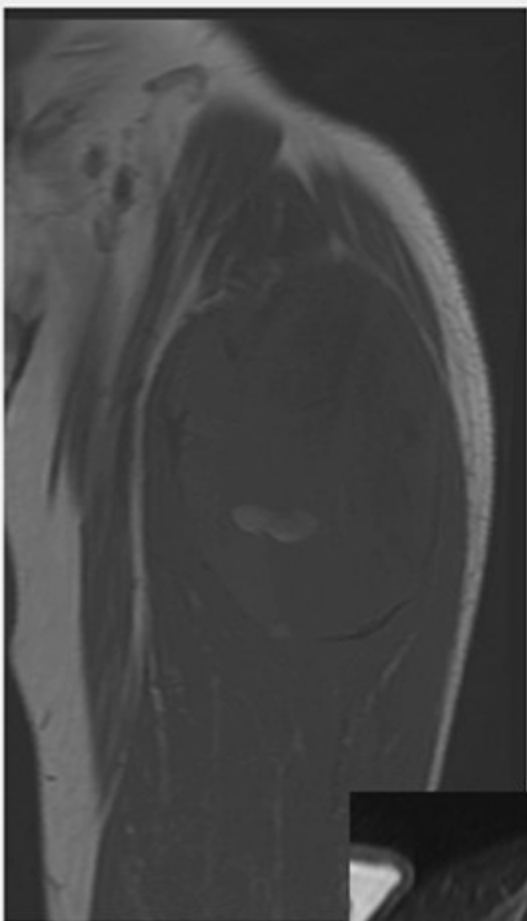












FIBROBLASTIC / MYOFIBROBLASTIC TUMOURS

Benign

Nodular fasciitis

Proliferative fasciitis

Proliferative myositis

Myositis ossificans

 fibro-osseous pseudotumour of digits

Ischaemic fasciitis

Elastofibroma 8820/0

Fibrous hamartoma of infancy

Myofibroma / Myofibromatosis 8824/0

Fibromatosis colli

Juvenile hyaline fibromatosis

Inclusion body fibromatosis

Fibroma of tendon sheath 8810/0

Desmoplastic fibroblastoma 8810/0

Mammary-type myofibroblastoma 8825/0

FIBROBLASTIC / MYOFIBROBLASTIC TUMOURS

Benign

Nodular fasciitis

Proliferative fasciitis

Proliferative myofibroma	Calcifying aponeurotic fibroma	8810/0
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Myositis ossificans	Angiomyofibroblastoma	8826/0
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fibro-osseous	Cellular angiofibroma	9160/0
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Ischaemic fasciitis	Nuchal-type fibroma	8810/0
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Elastofibroma	Gardner fibroma	8810/0
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Fibrous hamartoma	Calcifying fibrous tumour	
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Myofibroma / Myofibrosarcoma	Giant cell angiofibroma	9160/0
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Fibromatosis

Juvenile hyaline fibromatosis

Inclusion body fibromatosis		
Fibroma of tendon sheath		8810/0

Desmoplastic fibroblastoma		8810/0
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Mammary-type myofibroblastoma		8825/0
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Intermediate (locally aggressive)

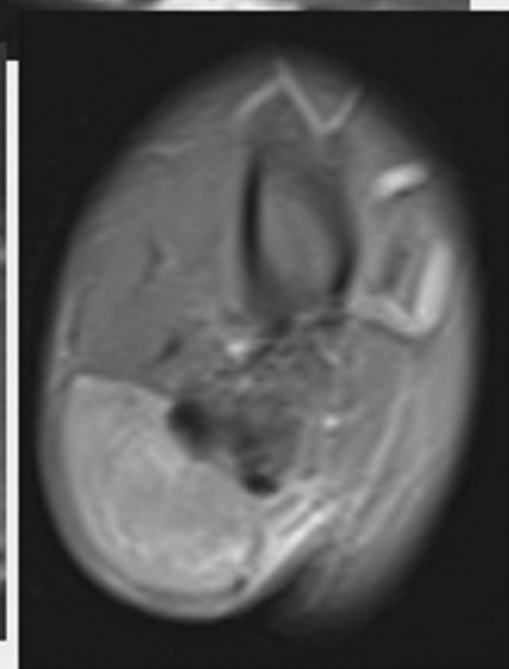
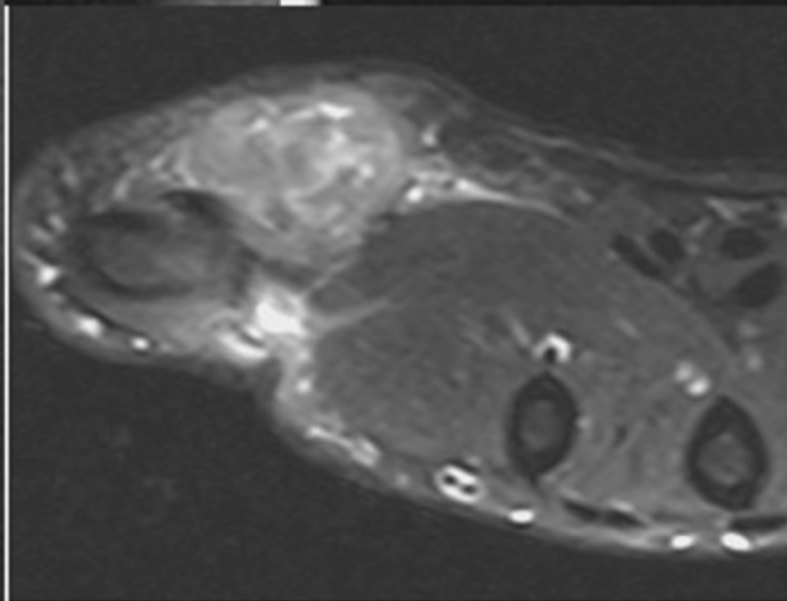
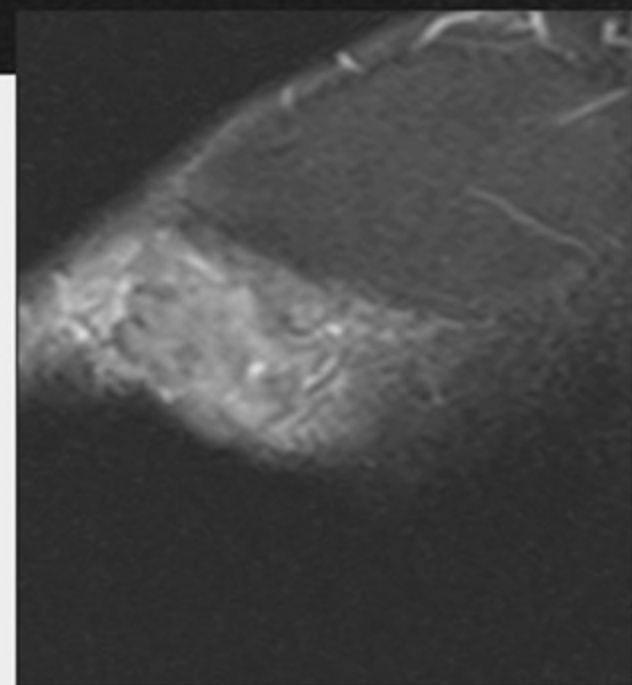
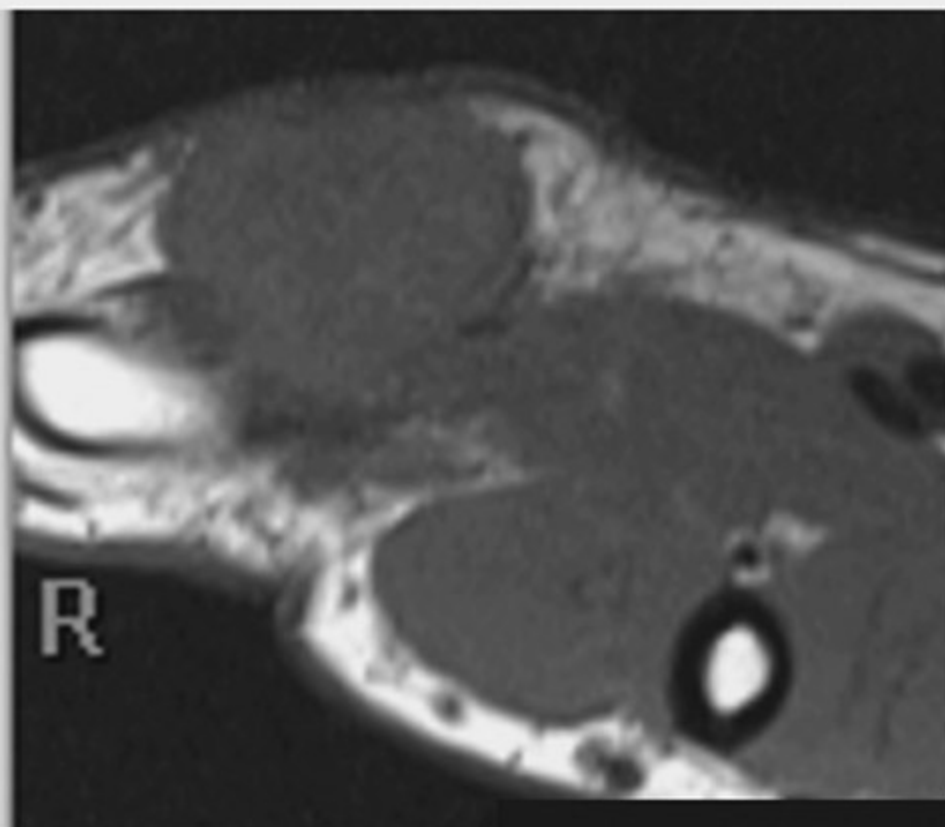
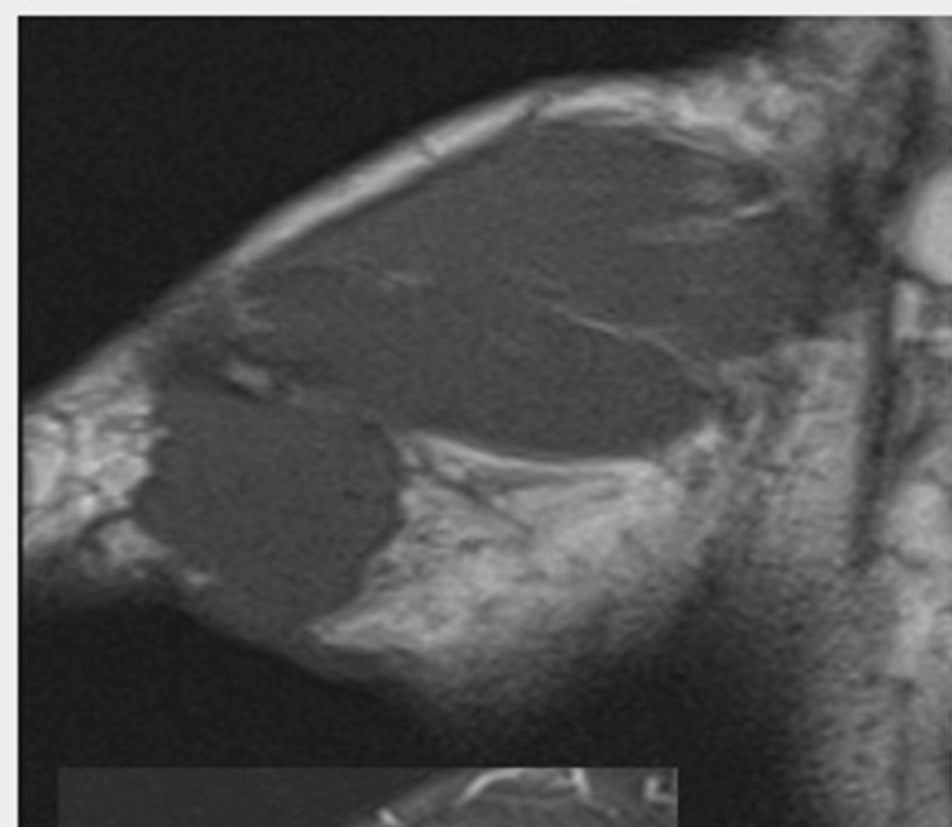
Superficial fibromatoses (palmar / plantar)	
Desmoid-type fibromatoses	8821/1
Lipofibromatosis	

Intermediate (rarely metastasizing)

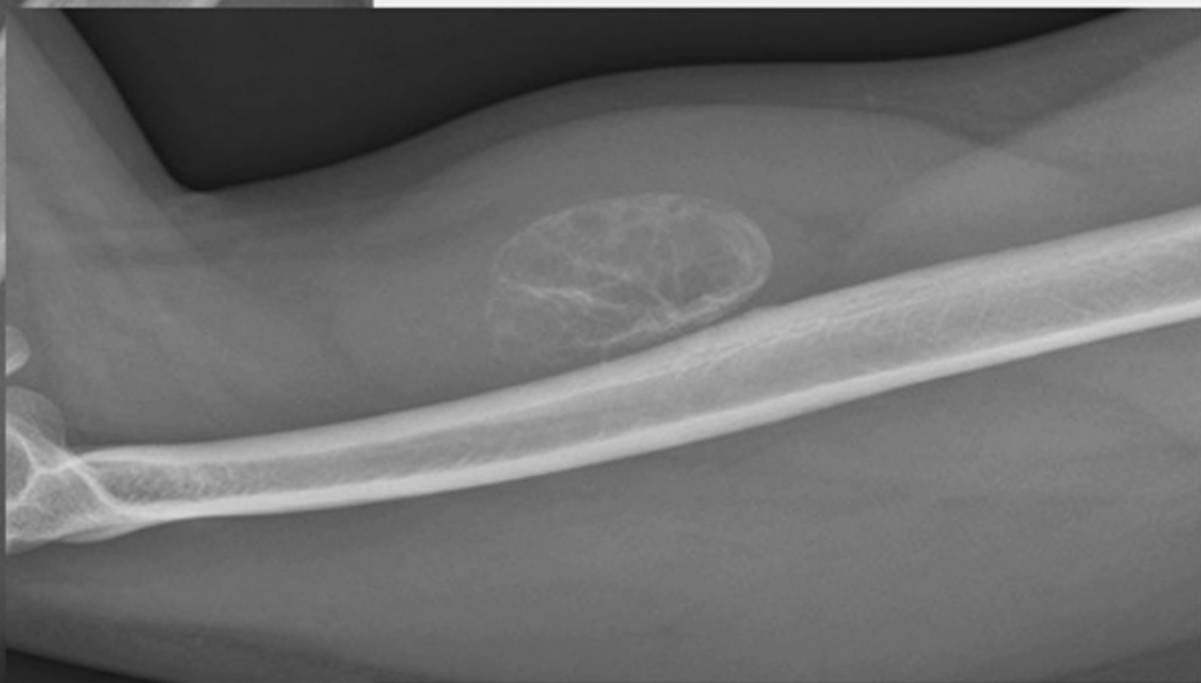
Solitary fibrous tumour	8815/1
and haemangiopericytoma	9150/1
(incl. lipomatous haemangiopericytoma)	
Inflammatory myofibroblastic tumour	8825/1
Low grade myofibroblastic sarcoma	8825/3
Myxoinflammatory	
fibroblastic sarcoma	8811/3
Infantile fibrosarcoma	8814/3

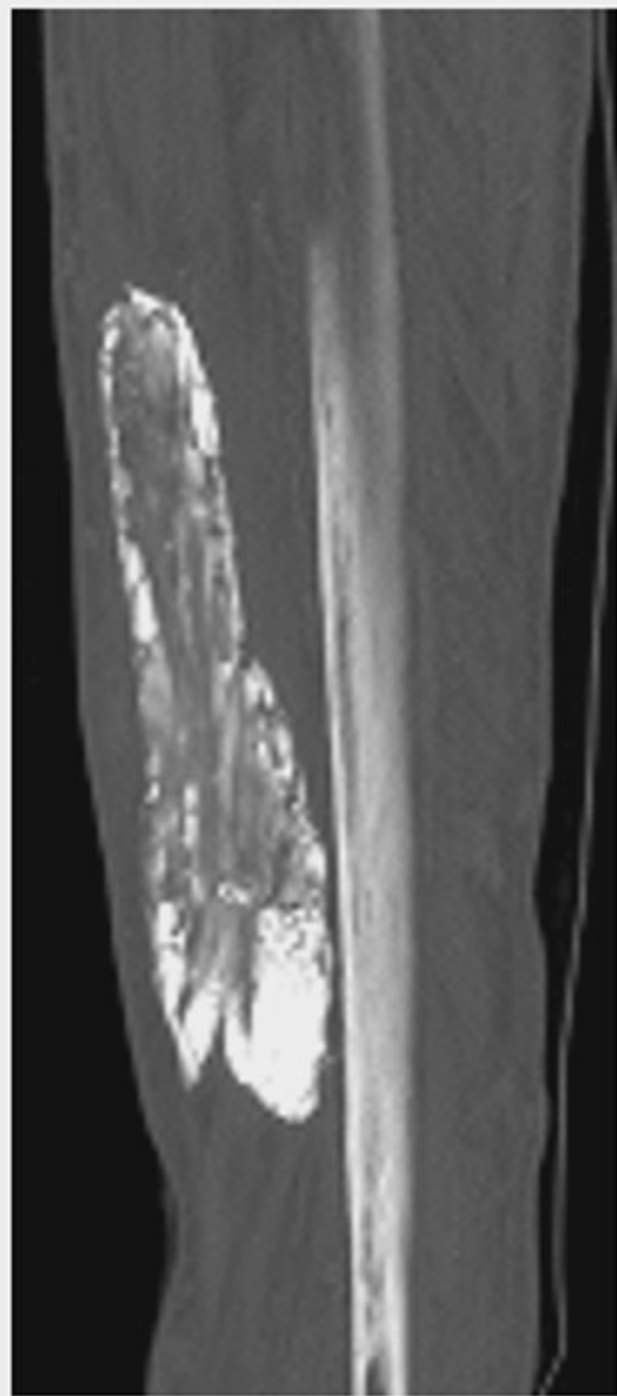
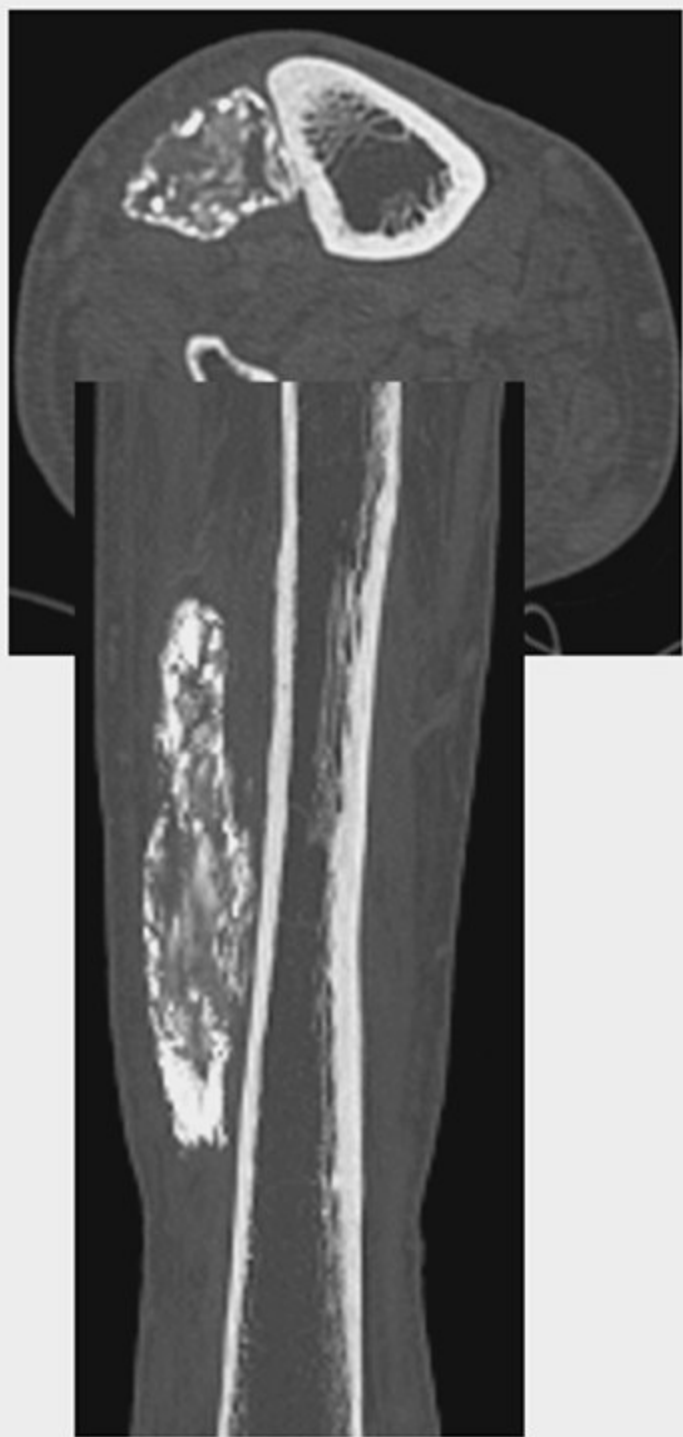
Malignant

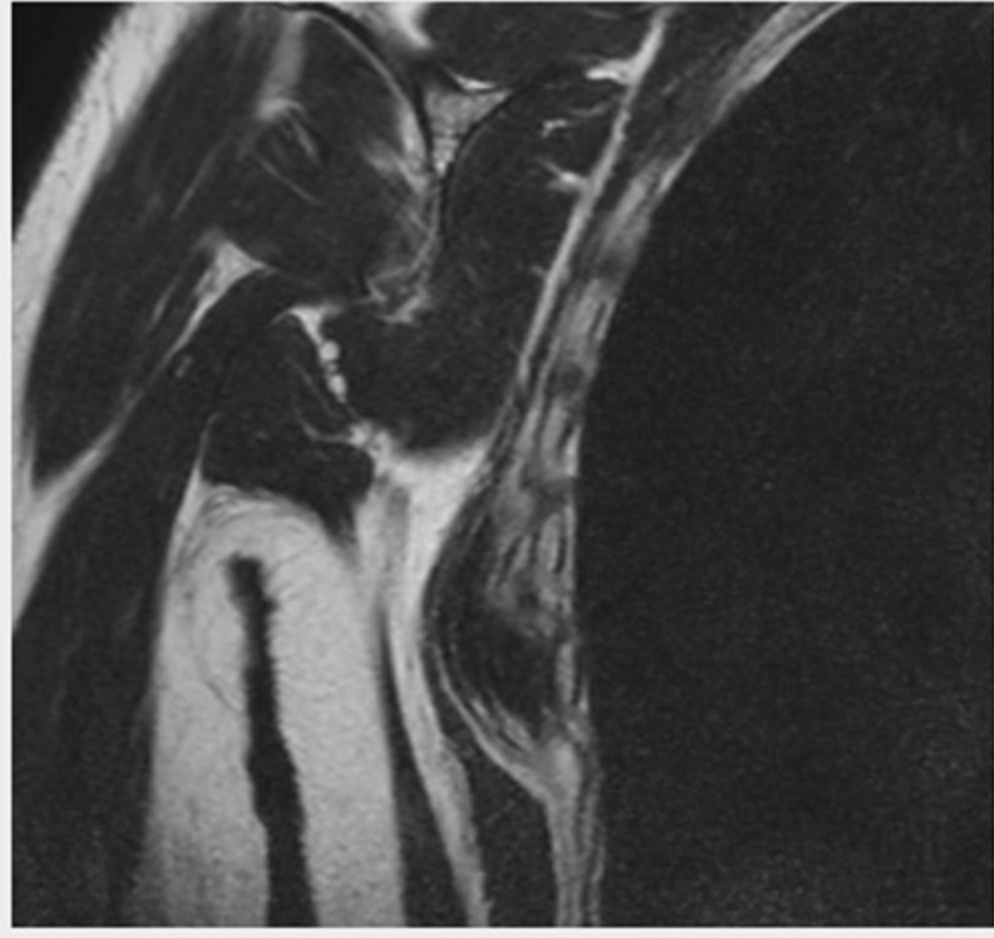
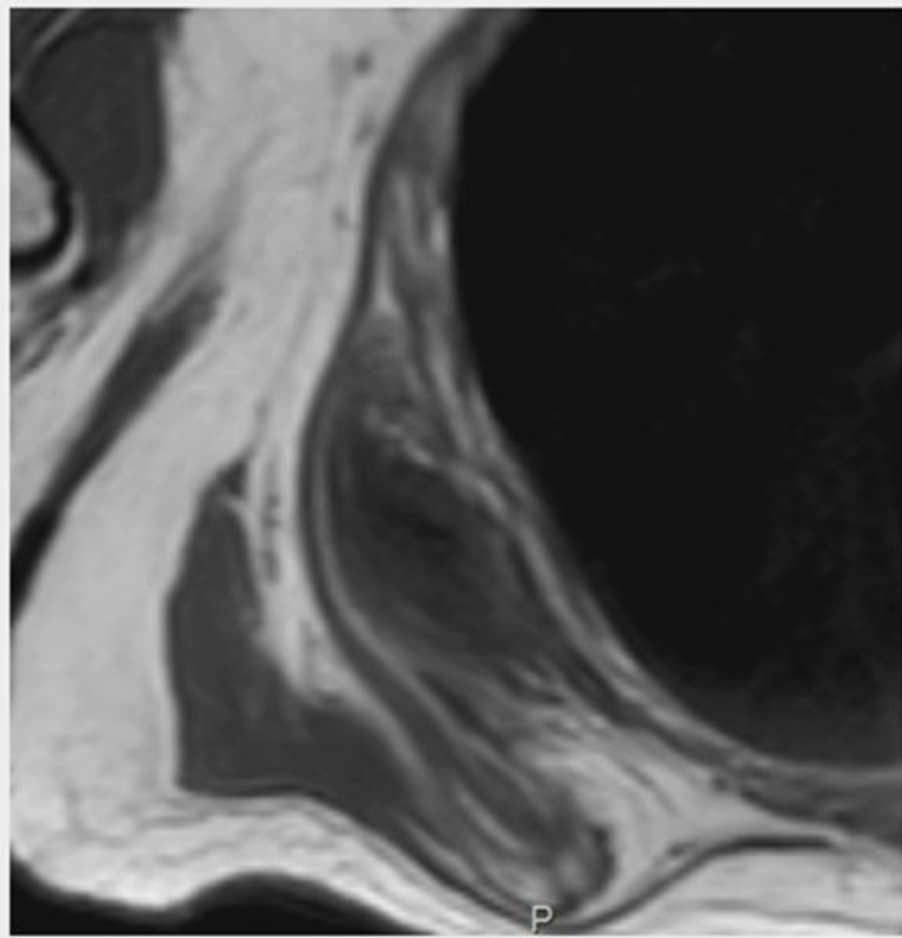
Adult fibrosarcoma	8810/3
Myxofibrosarcoma	8811/3
Low grade fibromyxoid sarcoma	8811/3
hyalinizing spindle cell tumour	
Sclerosing epithelioid fibrosarcoma	8810/3

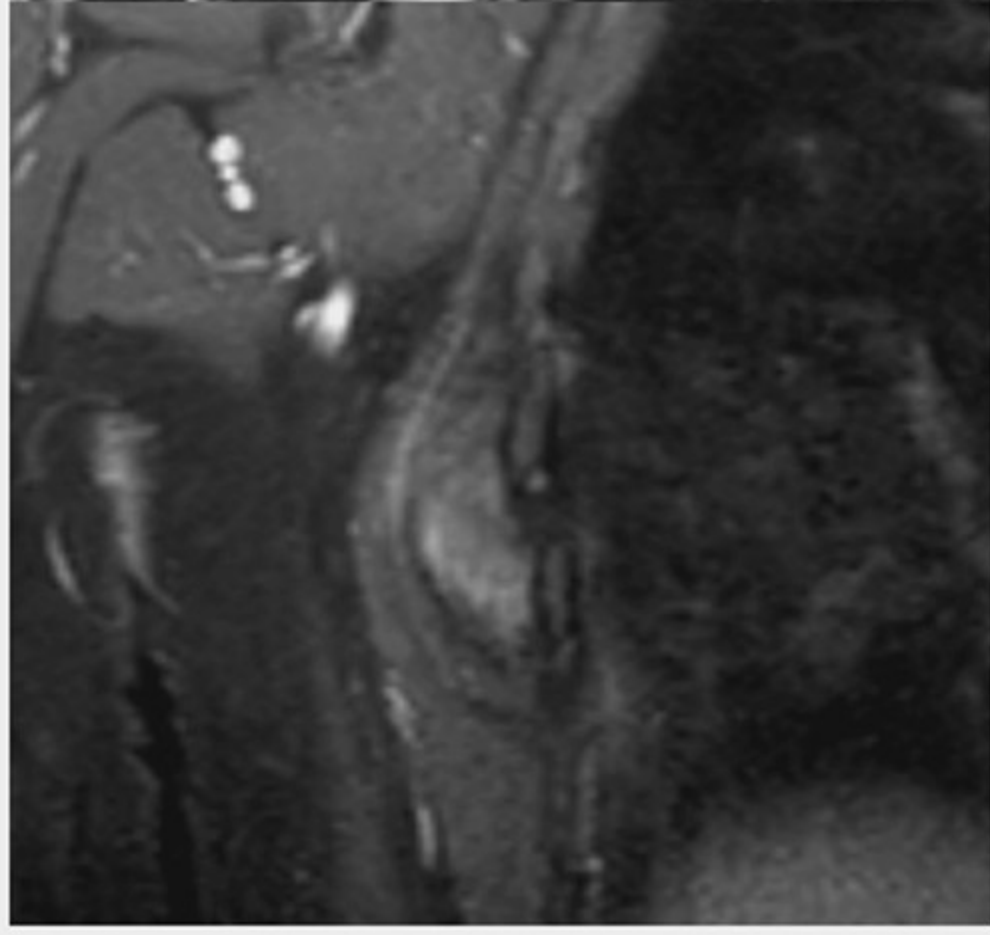
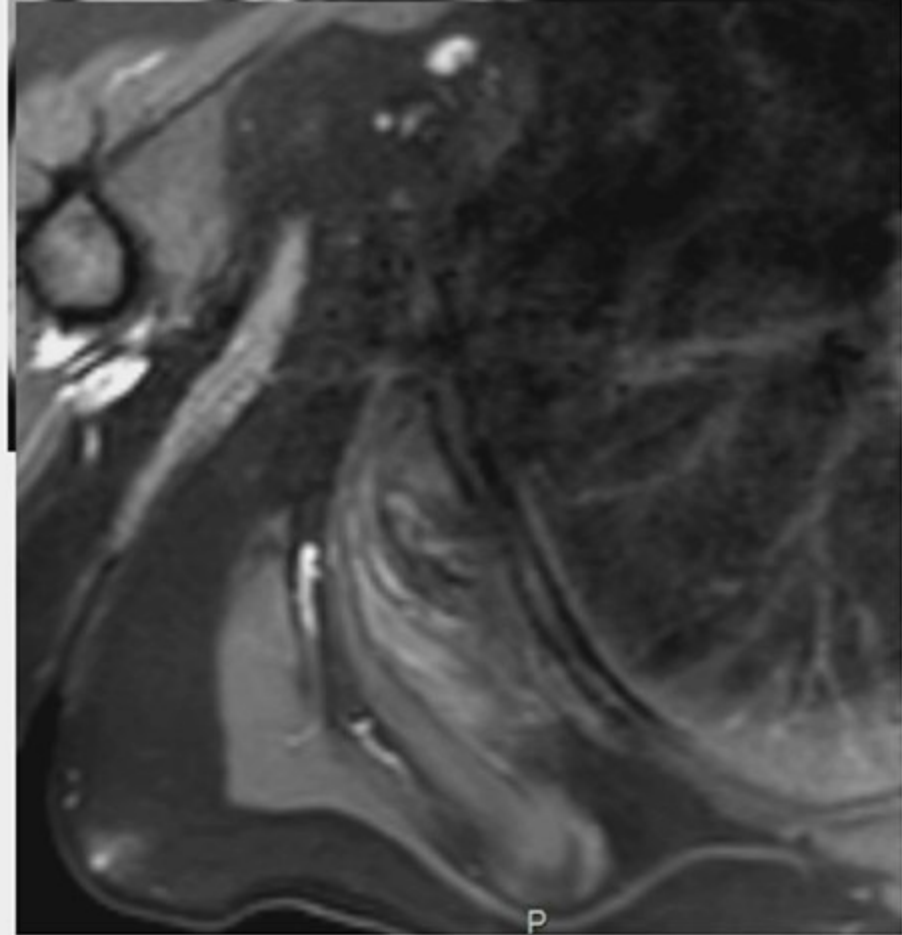
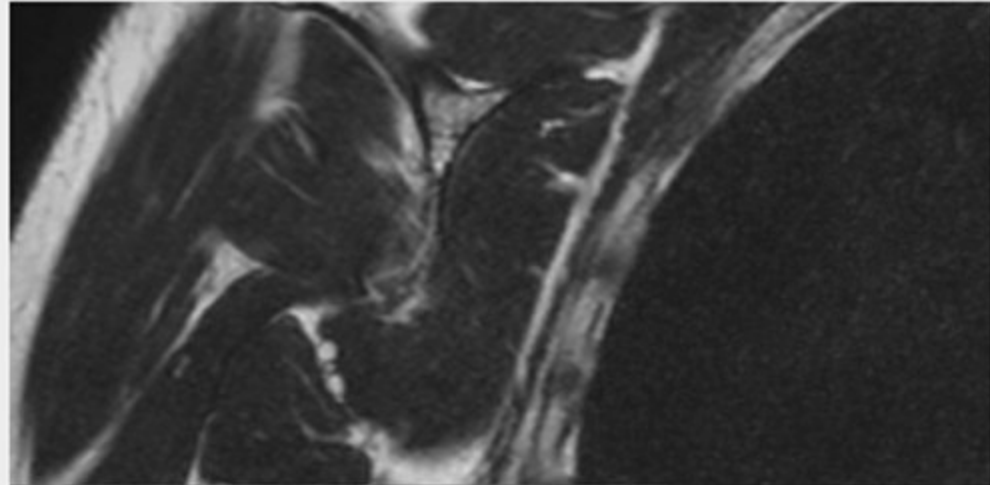
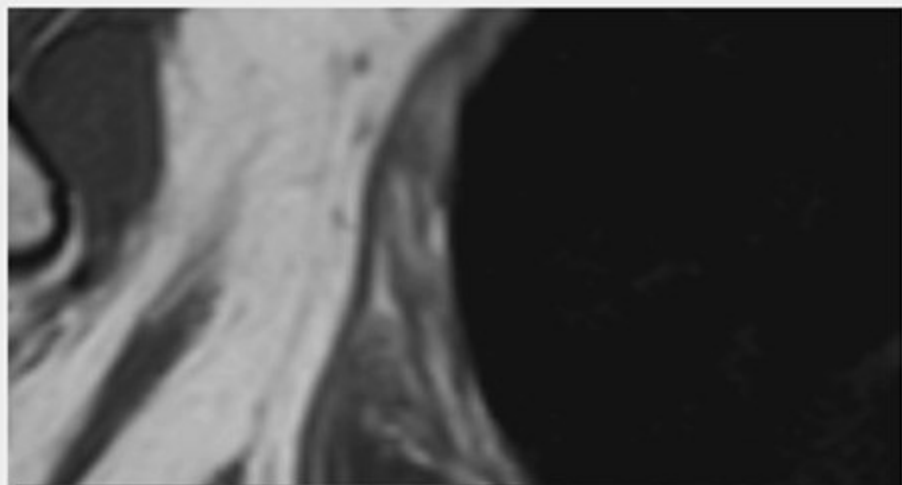


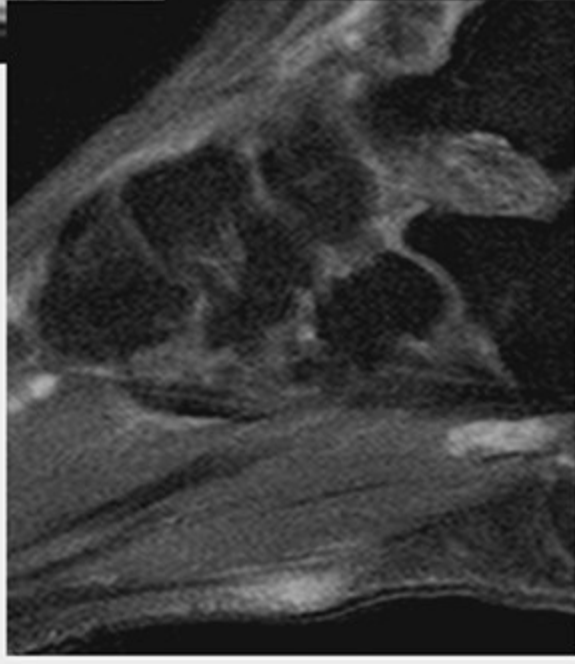
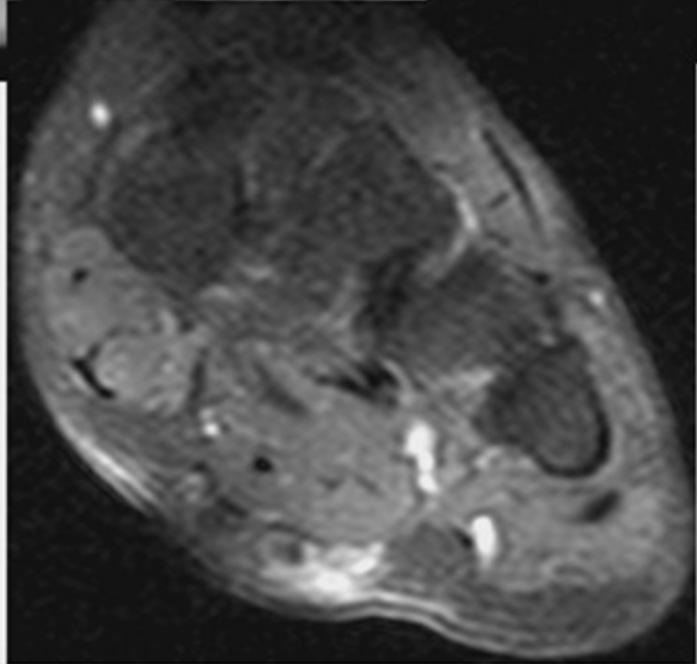
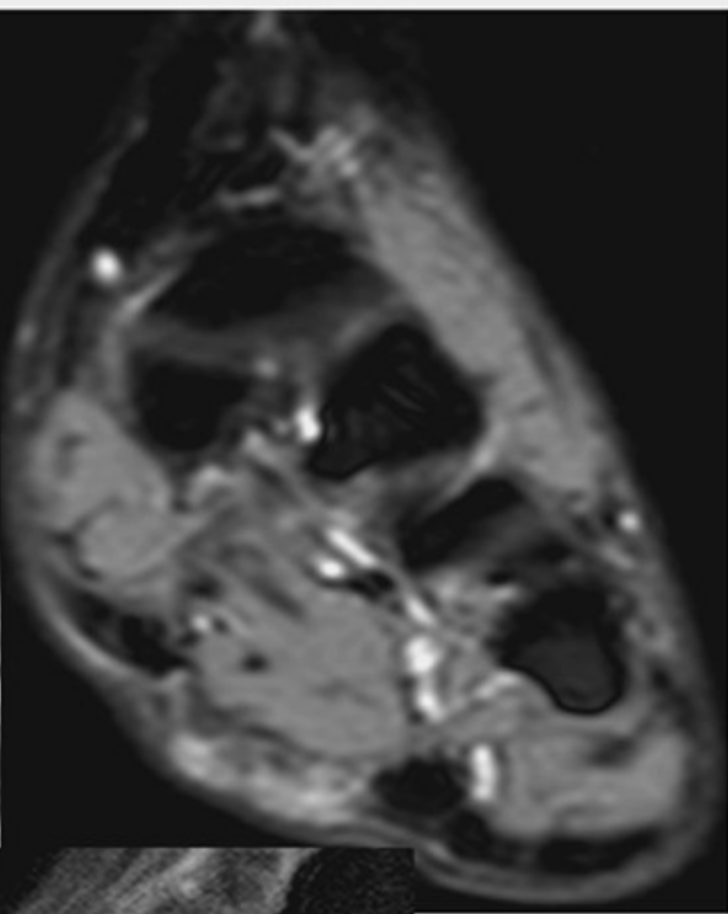
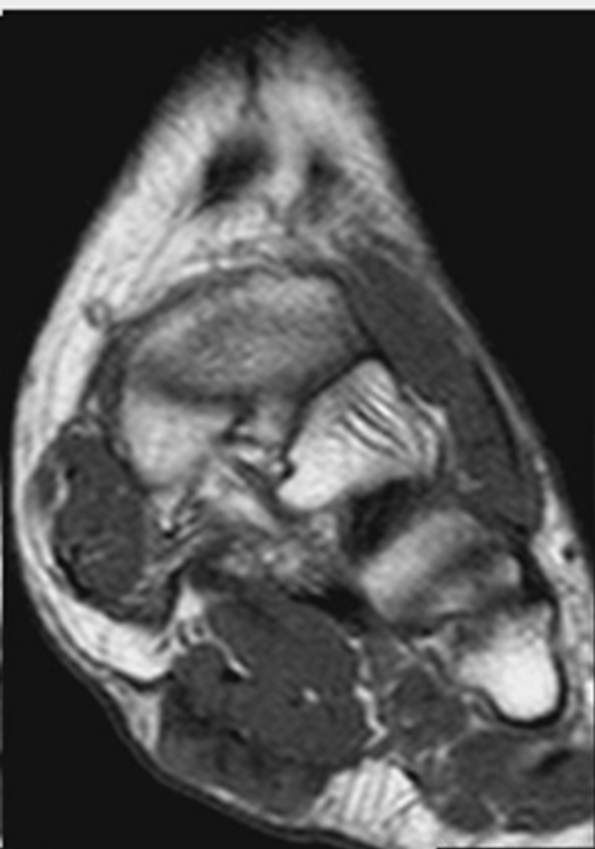
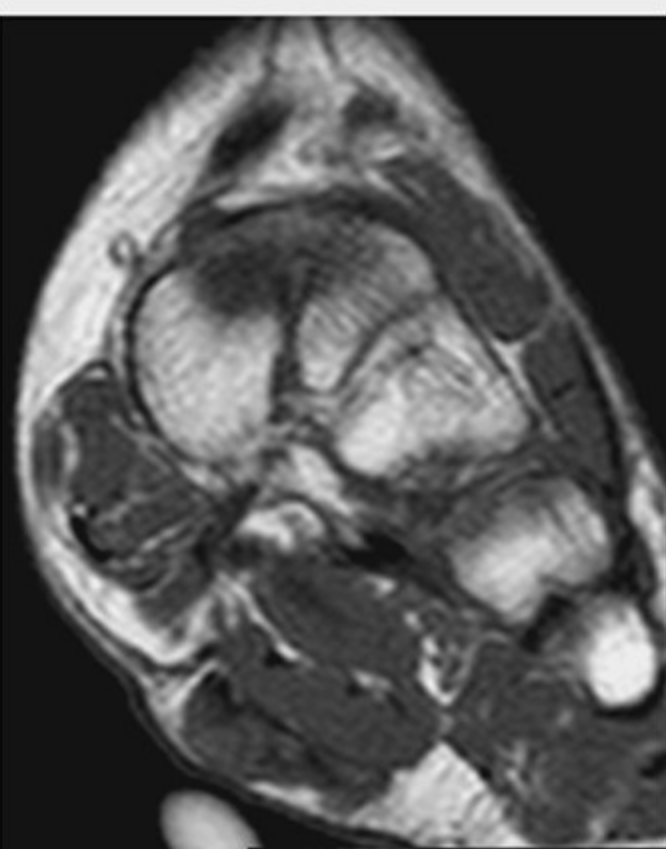
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AP

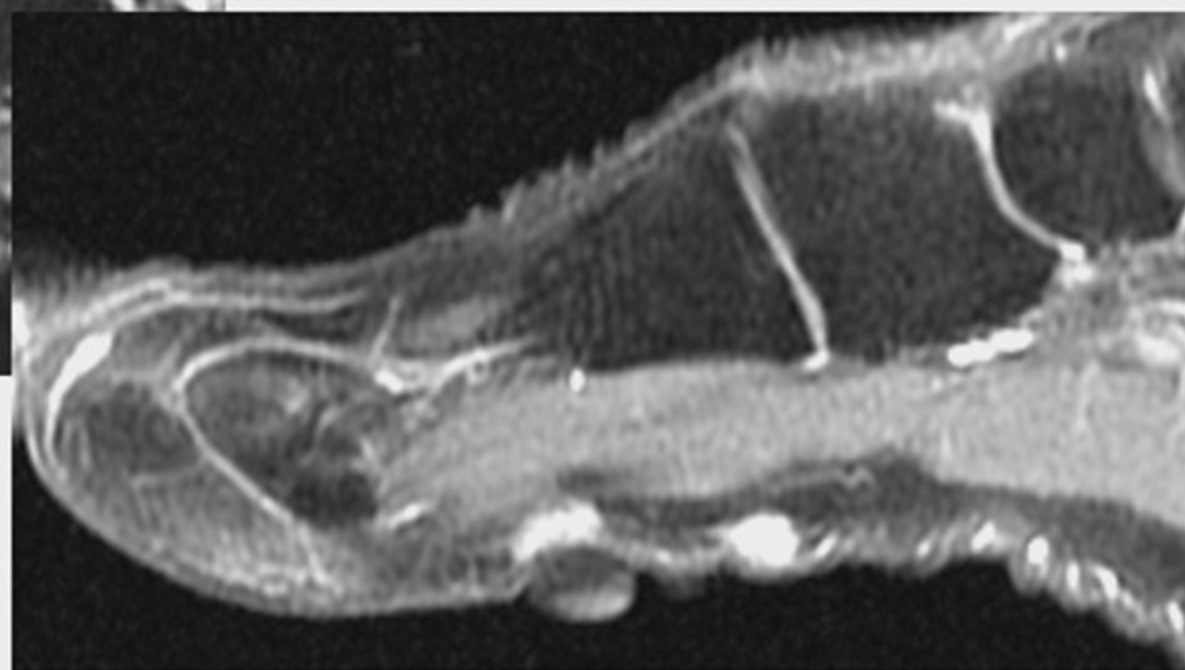
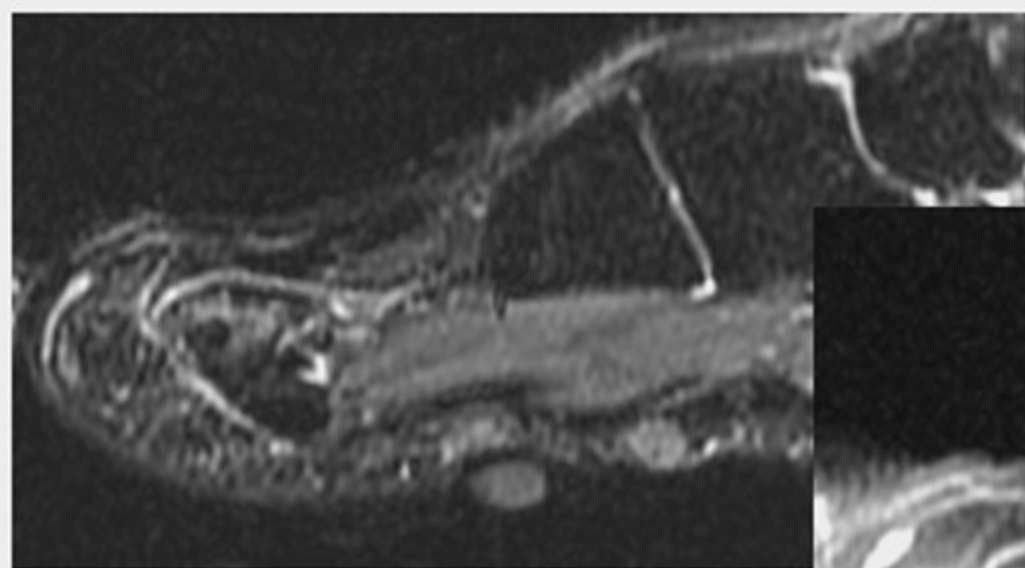
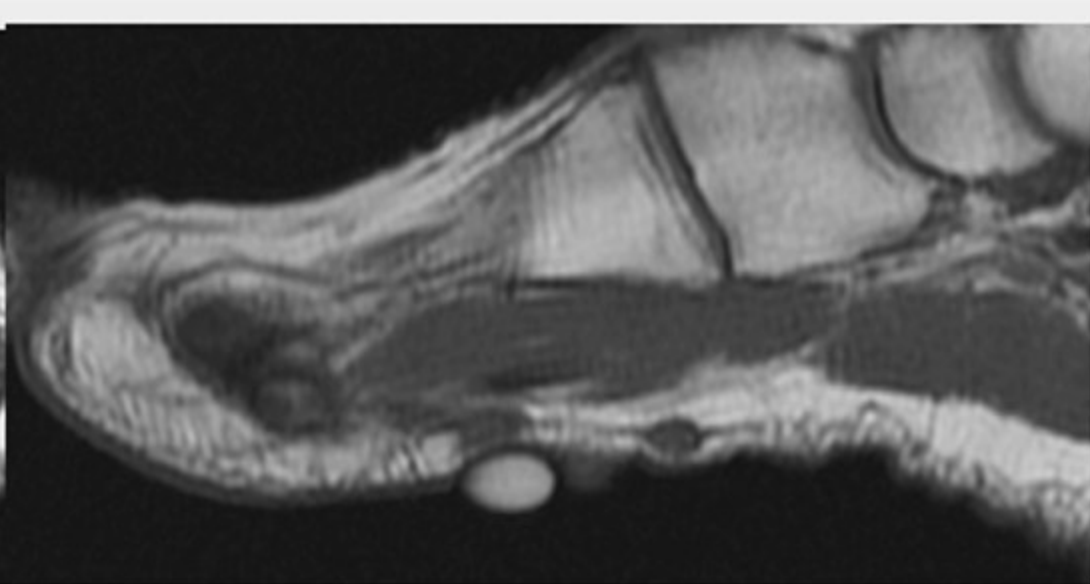
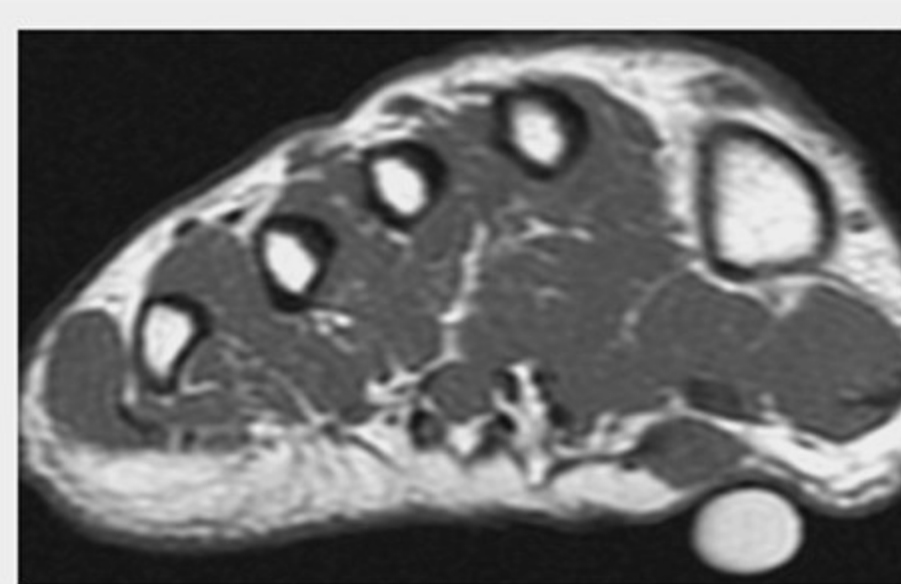




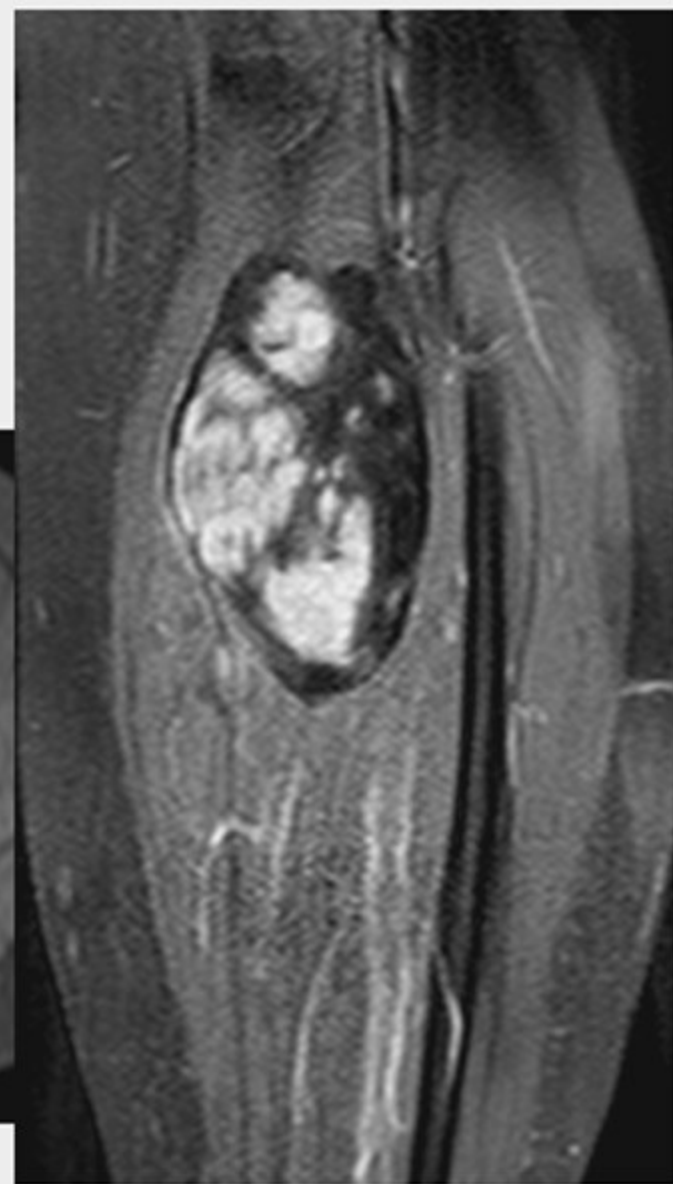
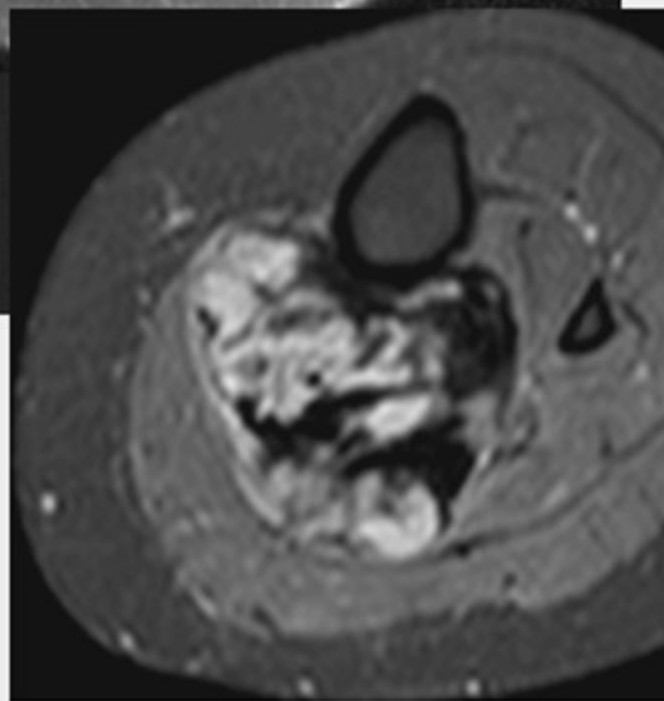
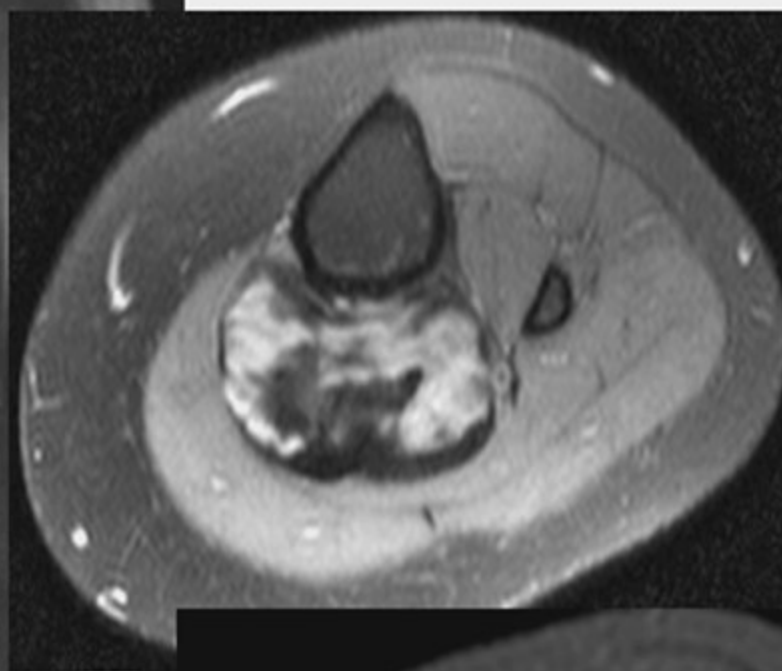
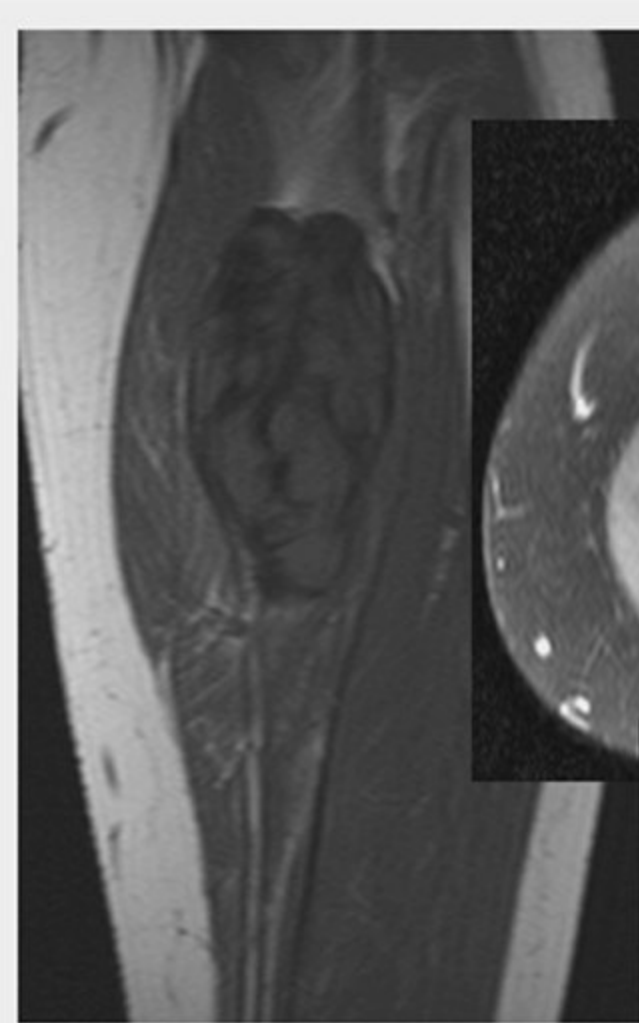












SO-CALLED FIBROHISTIOCYTIC TUMOURS

Benign

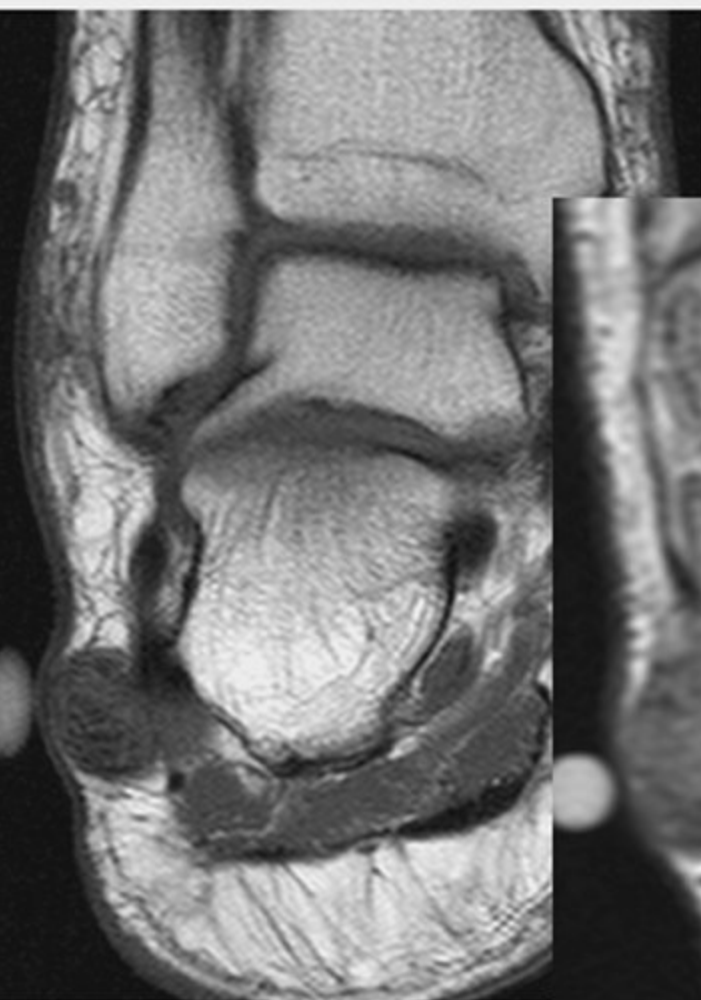
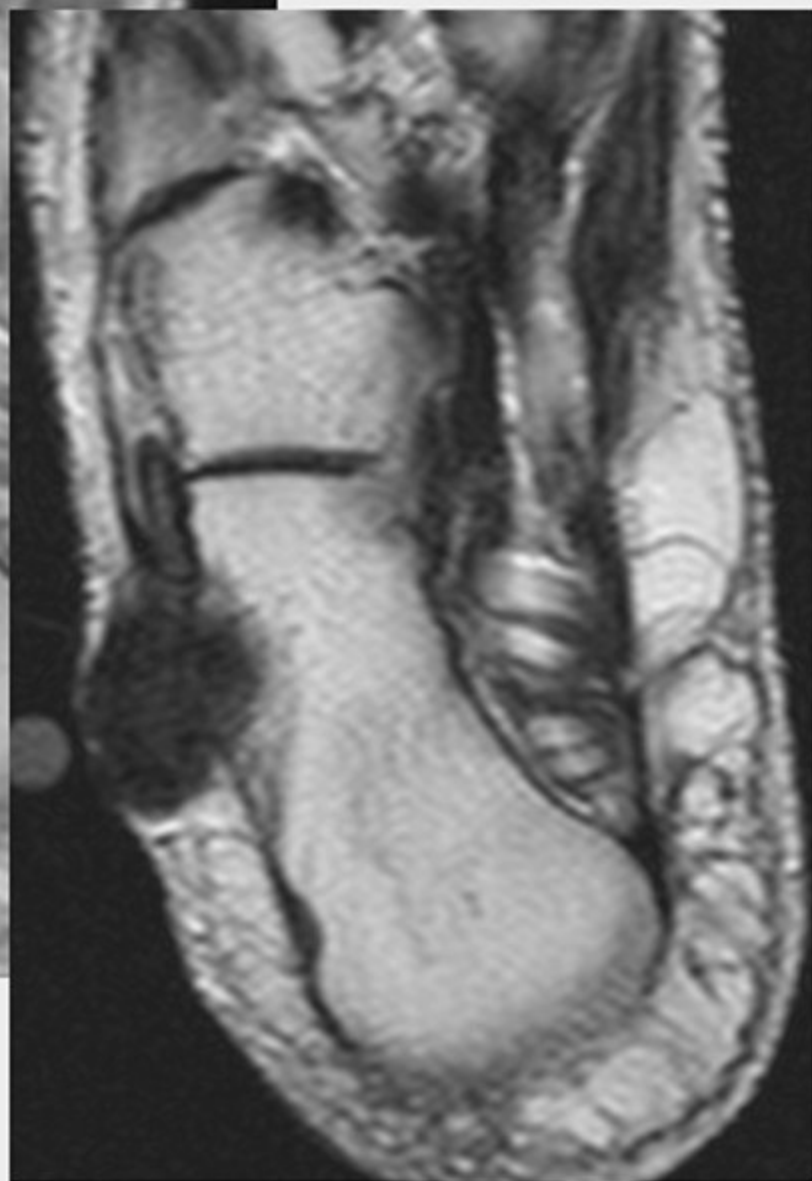
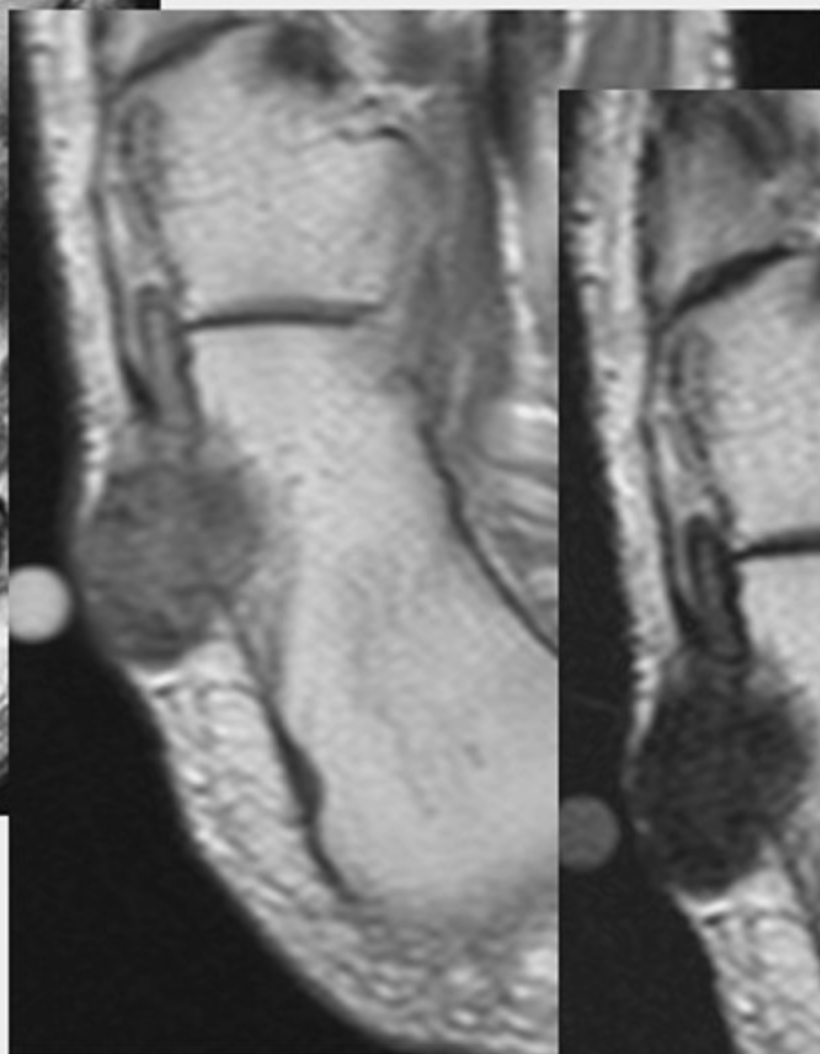
Giant cell tumour of tendon sheath	9252/0
Diffuse-type giant cell tumour	9251/0
Deep benign fibrous histiocytoma	8830/0

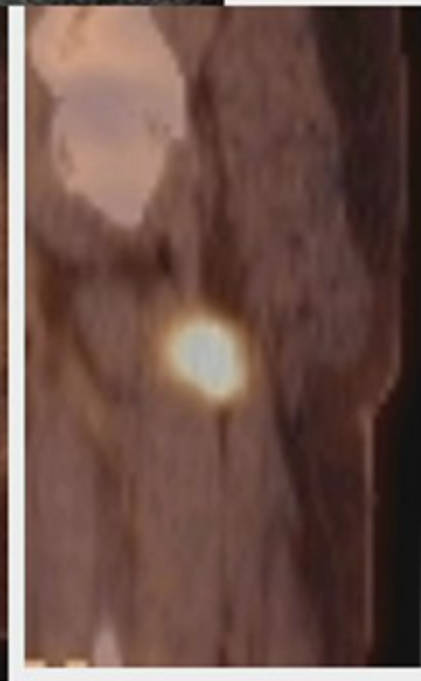
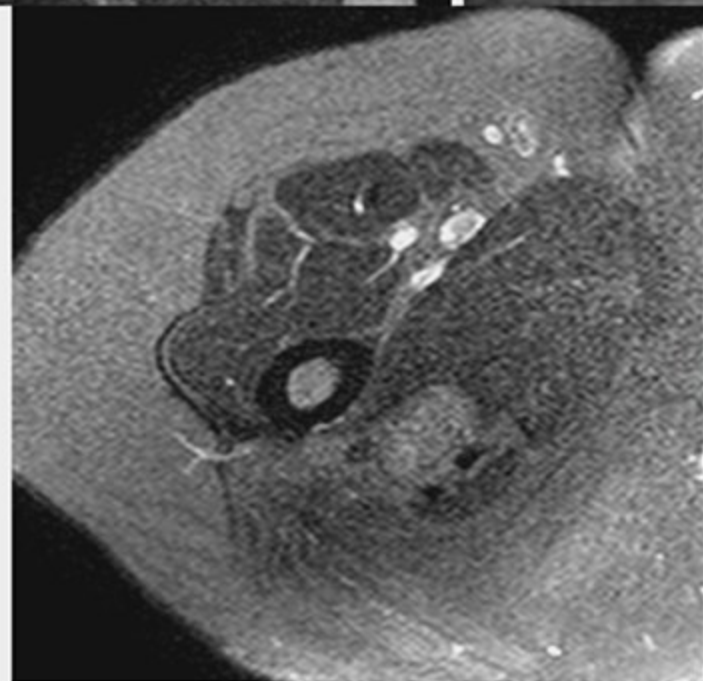
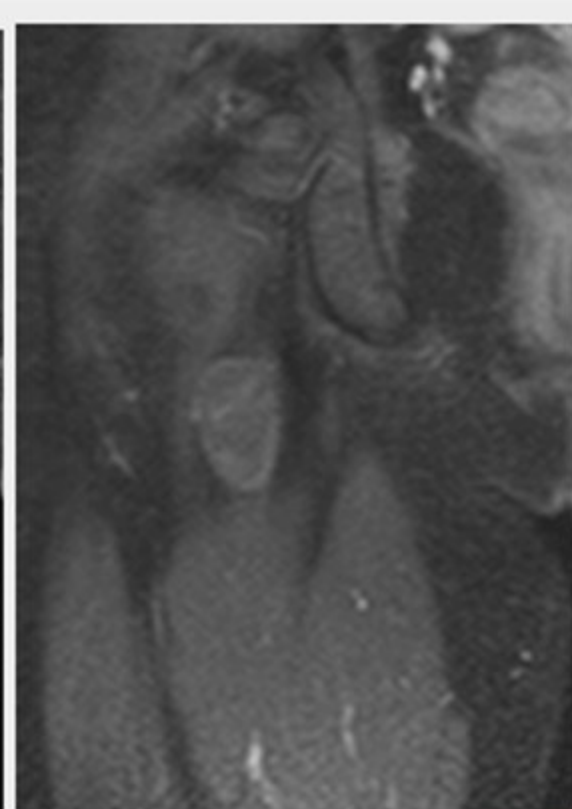
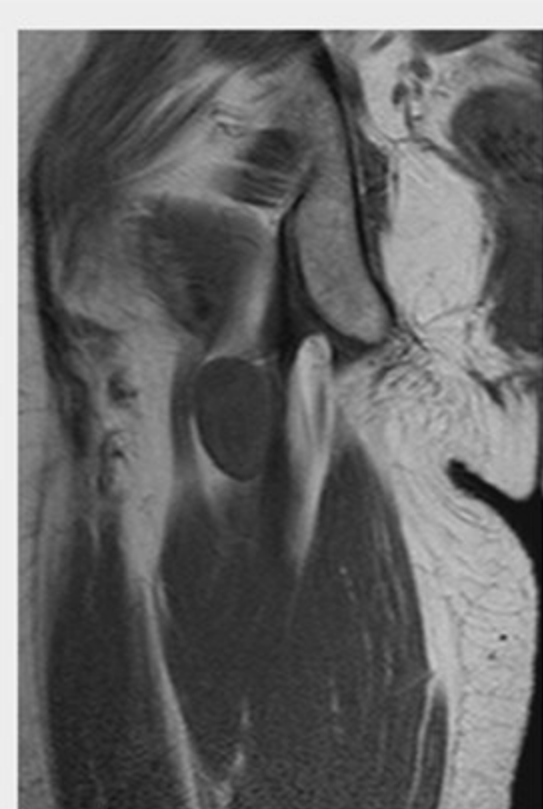
Intermediate (rarely metastasizing)

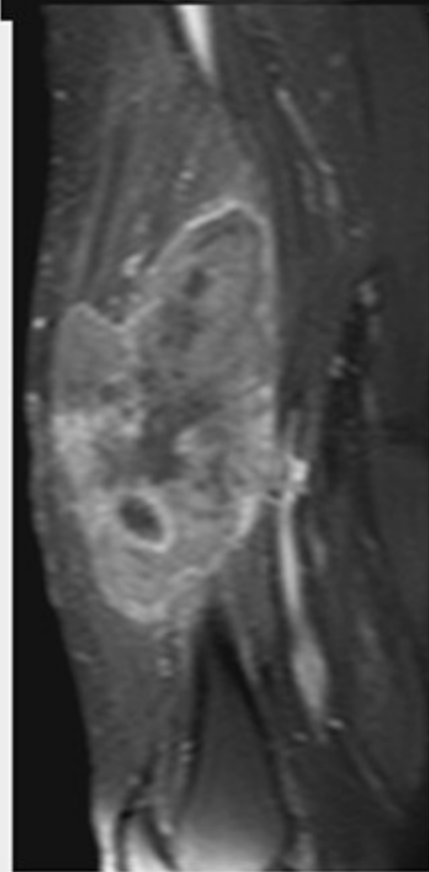
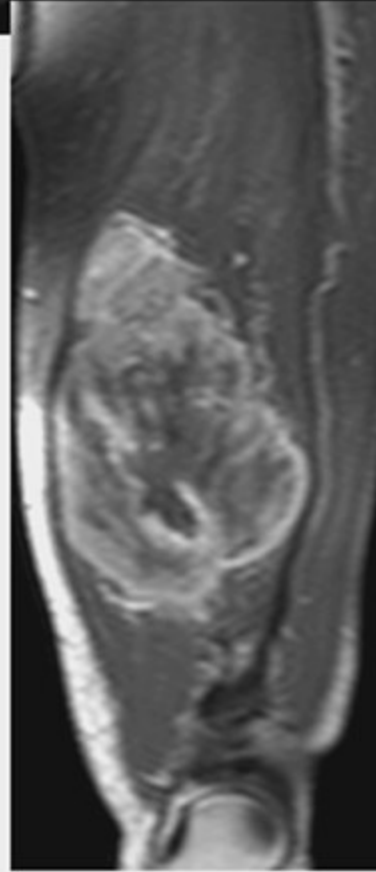
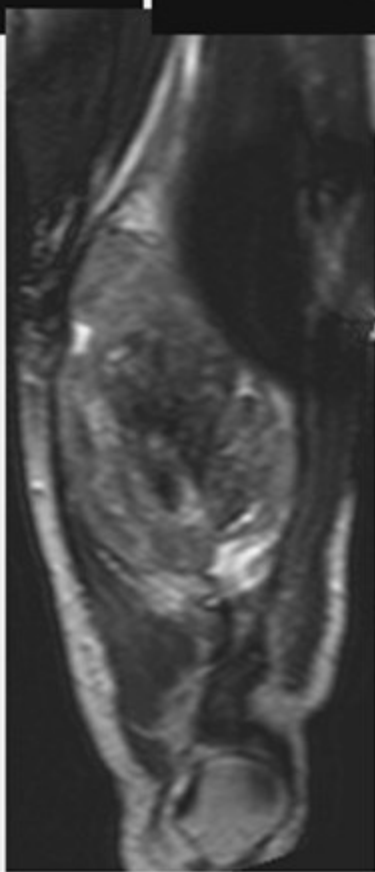
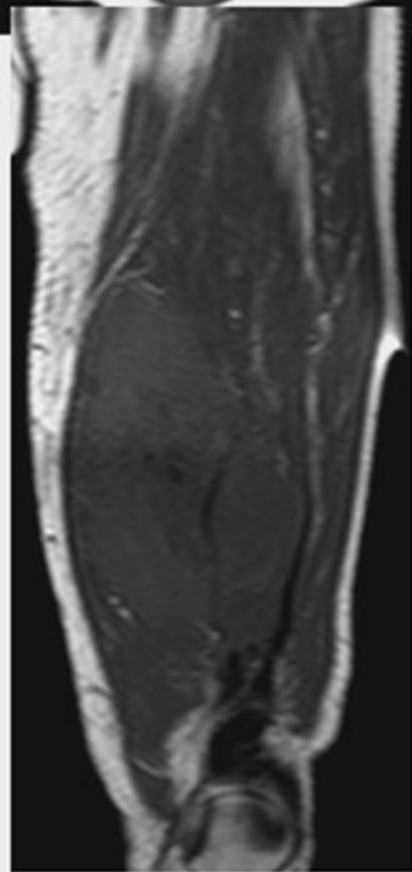
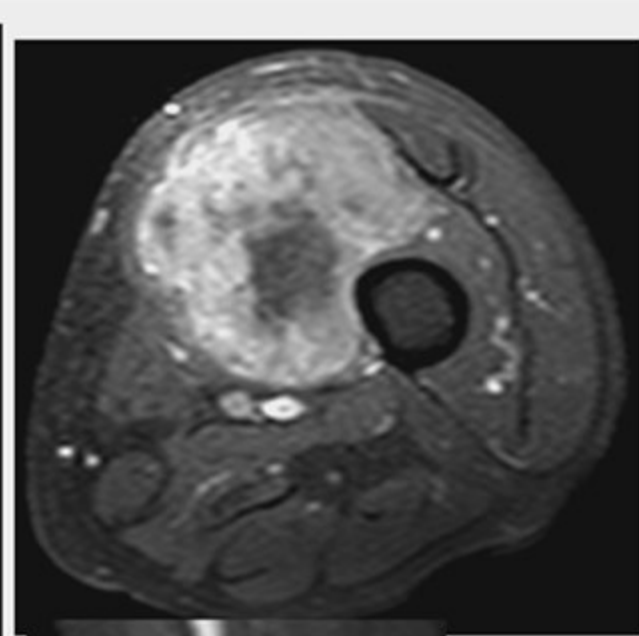
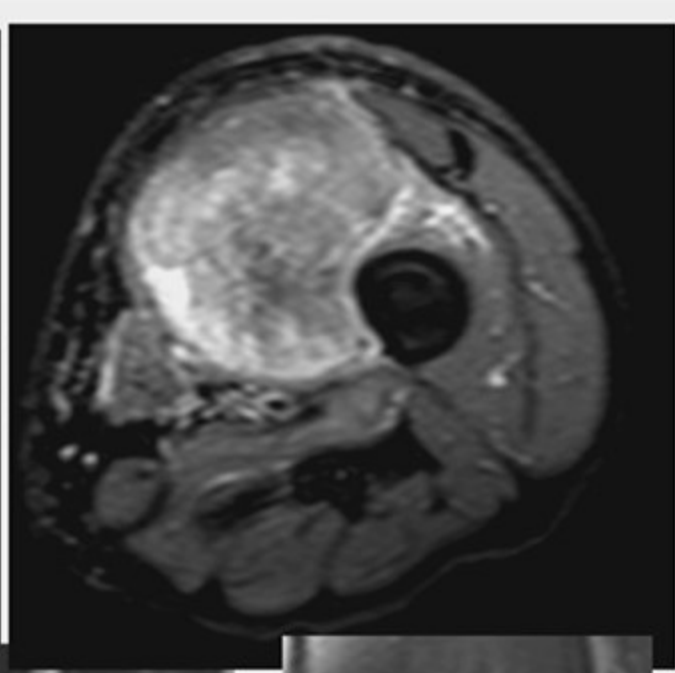
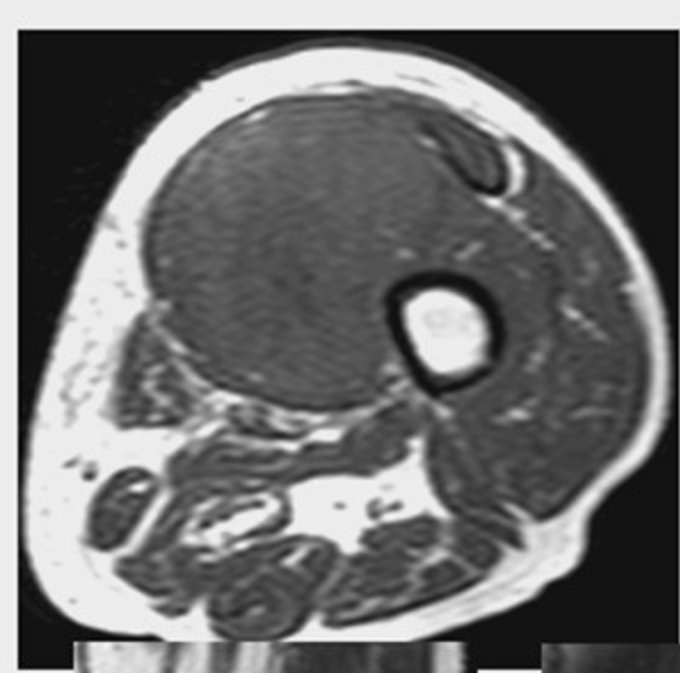
Plexiform fibrohistiocytic tumour	8835/1
Giant cell tumour of soft tissues	9251/1

Malignant

Pleomorphic 'MFH' / Undifferentiated pleomorphic sarcoma	8830/3
Giant cell 'MFH' / Undifferentiated pleomorphic sarcoma with giant cells	8830/3
Inflammatory 'MFH' / Undifferentiated pleomorphic sarcoma with prominent inflammation	8830/3



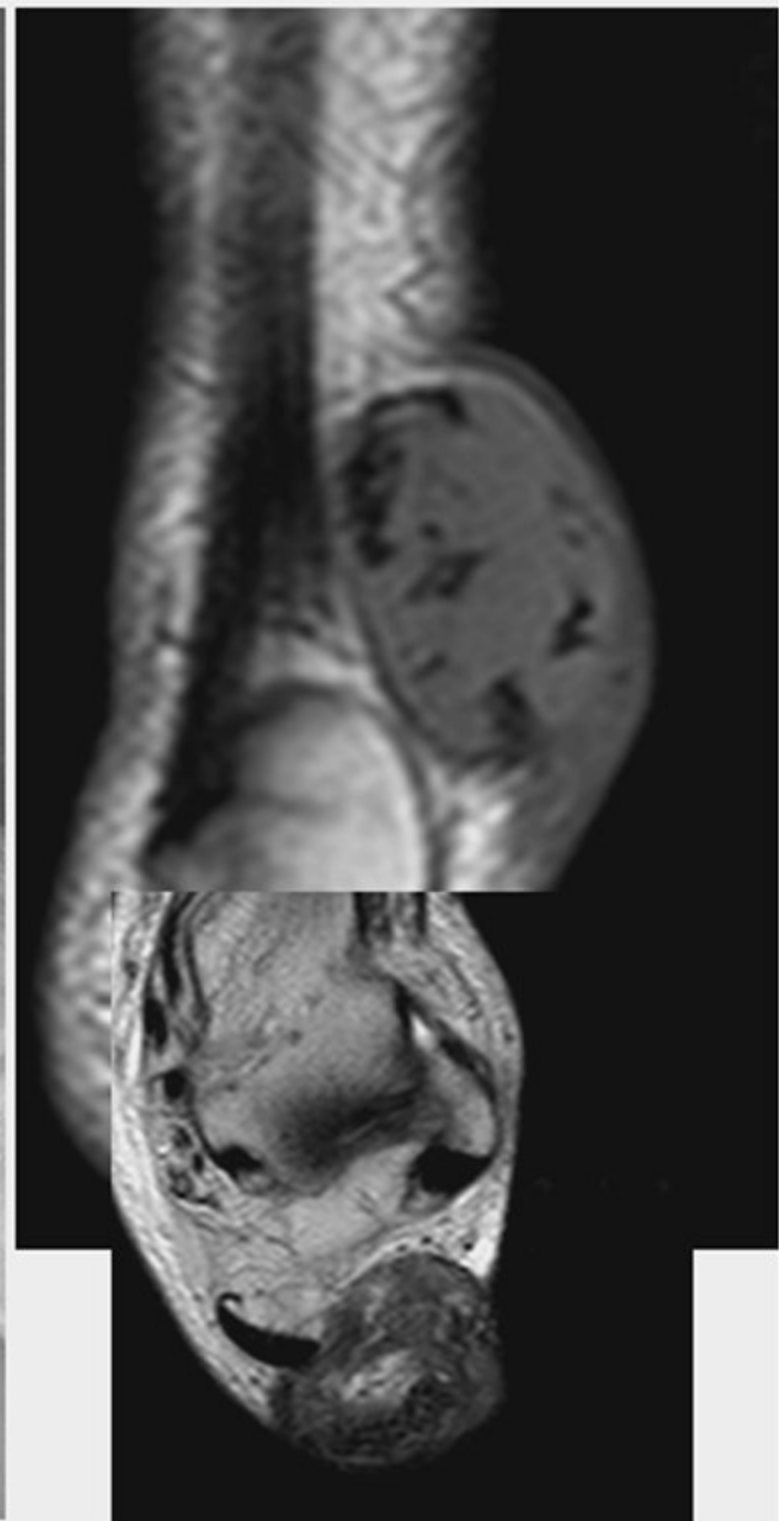


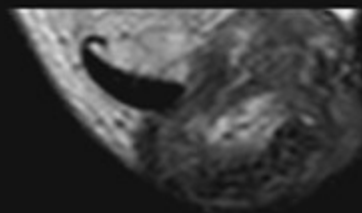
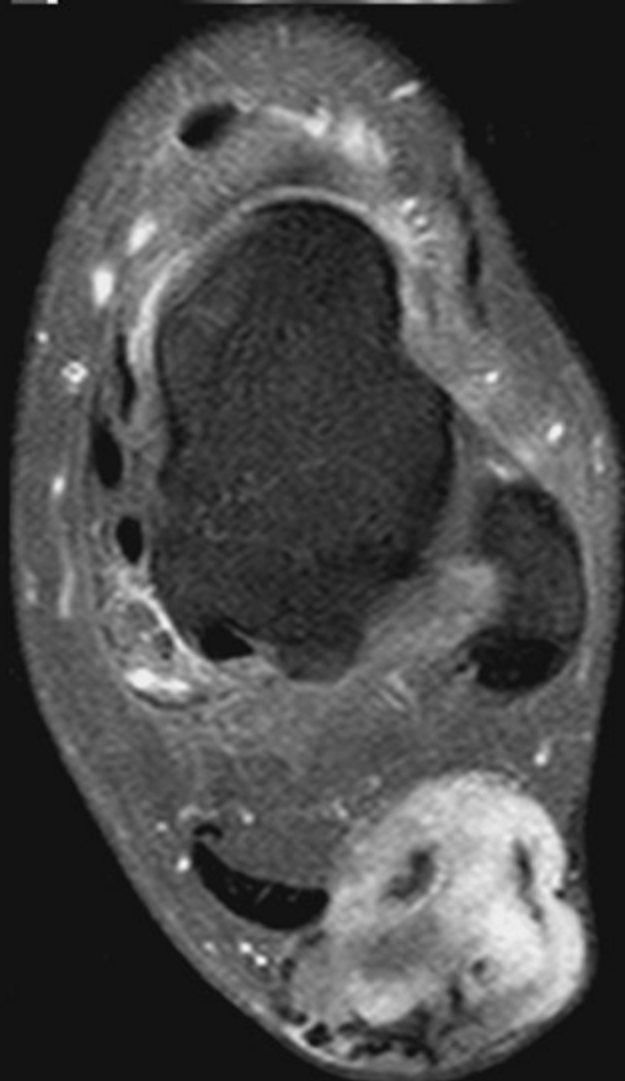
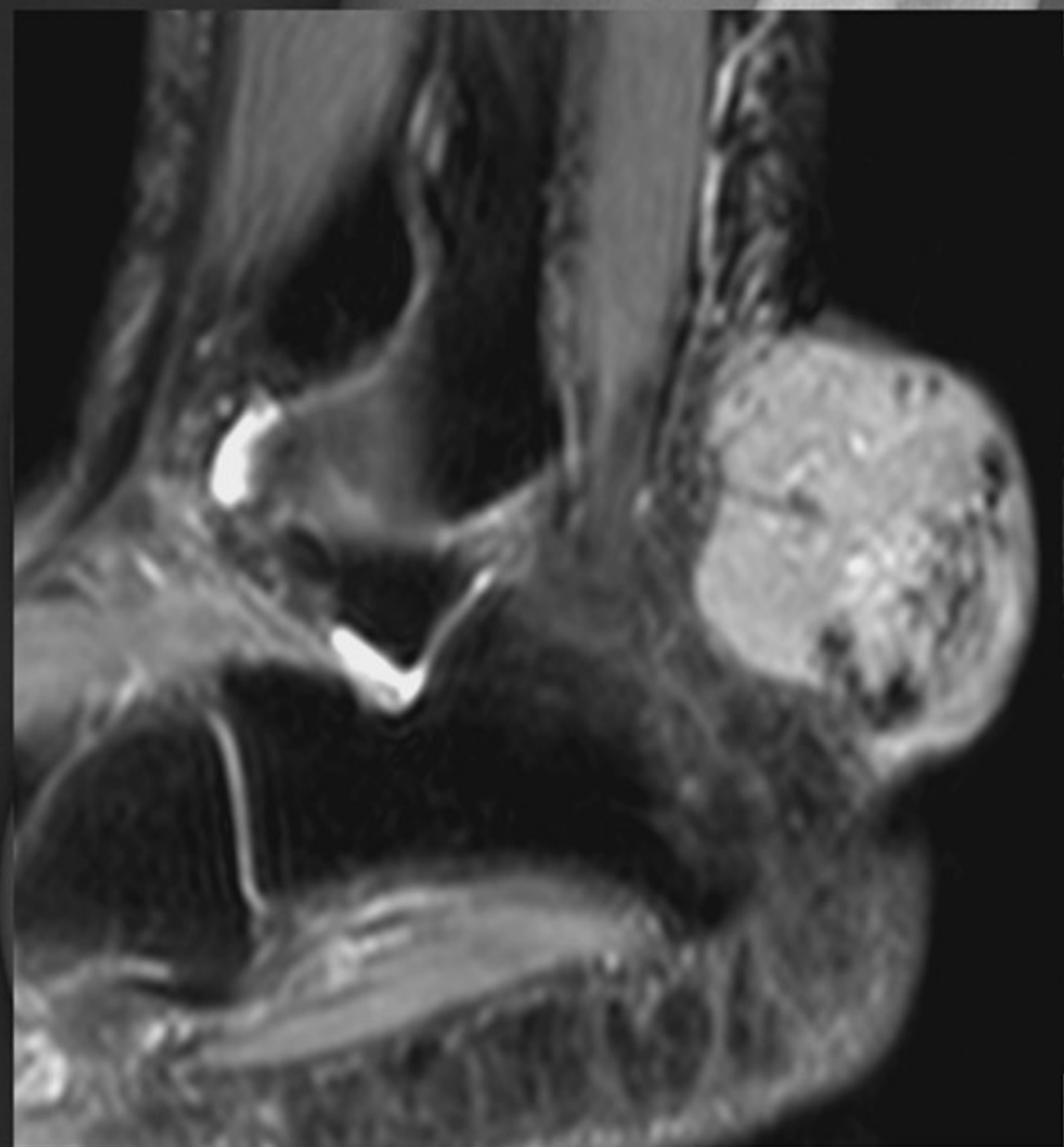


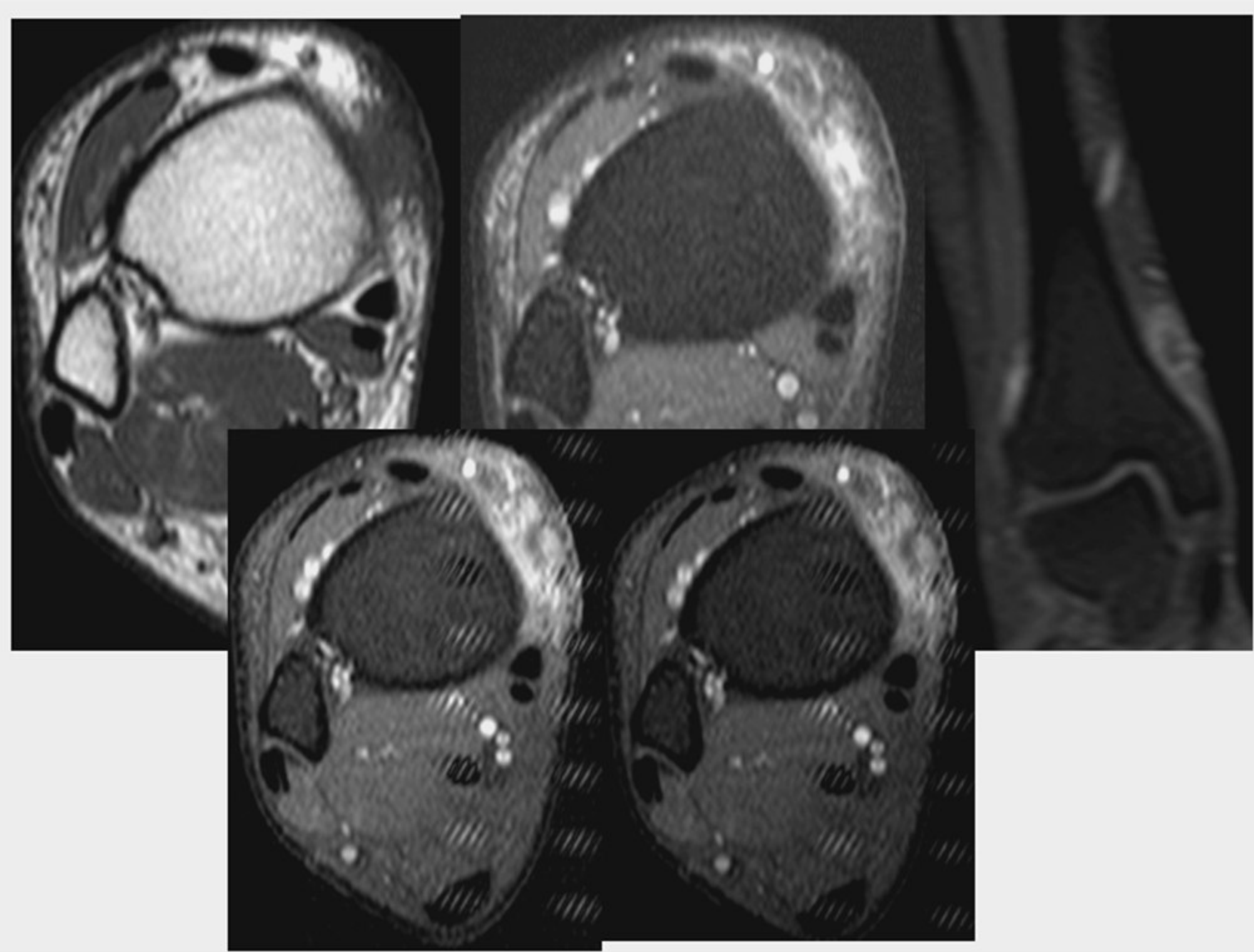
SMOOTH MUSCLE TUMOURS

Angioleiomyoma	8894/0
Deep leiomyoma	8890/0
Genital leiomyoma	8890/0
Leiomyosarcoma (excluding skin)	8890/3



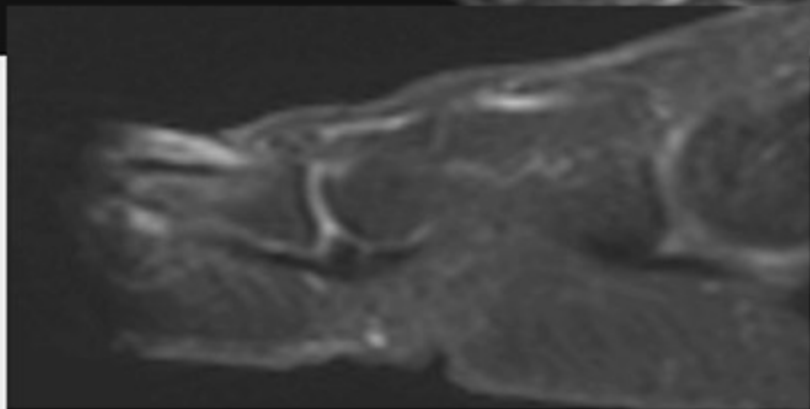
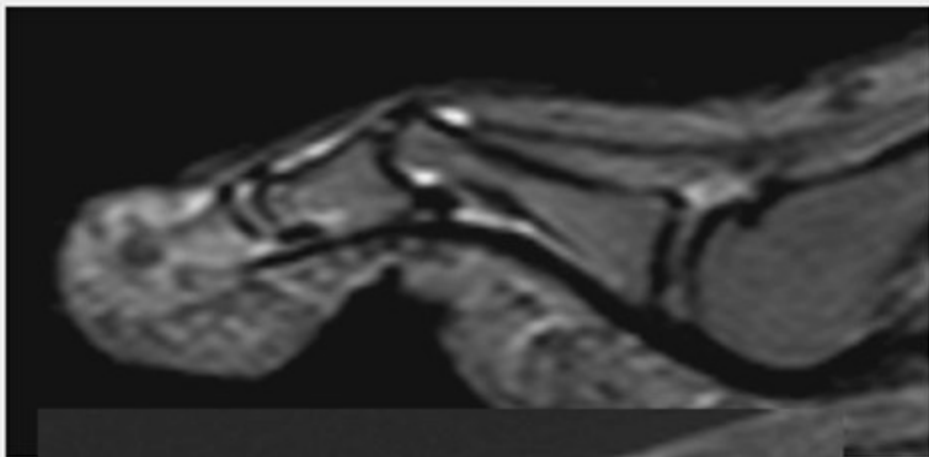
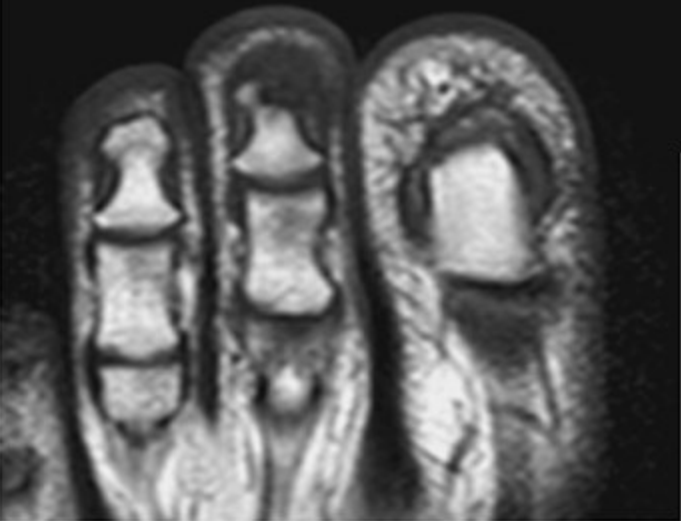
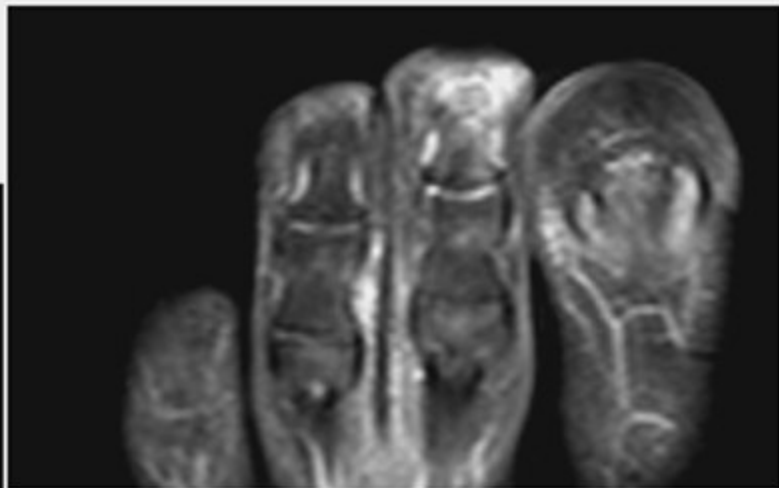
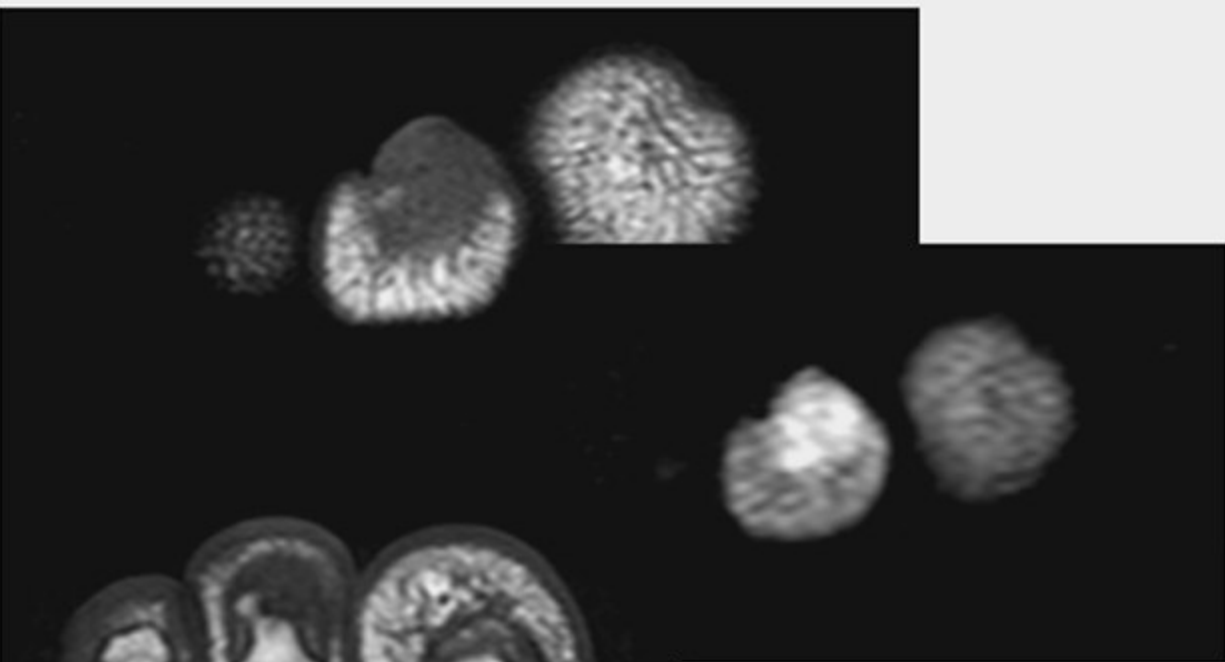






PERICYTIC (PERIVASCULAR) TUMOURS

Glomus tumour (and variants)	8711/0
malignant glomus tumour	8711/3
Myopericytoma	8713/1



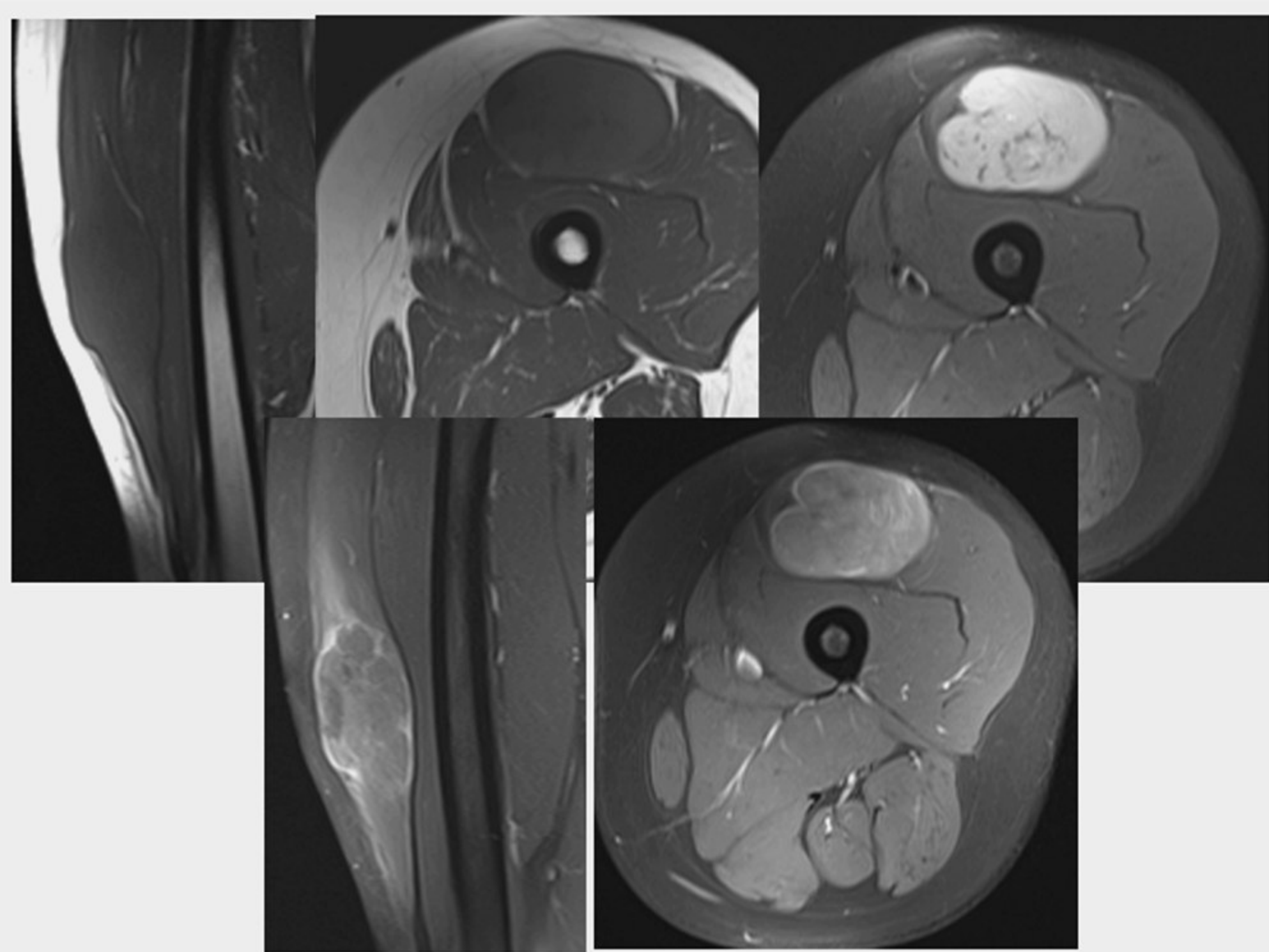
SKELETAL MUSCLE TUMOURS

Benign

Rhabdomyoma	8900/0
adult type	8904/0
fetal type	8903/0
genital type	8905/0

Malignant

Embryonal rhabdomyosarcoma	8910/3
(incl. spindle cell,	8912/3
botryoid, anaplastic)	8910/3
Alveolar rhabdomyosarcoma	
(incl. solid, anaplastic)	8920/3
Pleomorphic rhabdomyosarcoma	8901/3



VASCULAR TUMOURS

Benign

Haemangiomas of

subcut/deep soft tissue: 9120/0

capillary 9131/0

cavernous

arteriovenous

venous

intramuscular

synovial

Epithelioid haemangioma

Angiomatosis

Lymphangioma

Composite haemangioendothelioma

9130/1

Kaposi sarcoma

9140/3

Malignant

Epithelioid haemangioendothelioma

9133/3

Angiosarcoma of soft tissue

9120/3

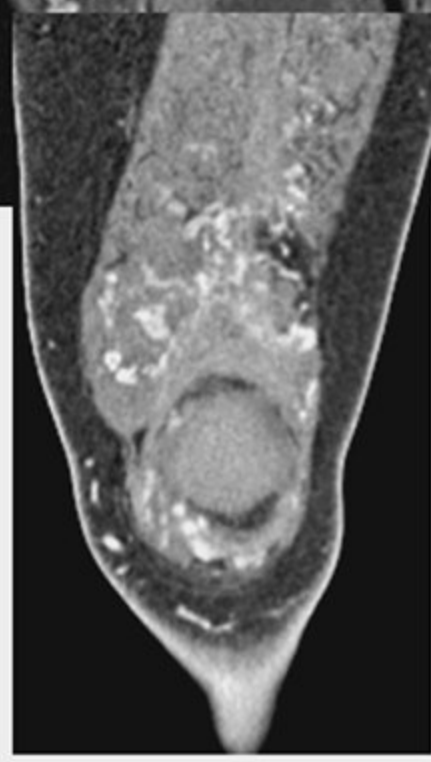
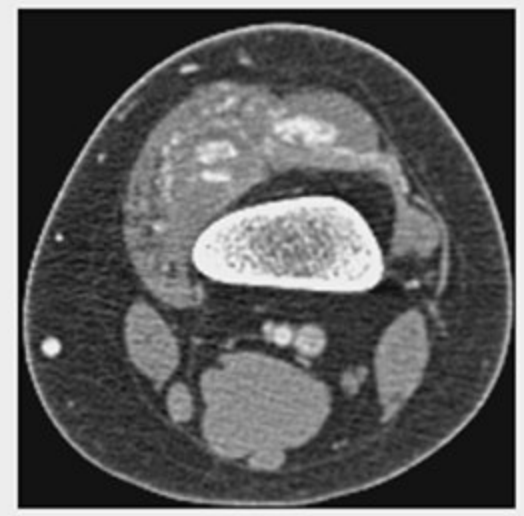
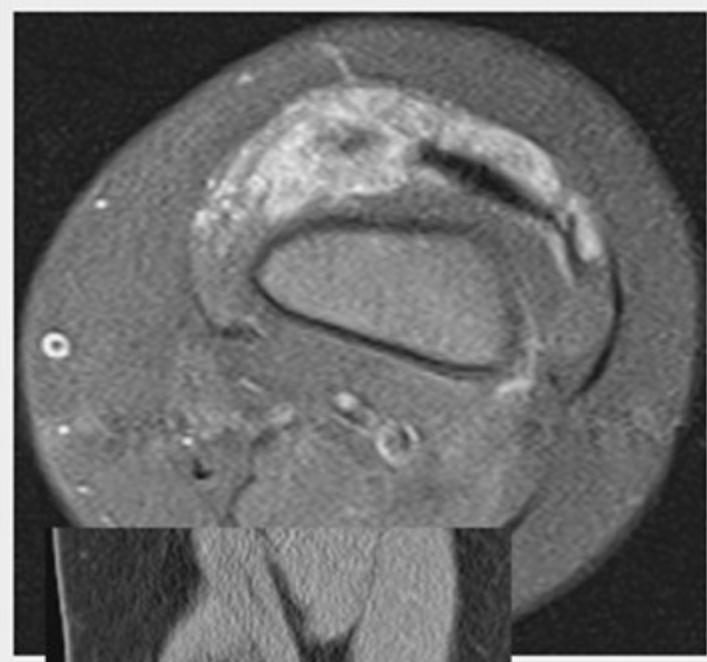
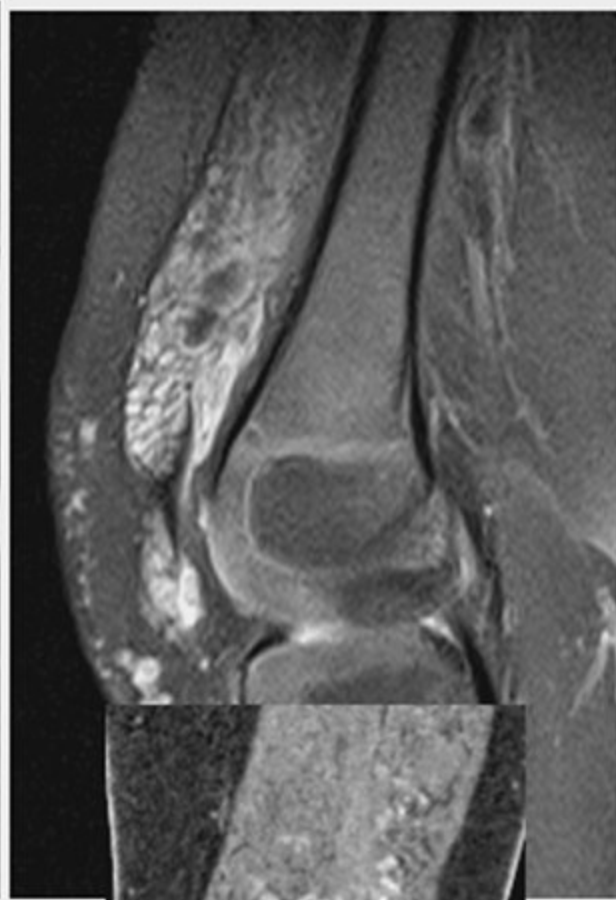
Intermediate (locally aggressive)

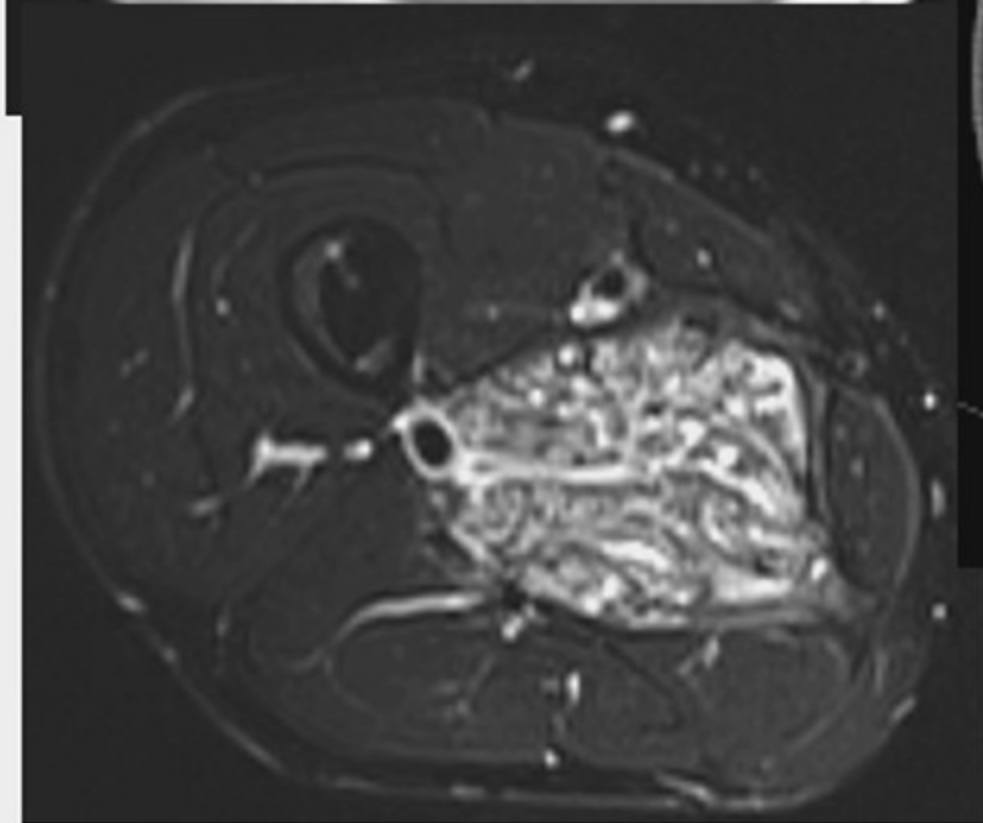
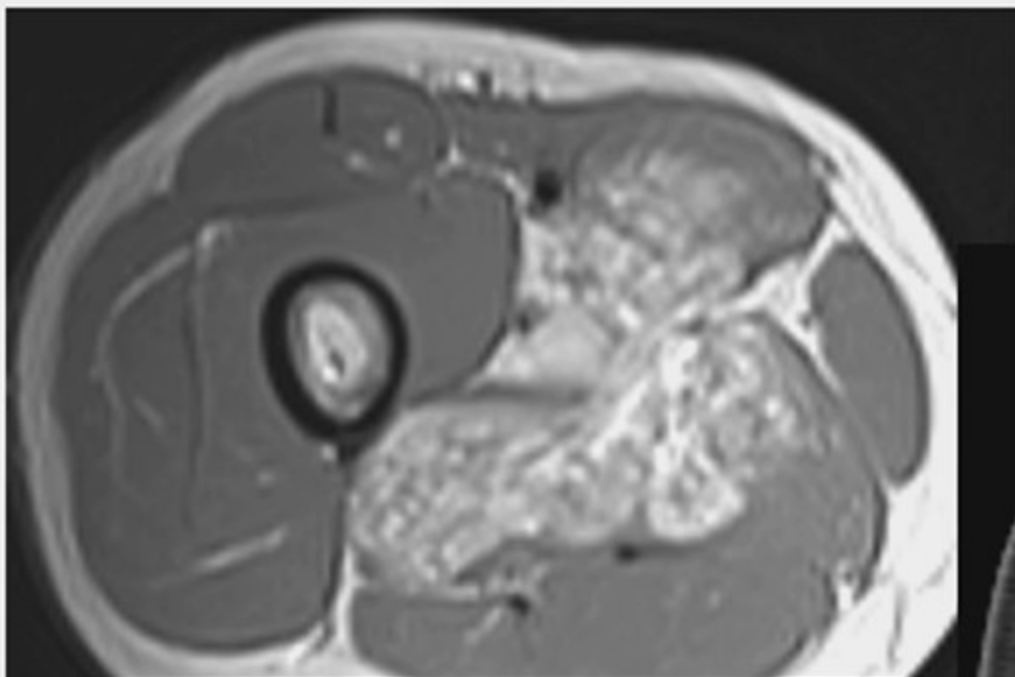
Kaposiform haemangioendothelioma 9130/1

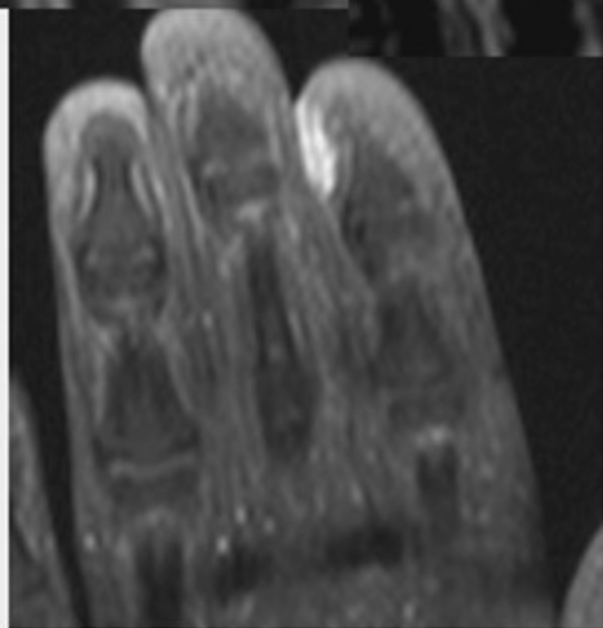
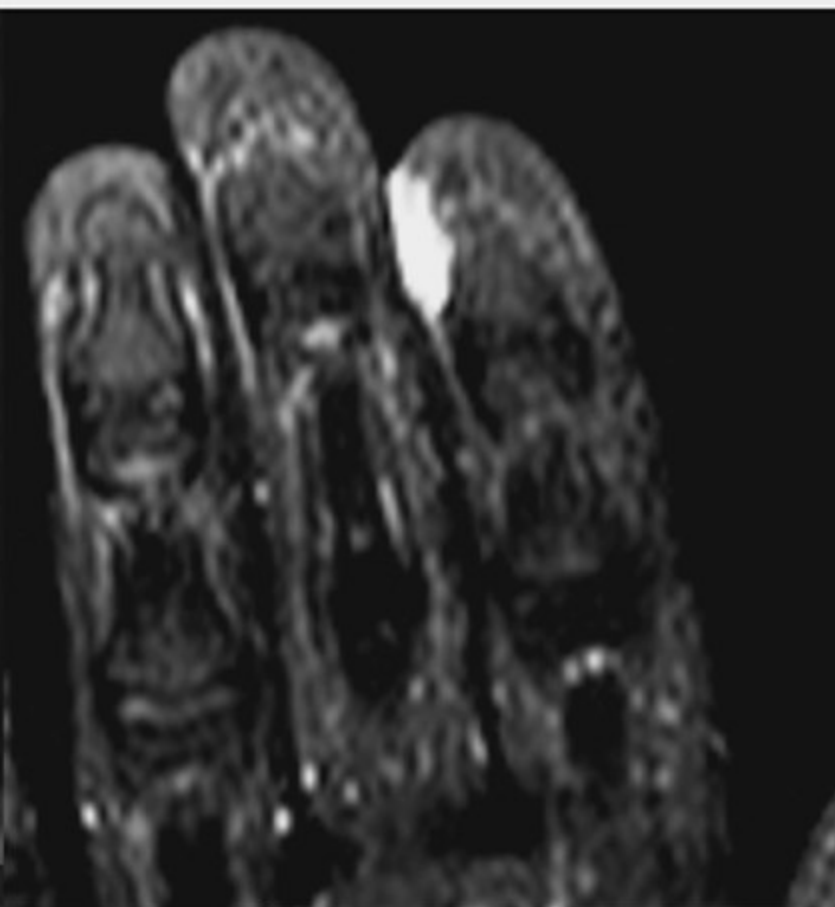
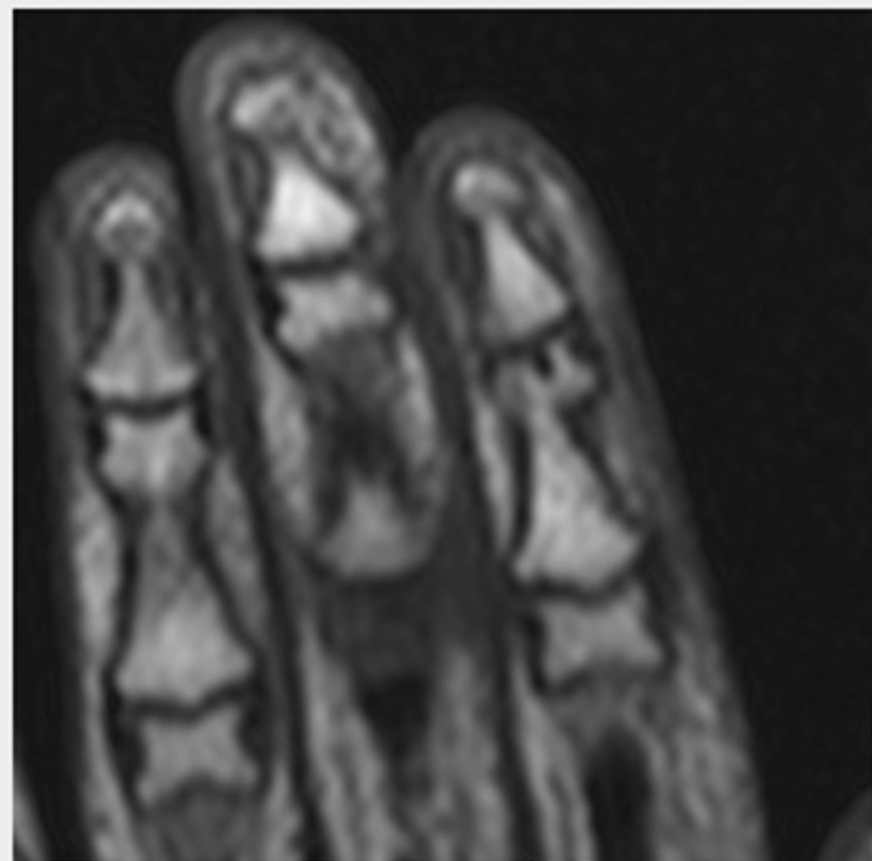
Intermediate (rarely metastasizing)

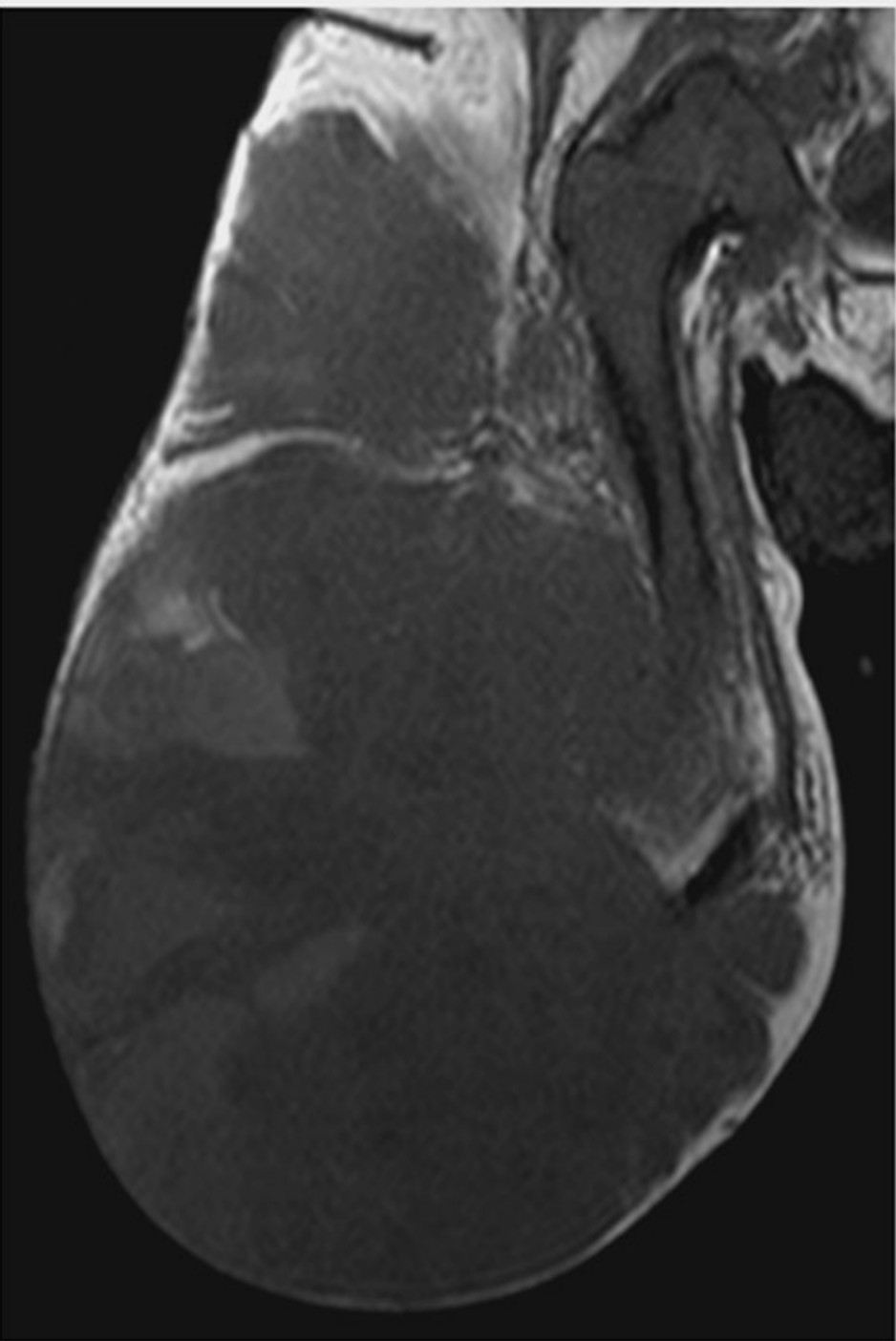
Retiform haemangioendothelioma 9135/1

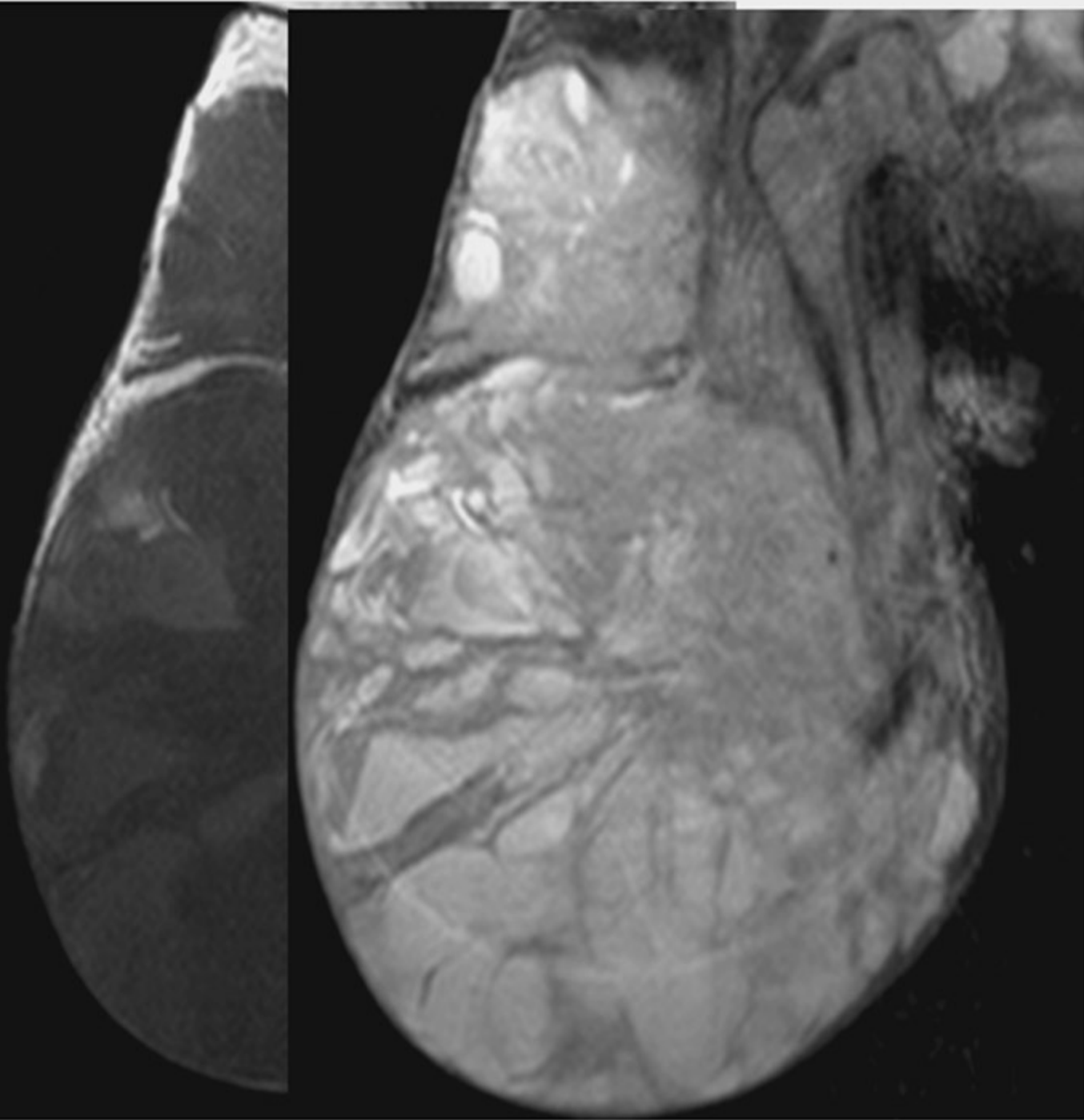
Papillary intralymphatic angioendothelioma 9135/1

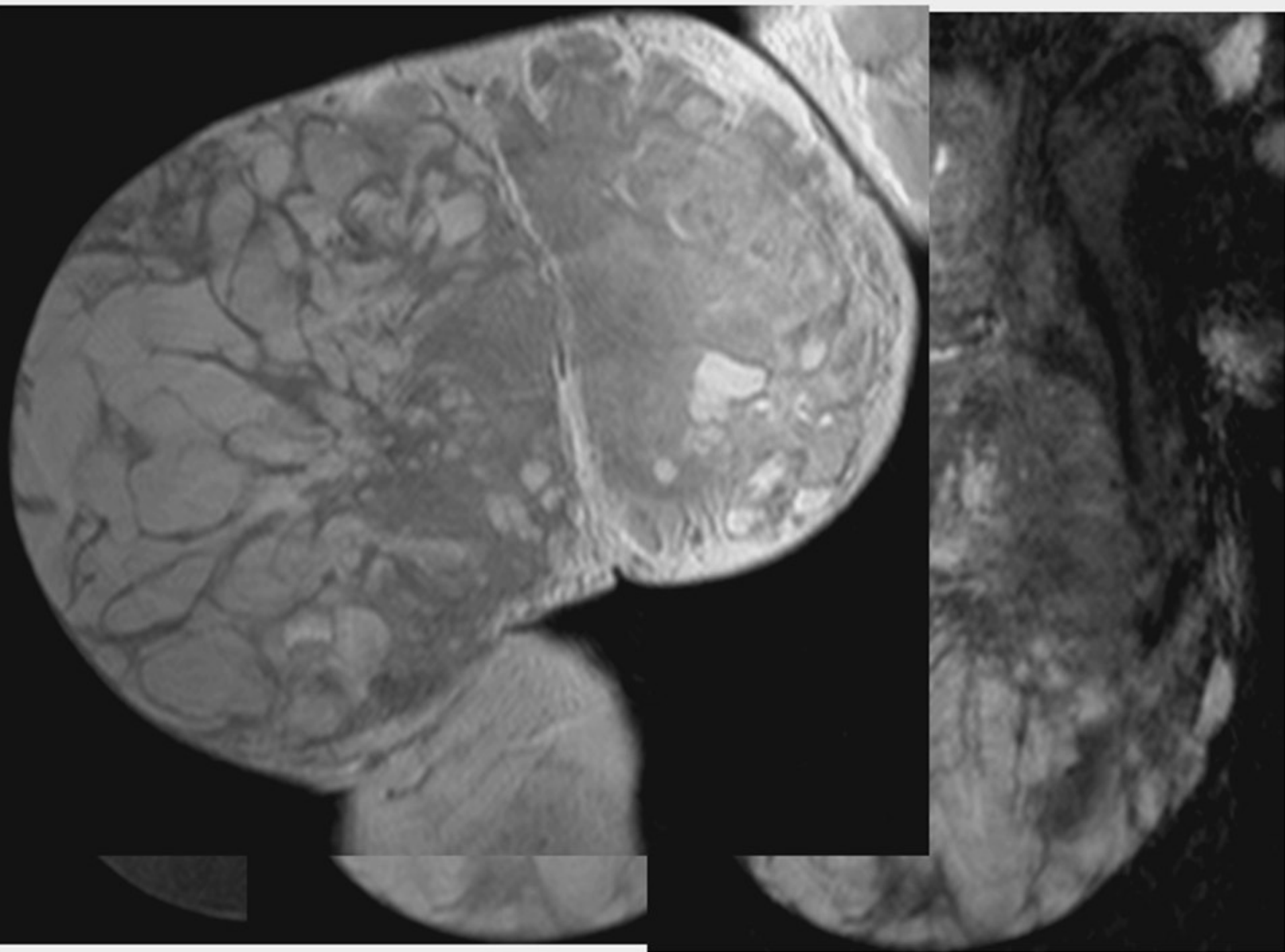


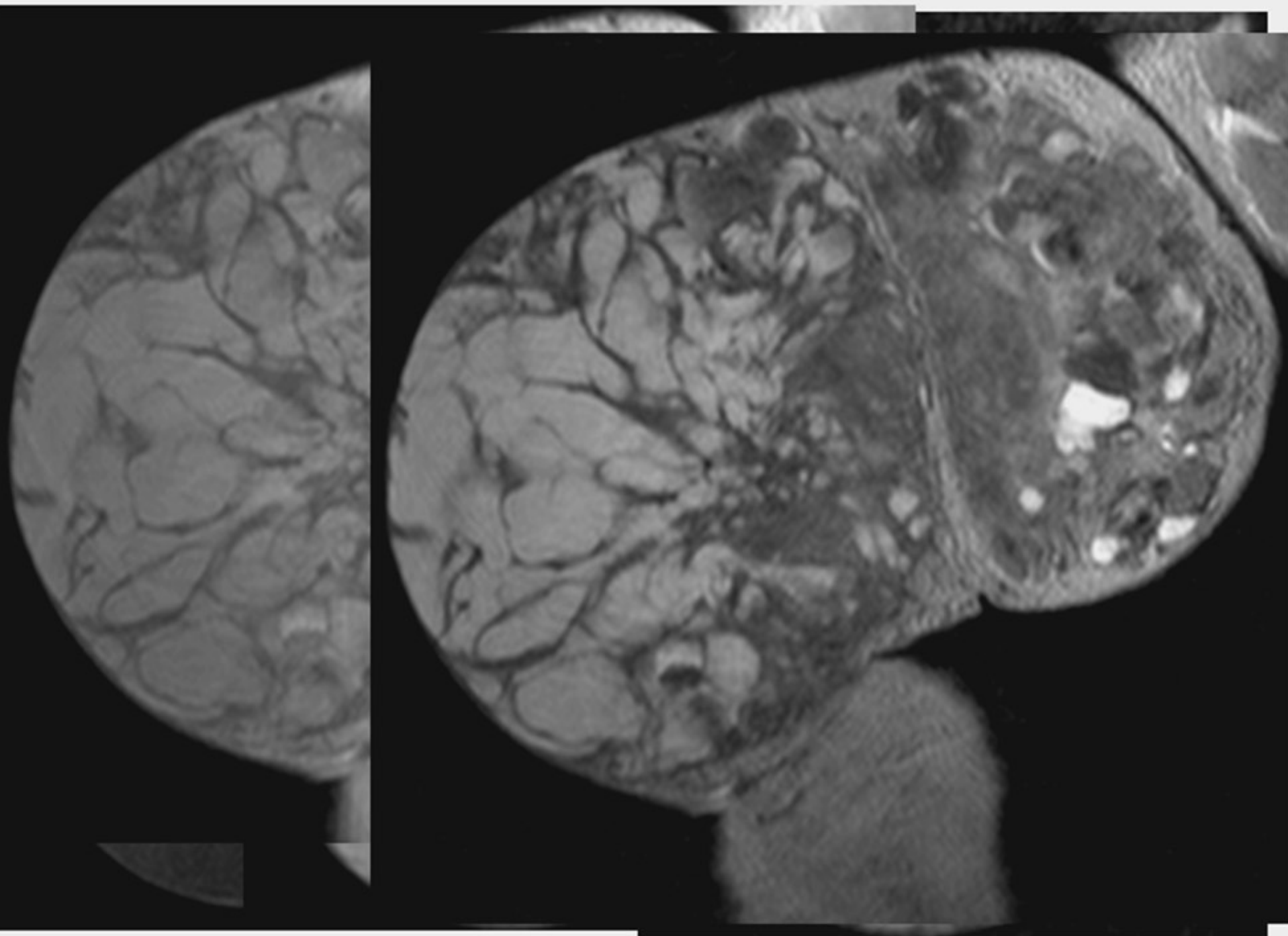


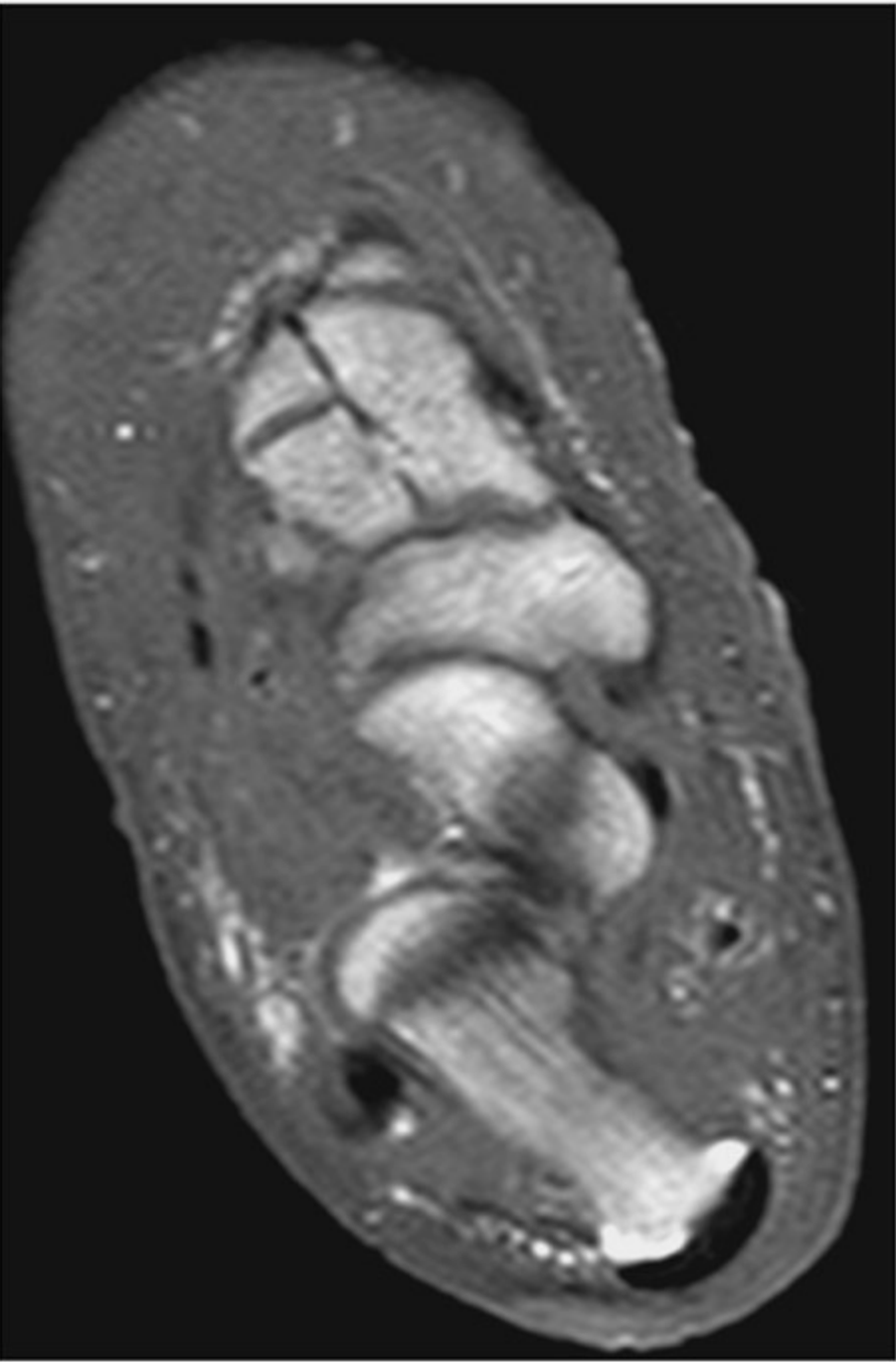


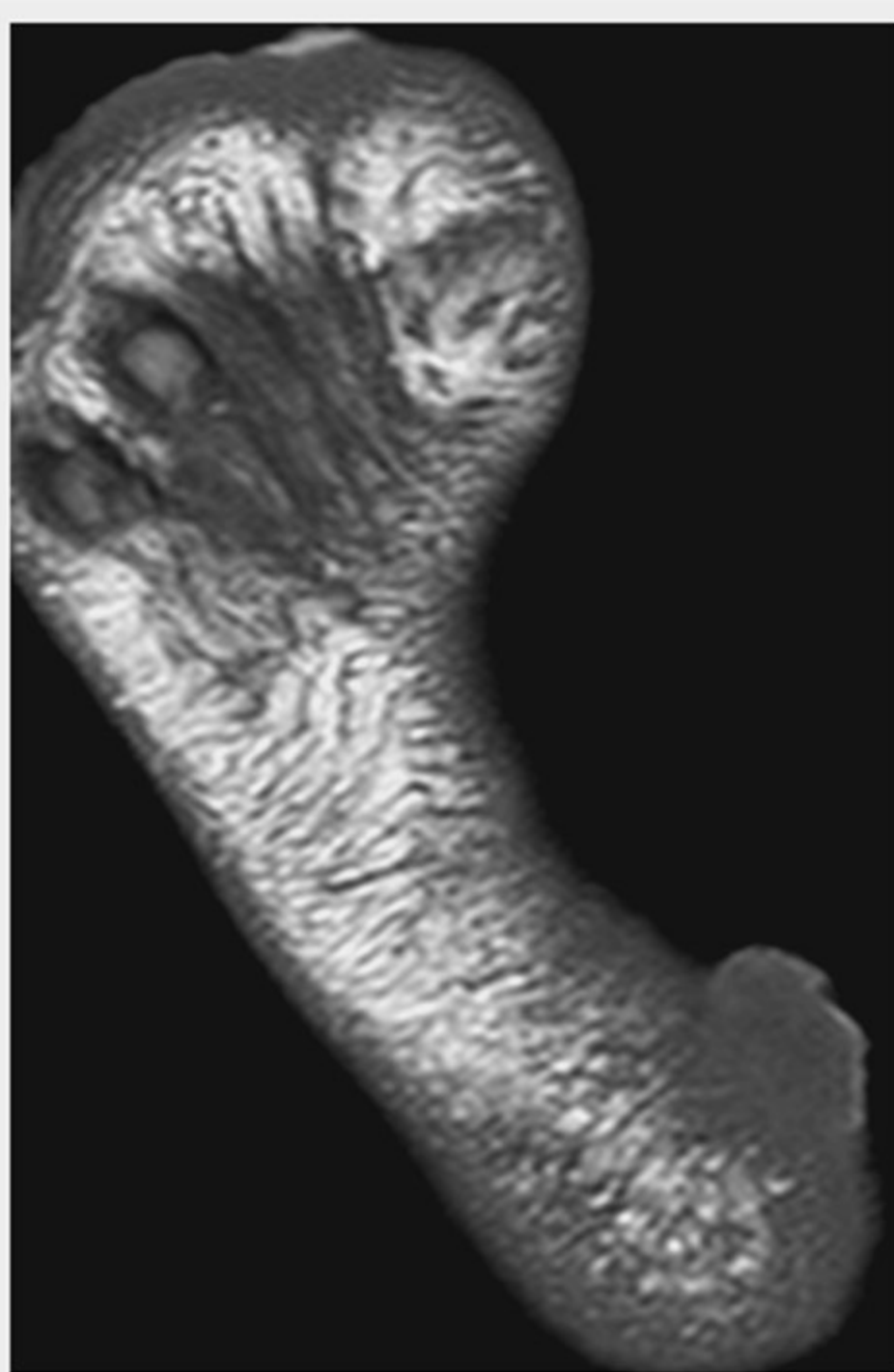
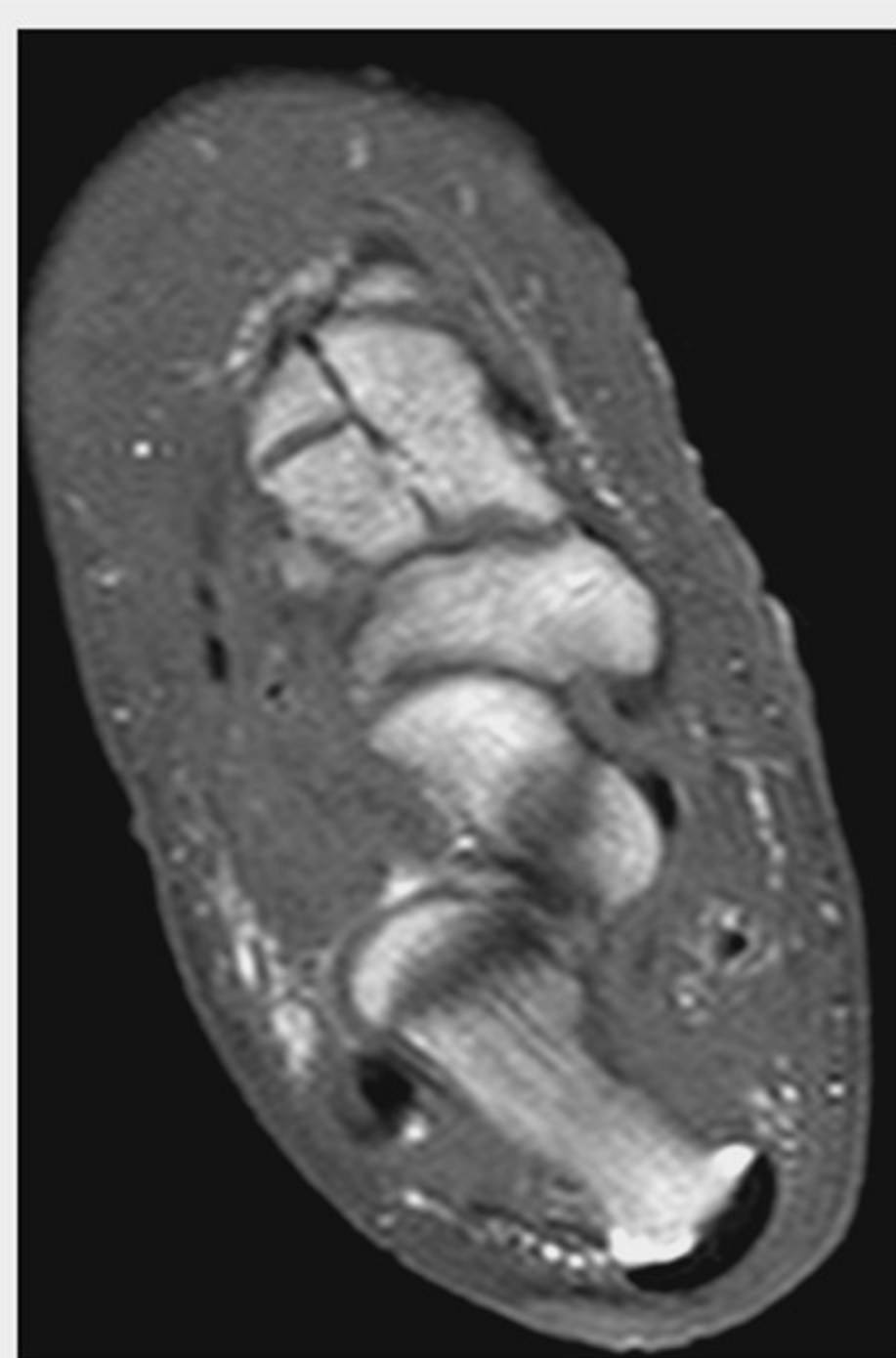


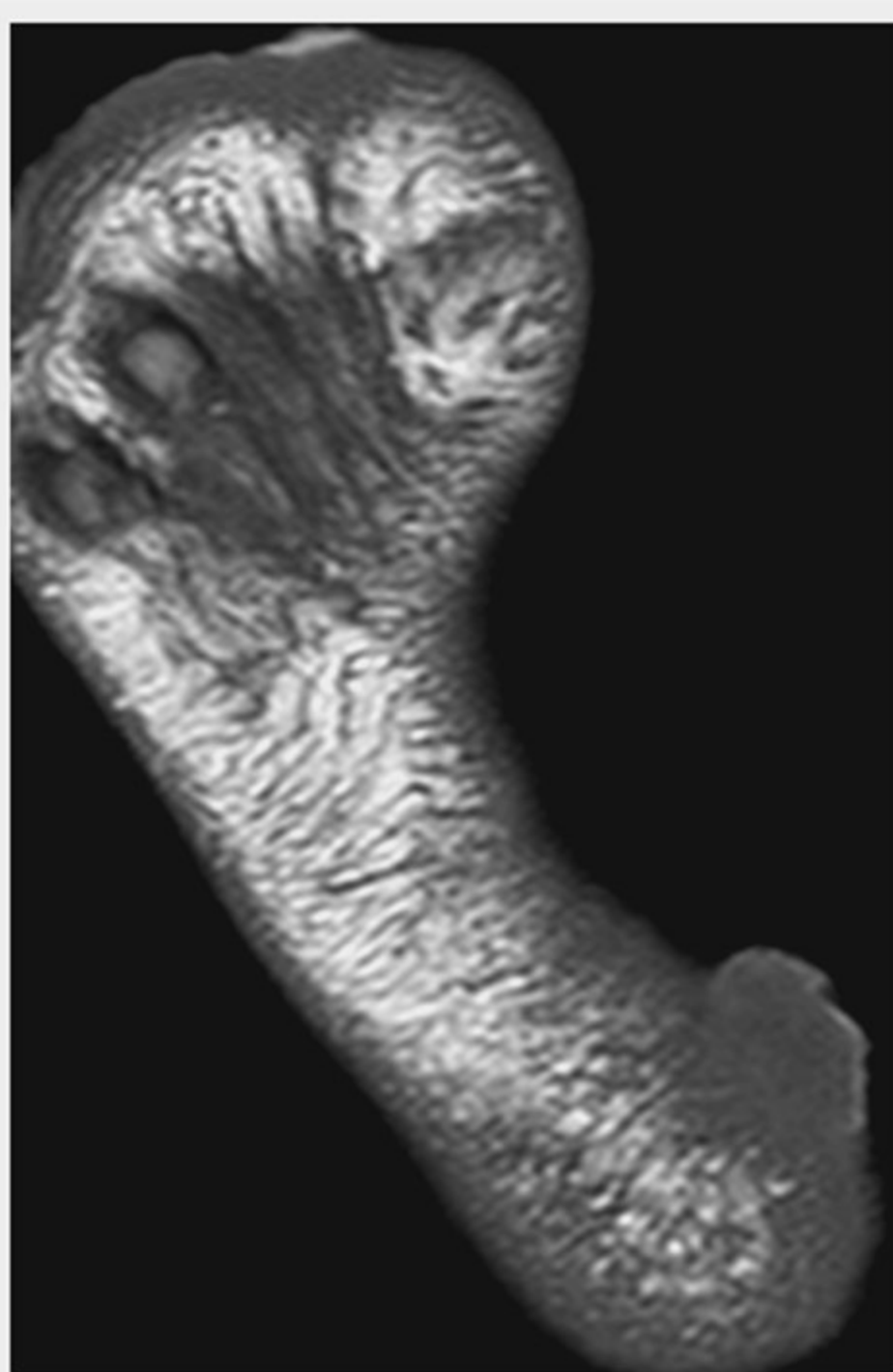
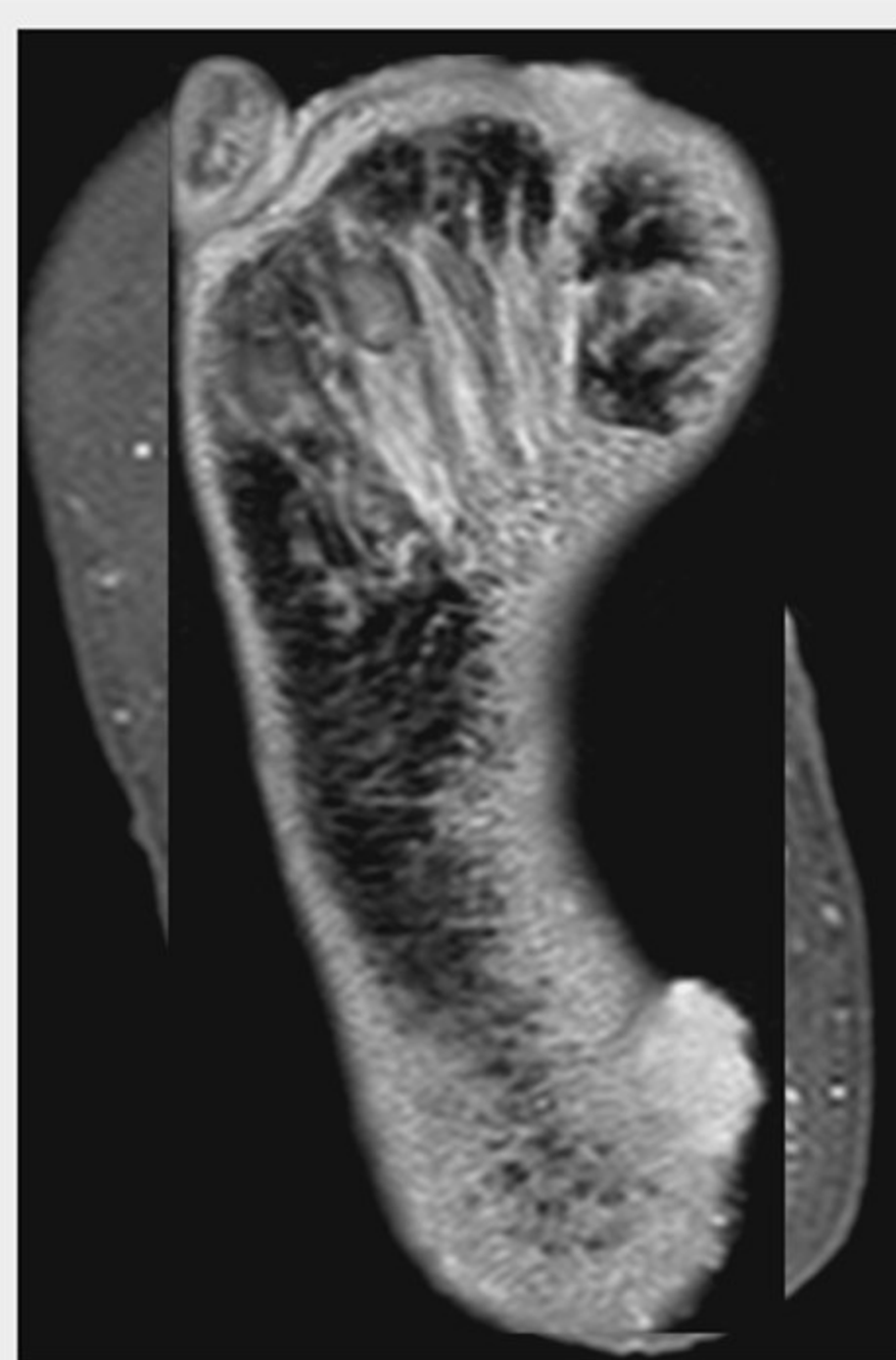


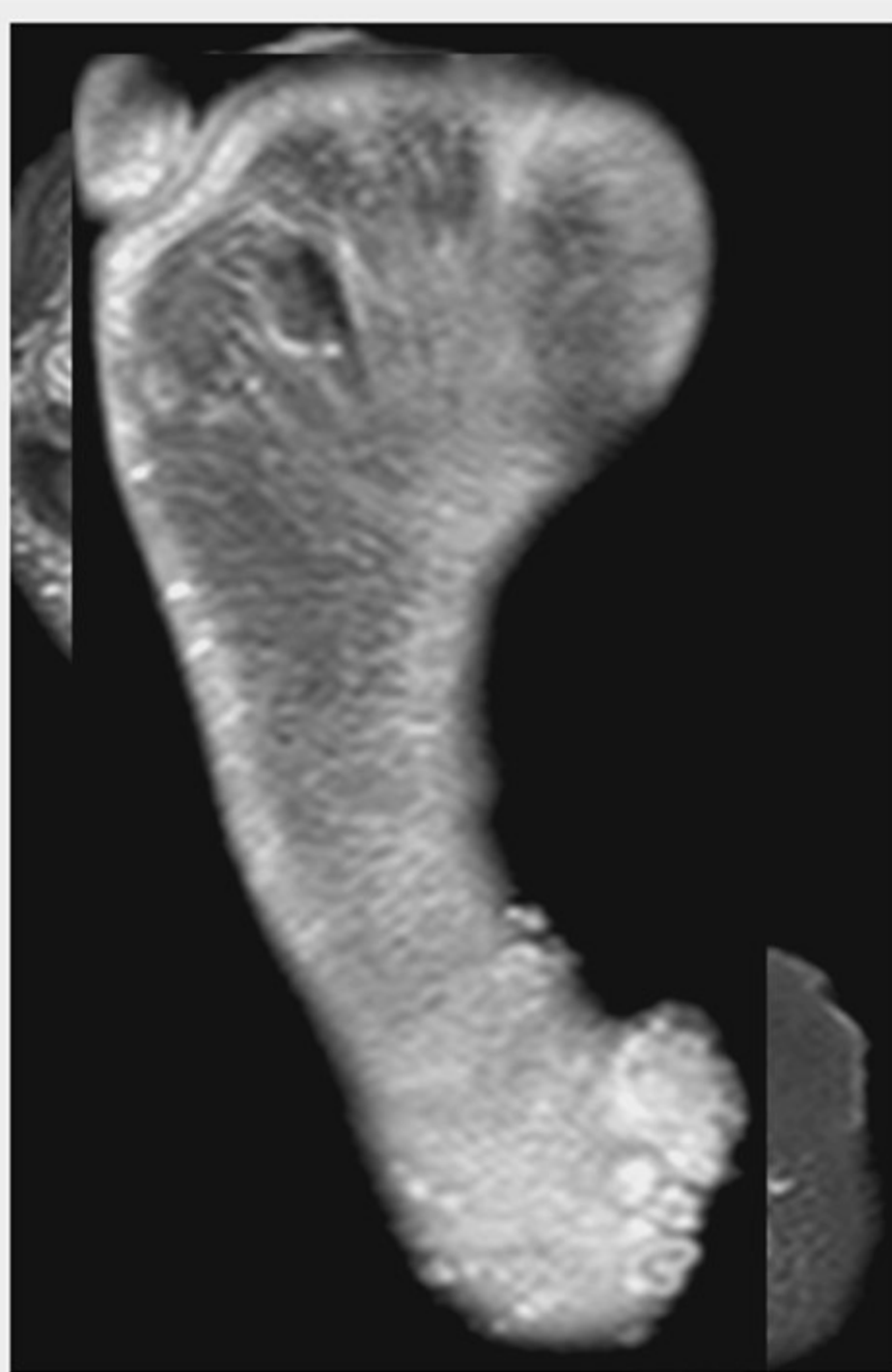
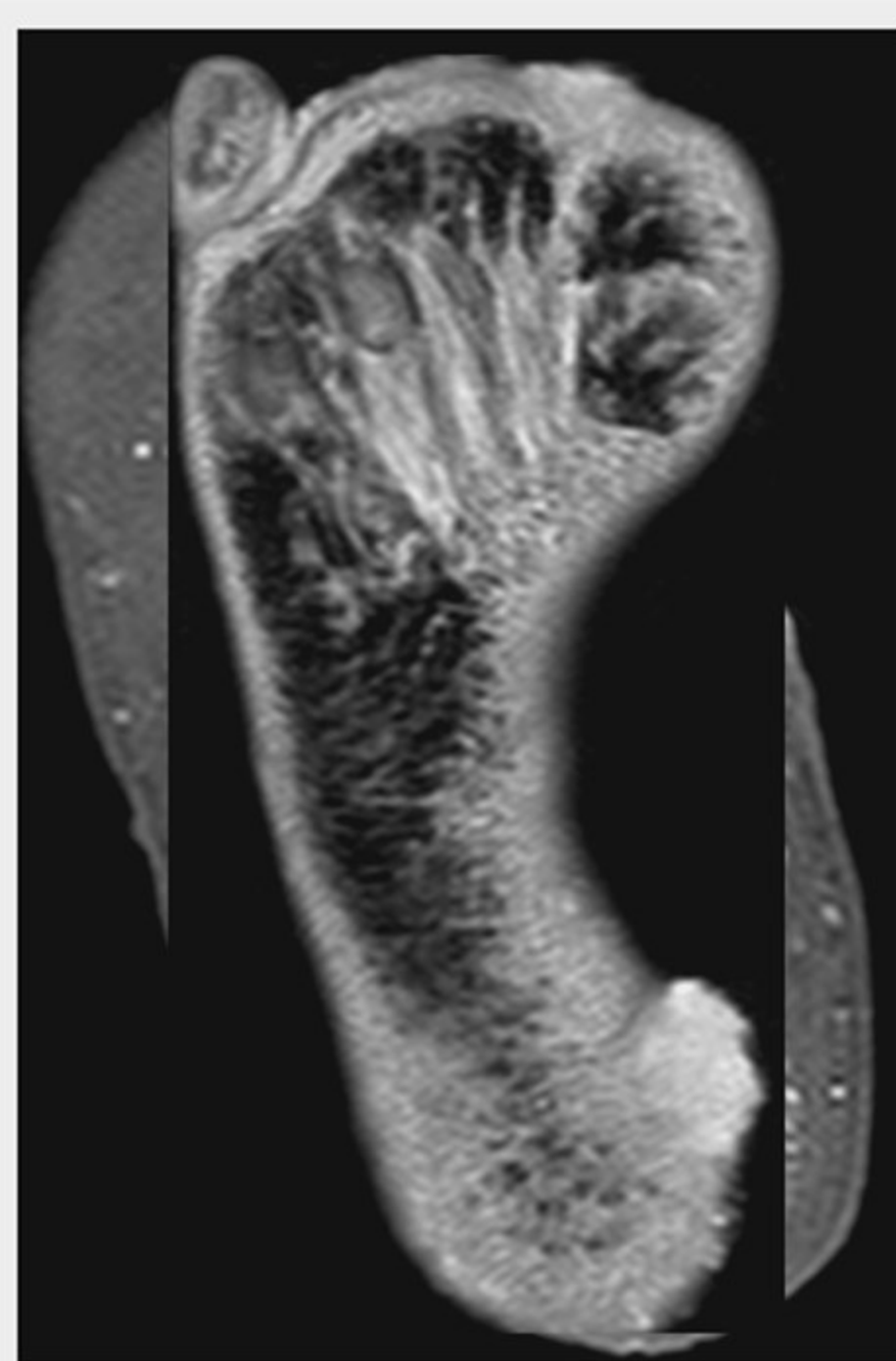


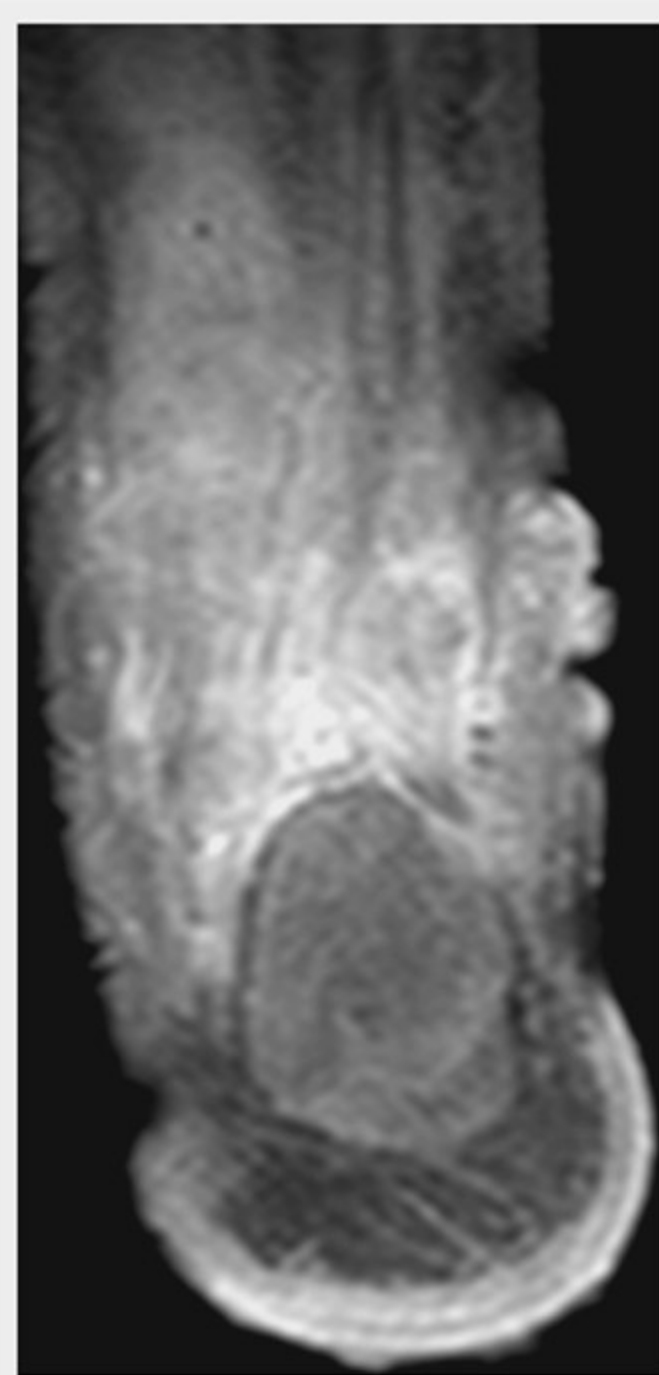
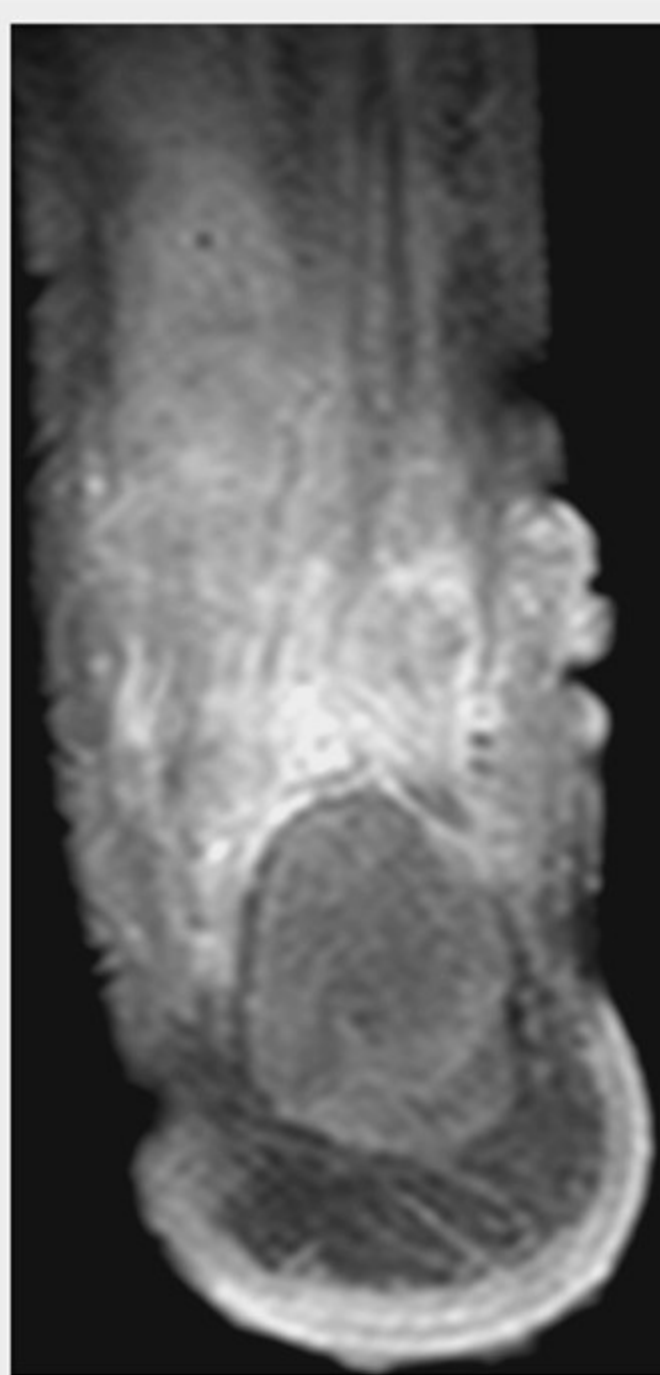
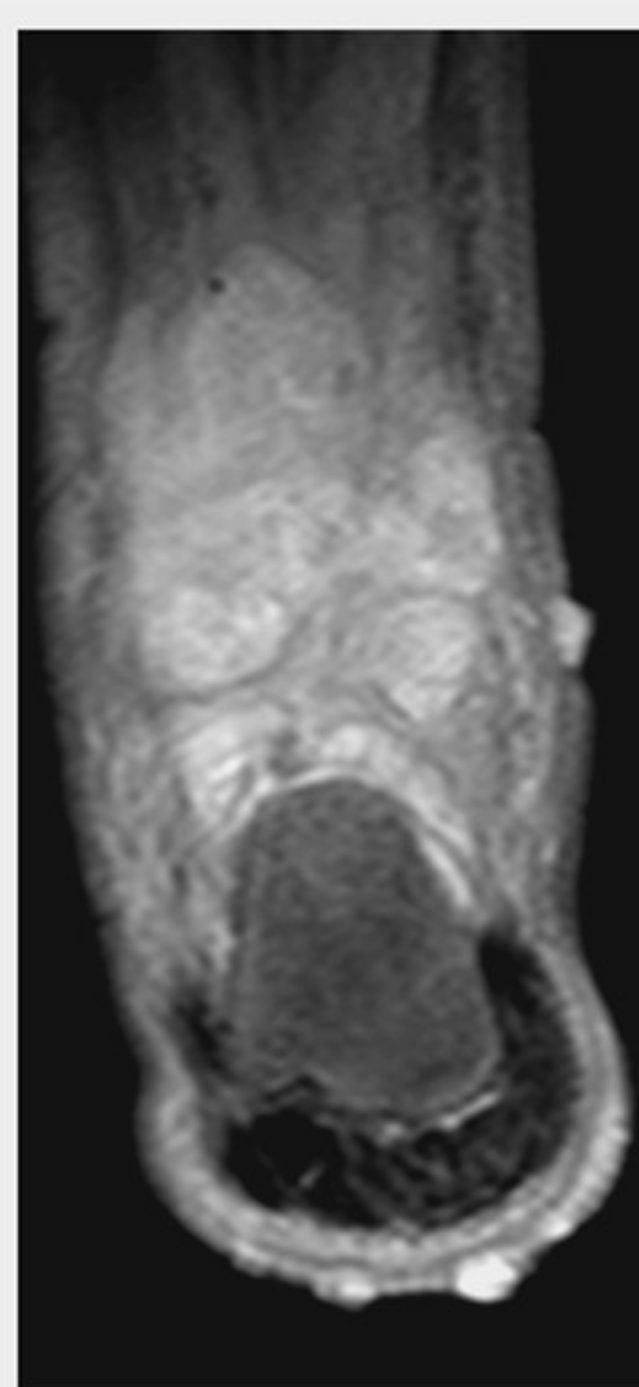








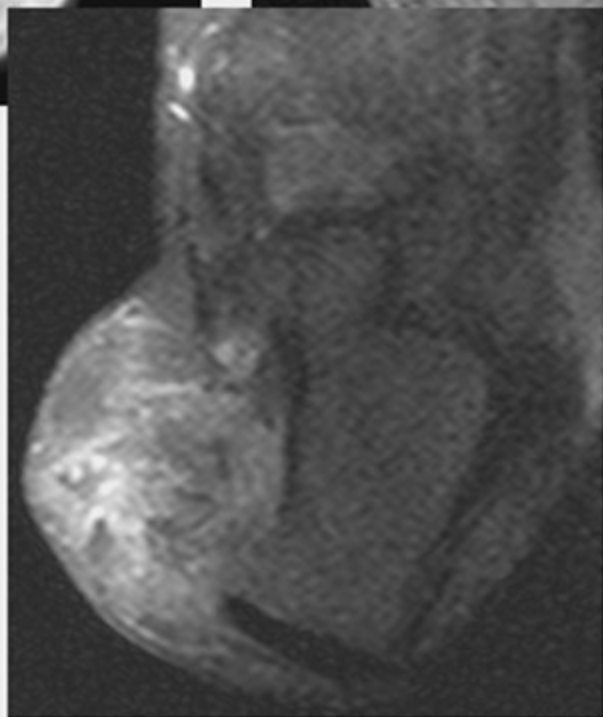
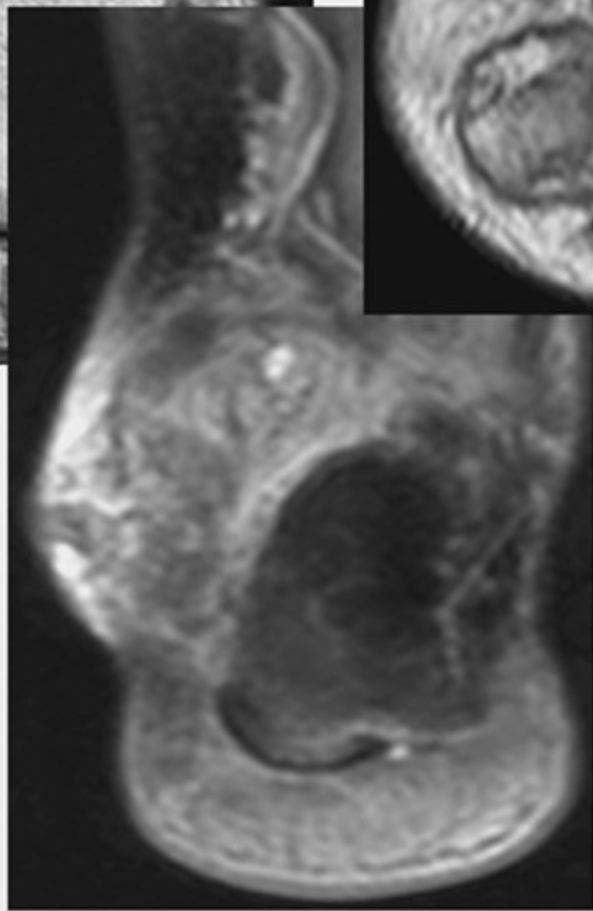
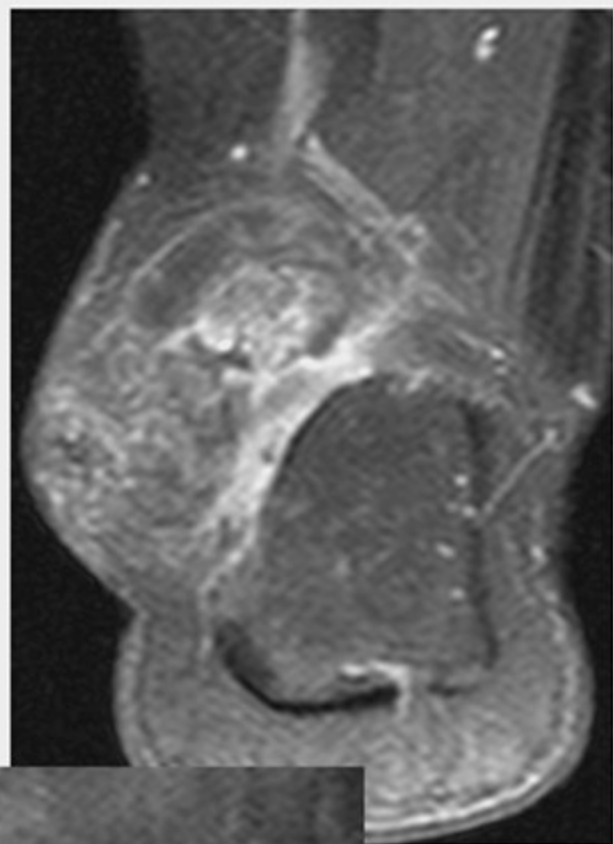
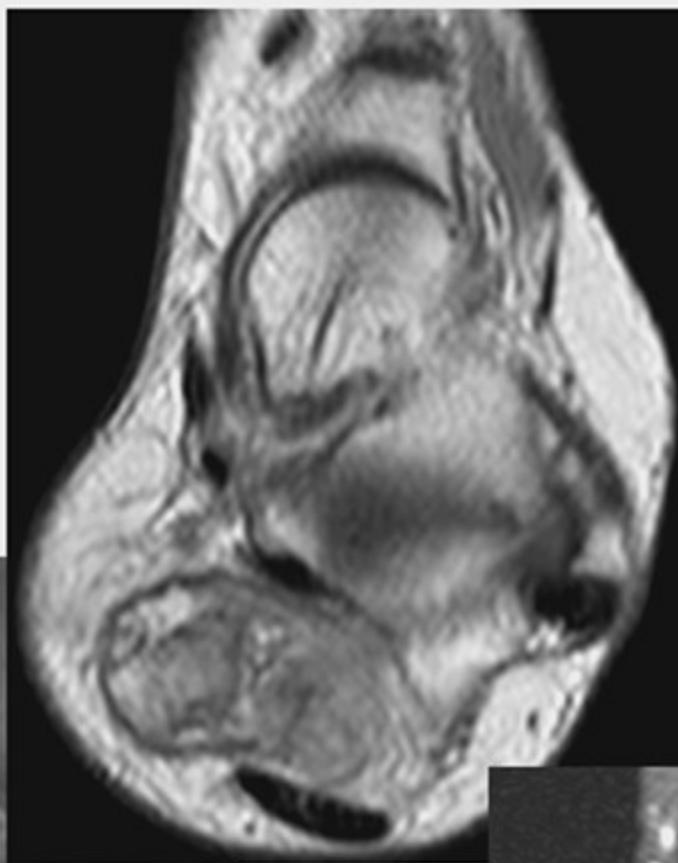
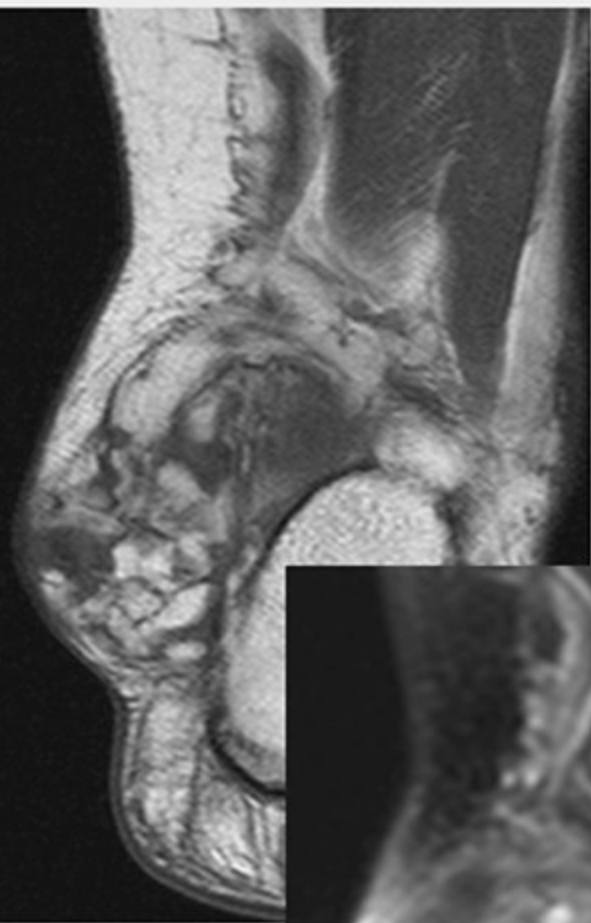




CHONDRO-OSSEOUS TUMOURS

Soft tissue chondroma	9220/0
Mesenchymal chondrosarcoma	9240/3
Extraskeletal osteosarcoma	9180/3





TUMOURS OF UNCERTAIN DIFFERENTIATION

Benign

Intramuscular myxoma (incl. cellular variant)	8840/0
Juxta-articular myxoma	8840/0
Deep ('aggressive') angiomyxoma	8841/0
Pleomorphic hyalinizing angiectatic tumour	
Ectopic hamartomatous thymoma	8587/0

Intermediate (rarely metastasizing)

Angiomatoid fibrous histiocyoma	8836/1
Ossifying fibromyxoid tumour (incl. atypical / malignant)	8842/0
Mixed tumour/ Myoepithelioma/ Parachordoma	8940/1 8982/1 9373/1

TUMOURS OF UNCERTAIN DIFFERENTIATION

Benign

Intramuscular myxoma
(incl. cellular variant)

8840/0

Juxta-articular myxoma

Deep ('aggressive') angiosarcoma

Pleomorphic hyalinizing
angiectatic tumour

Ectopic hamartomatous thymoma

Intermediate (rarely metastasizing)

Angiomatoid fibrous histiocytoma

Ossifying fibromyxoid tumour
(incl. atypical / malignant)

Mixed tumour/

Myoepithelioma/

Parachordoma

Malignant

Synovial sarcoma

9040/3

Epithelioid sarcoma

8804/3

Alveolar soft part sarcoma

9581/3

Clear cell sarcoma of soft tissue

9044/3

Extraskeletal myxoid chondrosarcoma
("chordoid" type)

9231/3

PNET / Extraskeletal Ewing tumour
pPNET

9364/3

Extraskeletal Ewing tumour

9260/3

Desmoplastic small round cell tumour

8806/3

Extra-renal rhabdoid tumour

8963/3

Malignant mesenchymoma

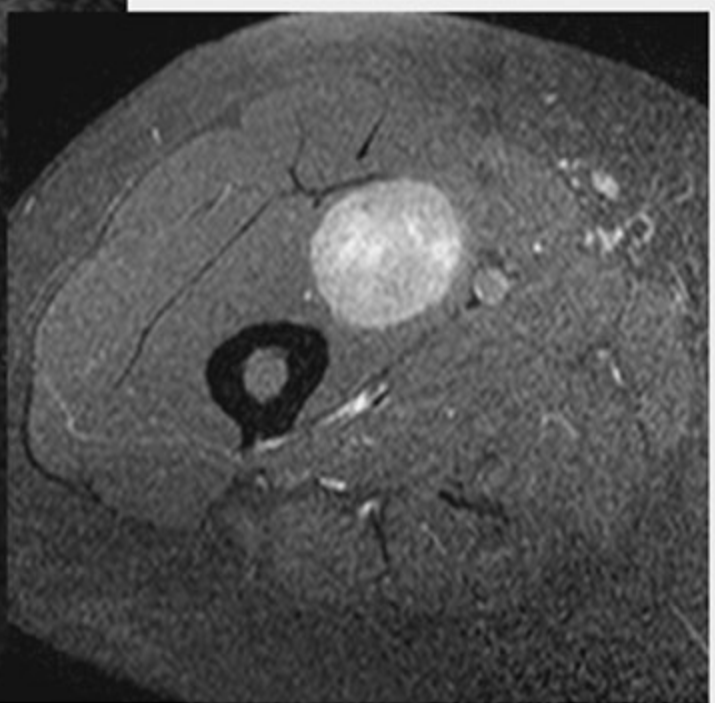
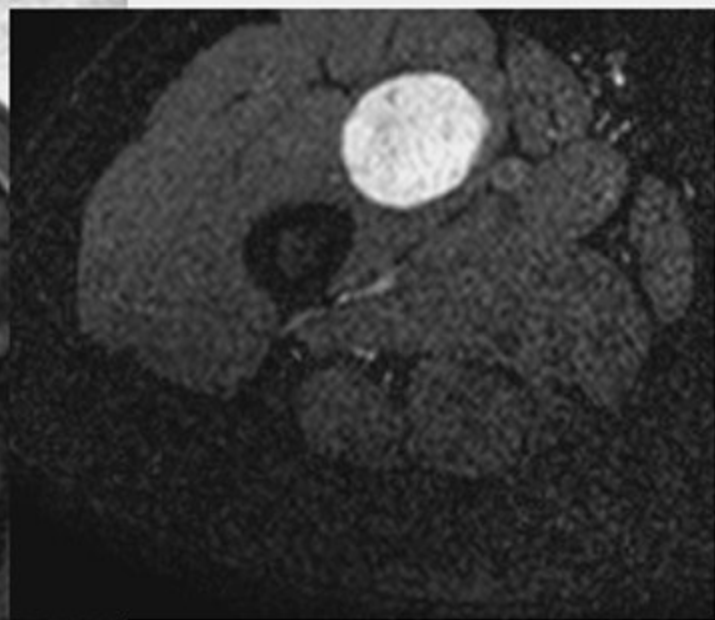
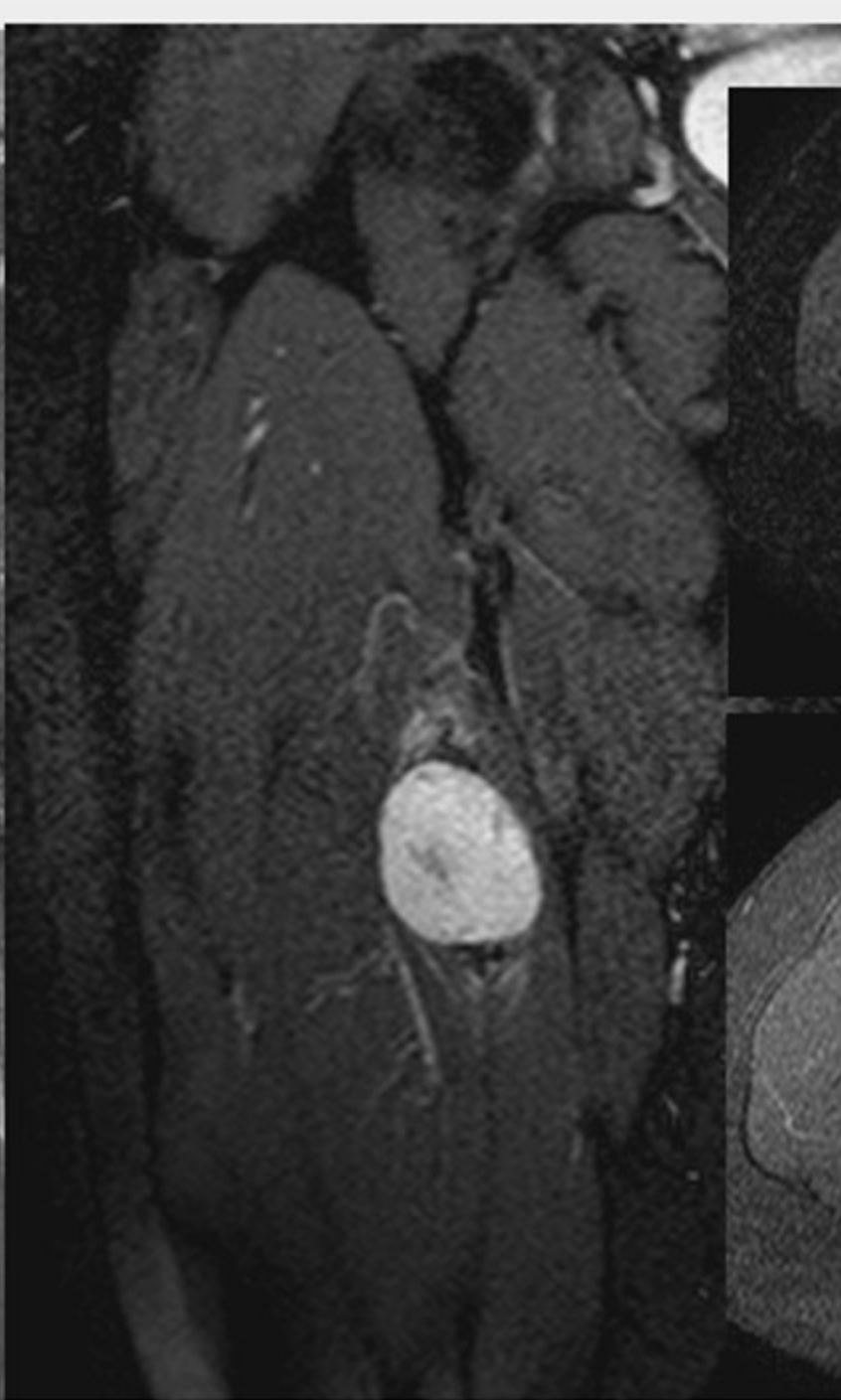
8990/3

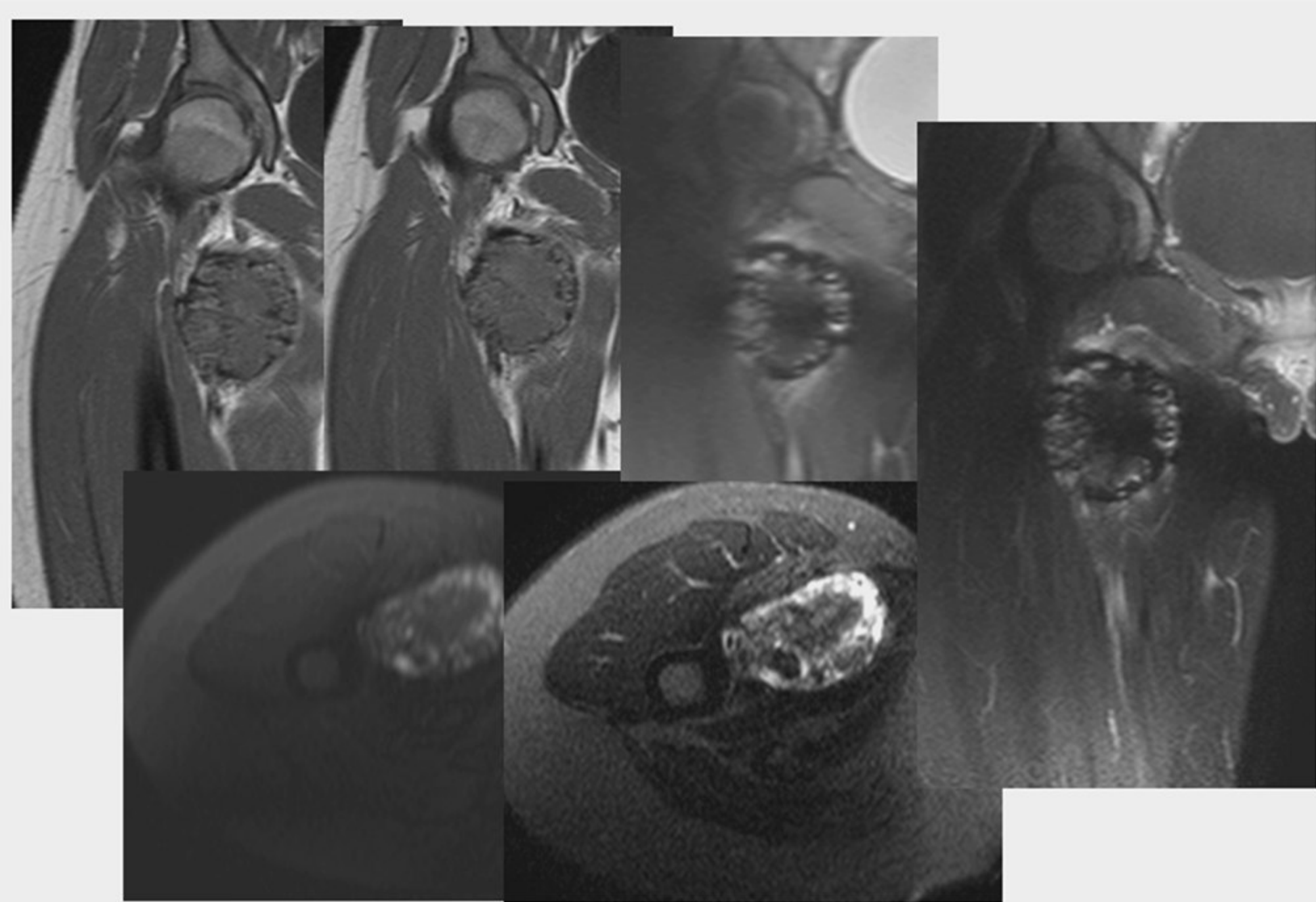
Neoplasms with perivascular epithelioid
cell differentiation (PEComa)

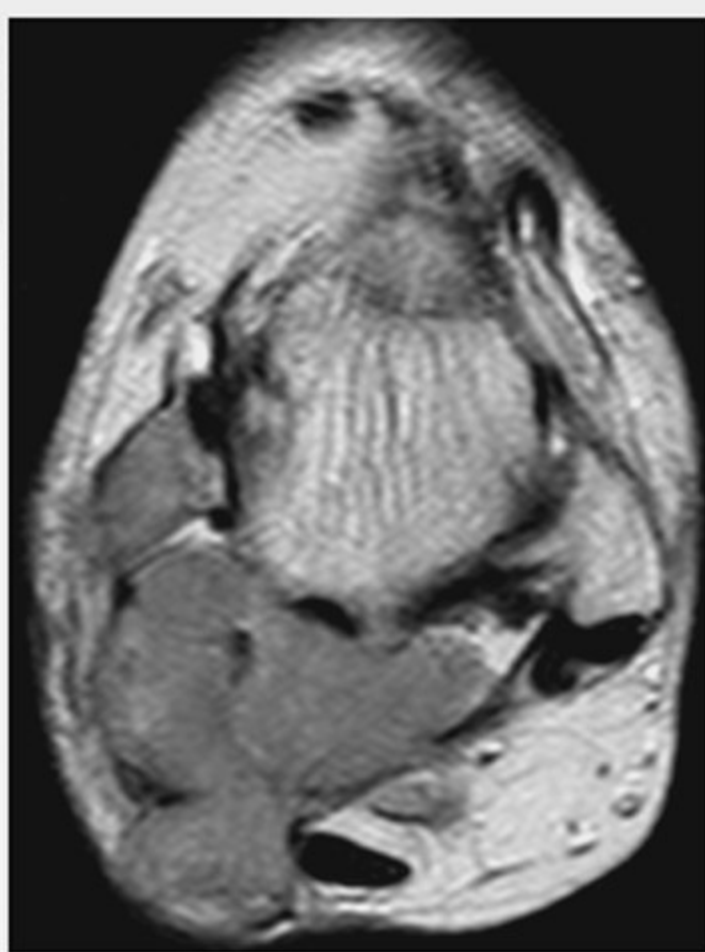
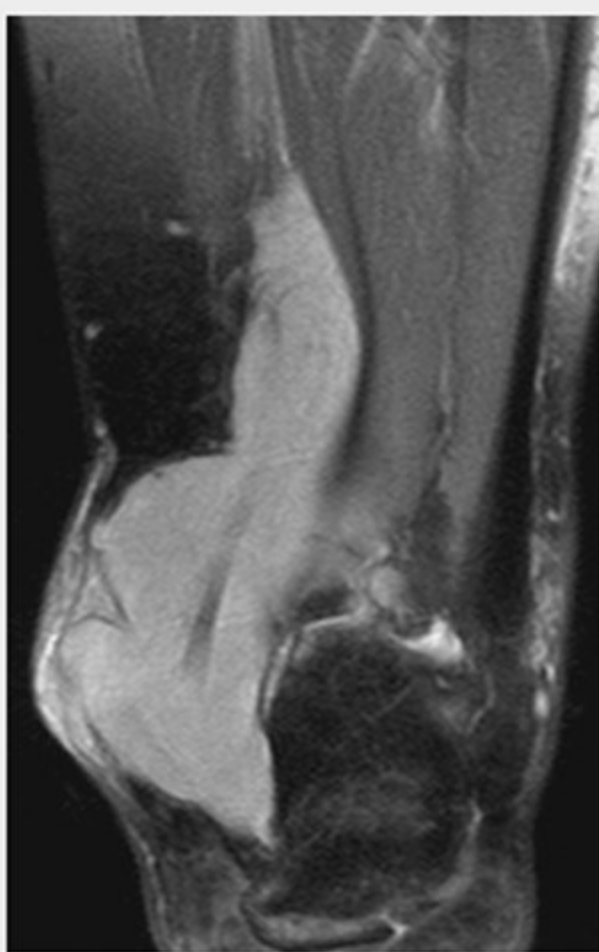
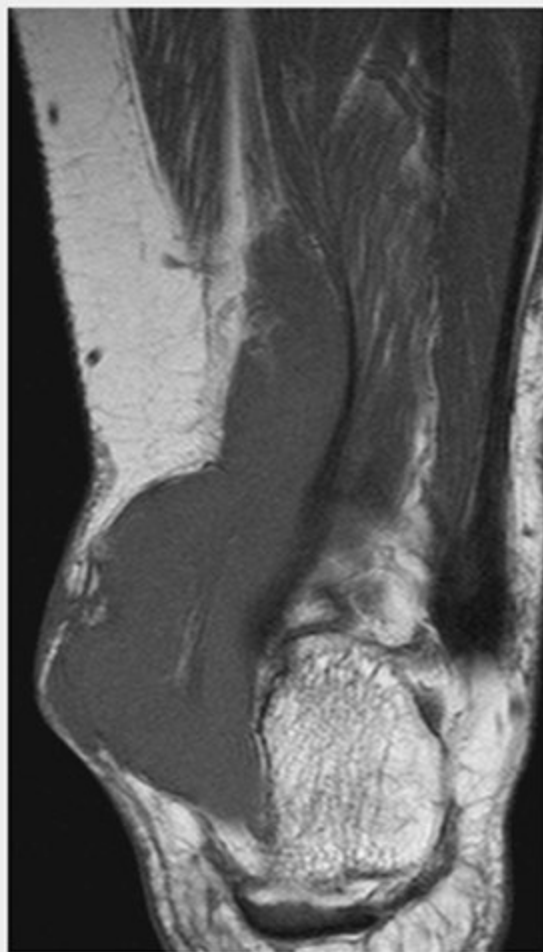
clear cell myomelanocytic tumour

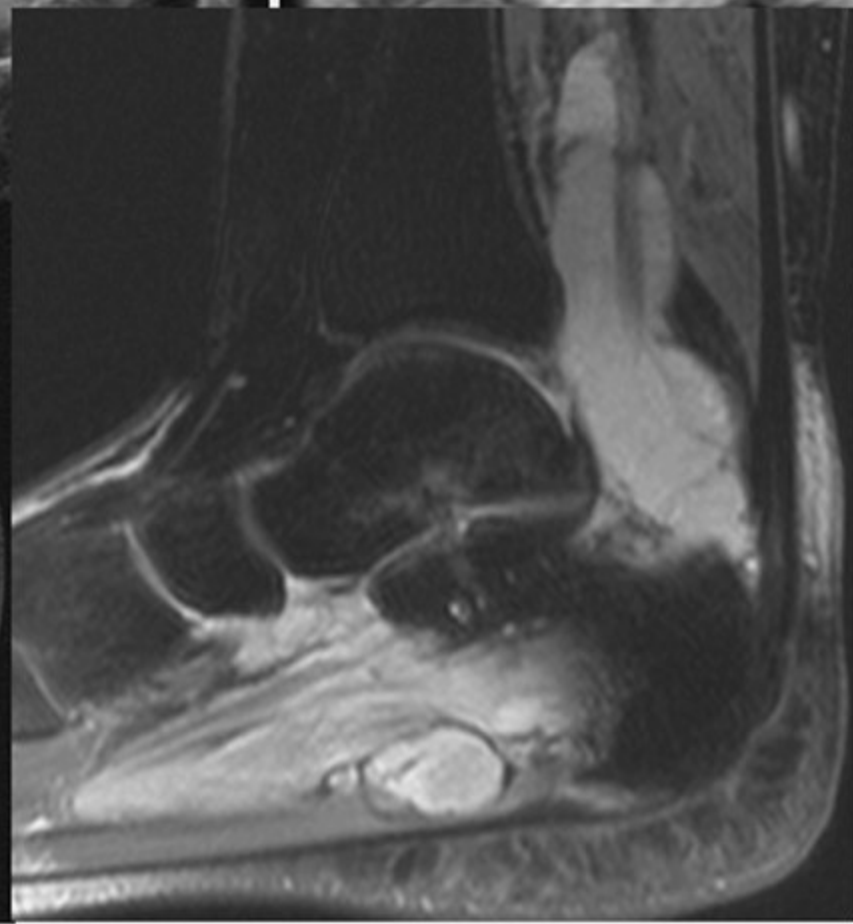
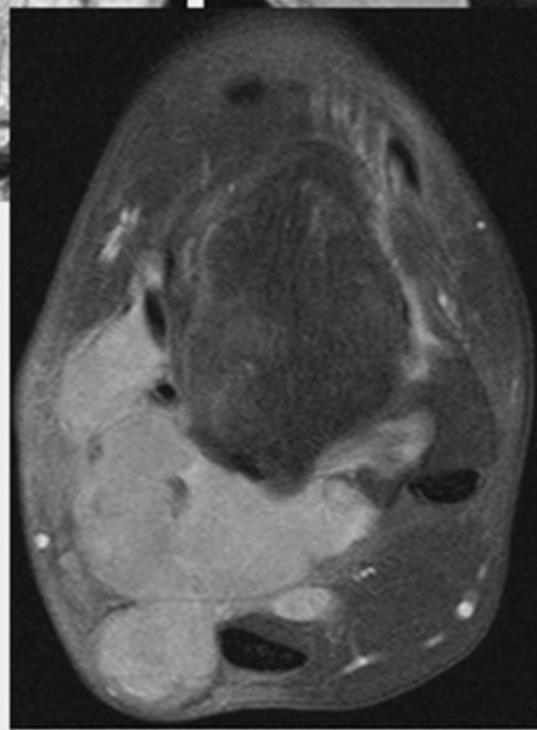
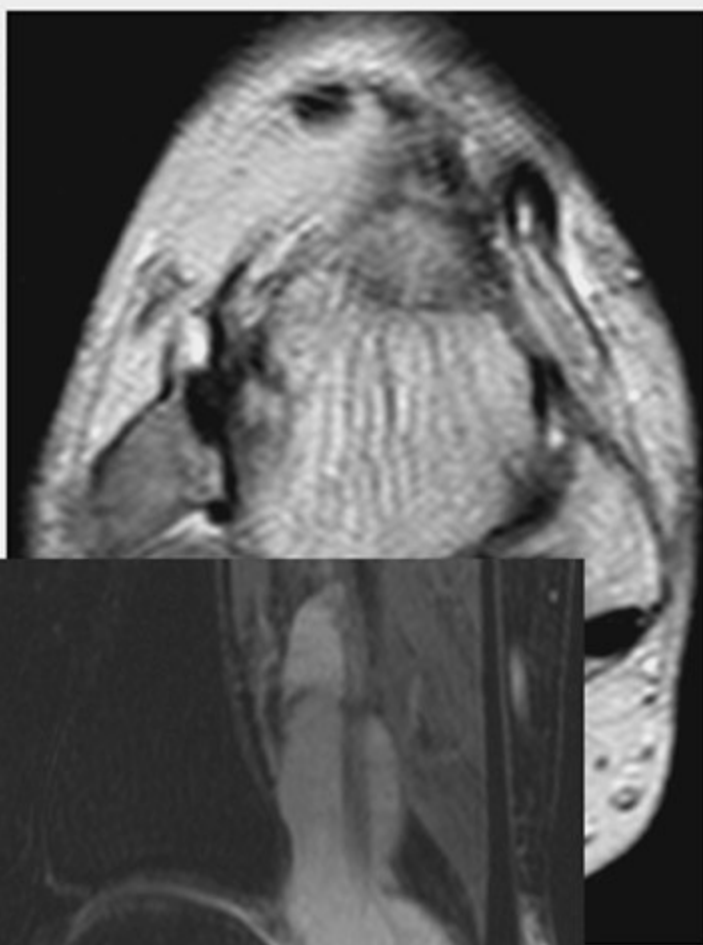
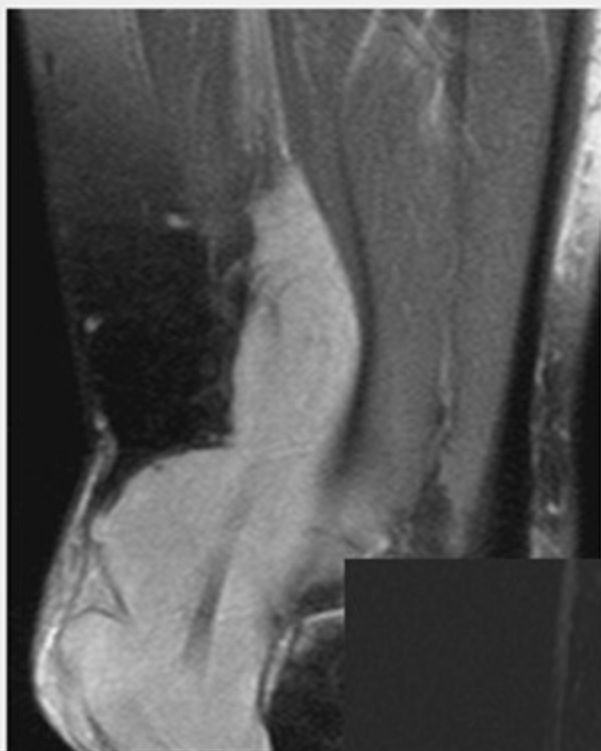
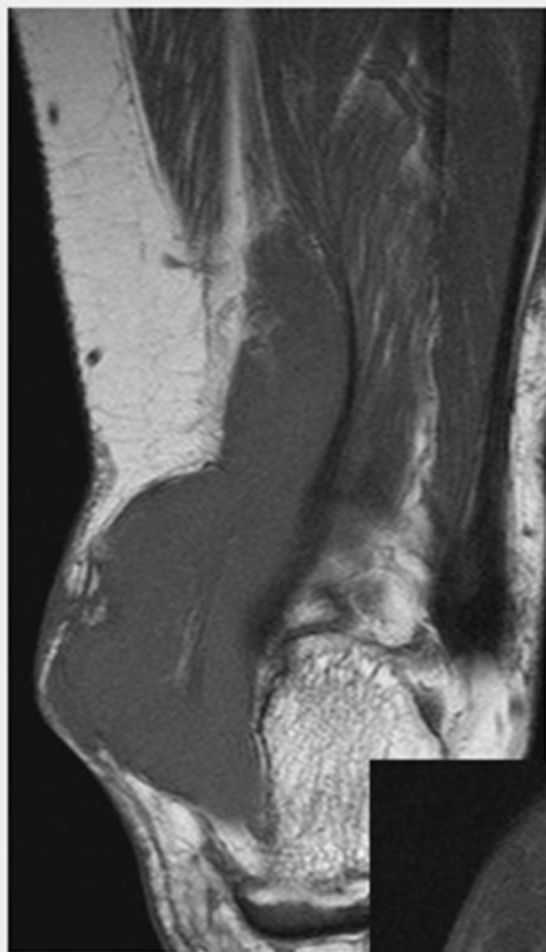
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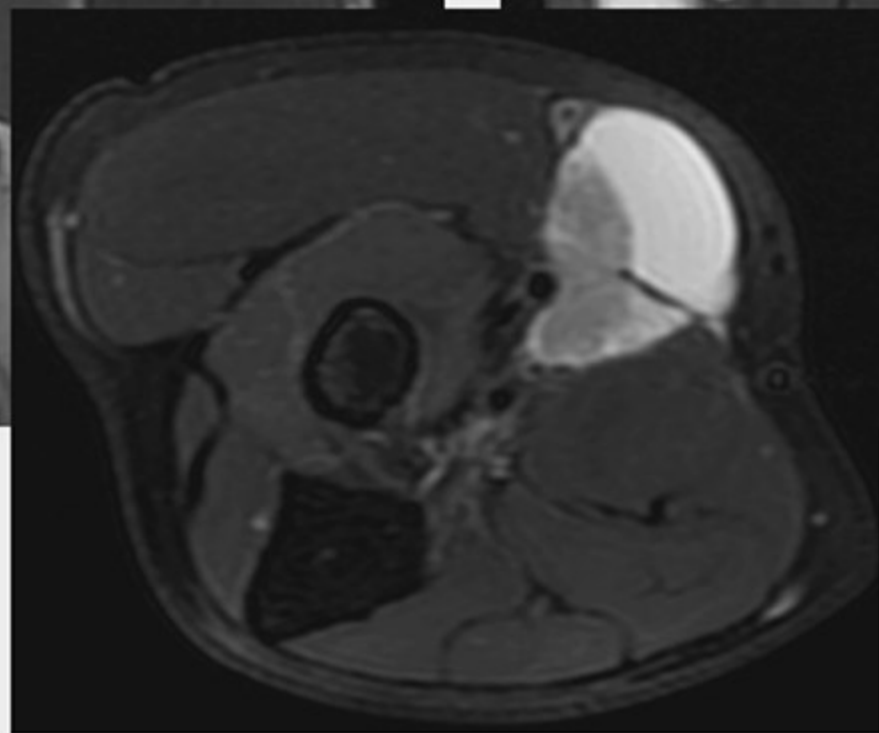
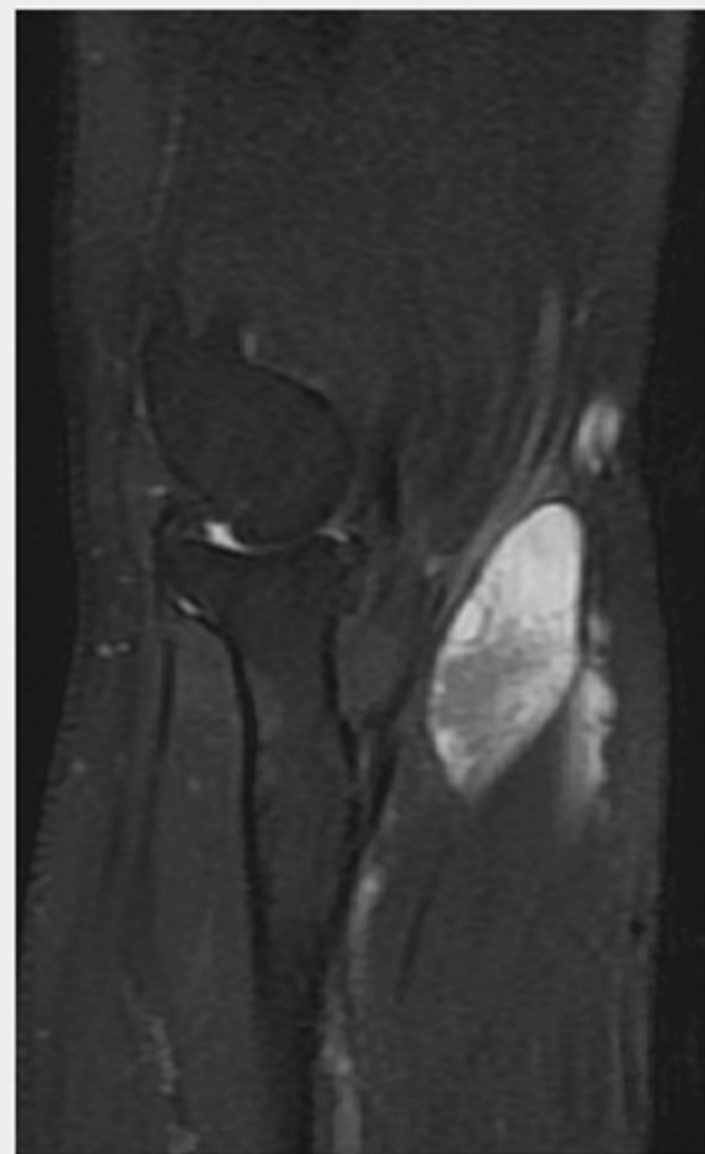
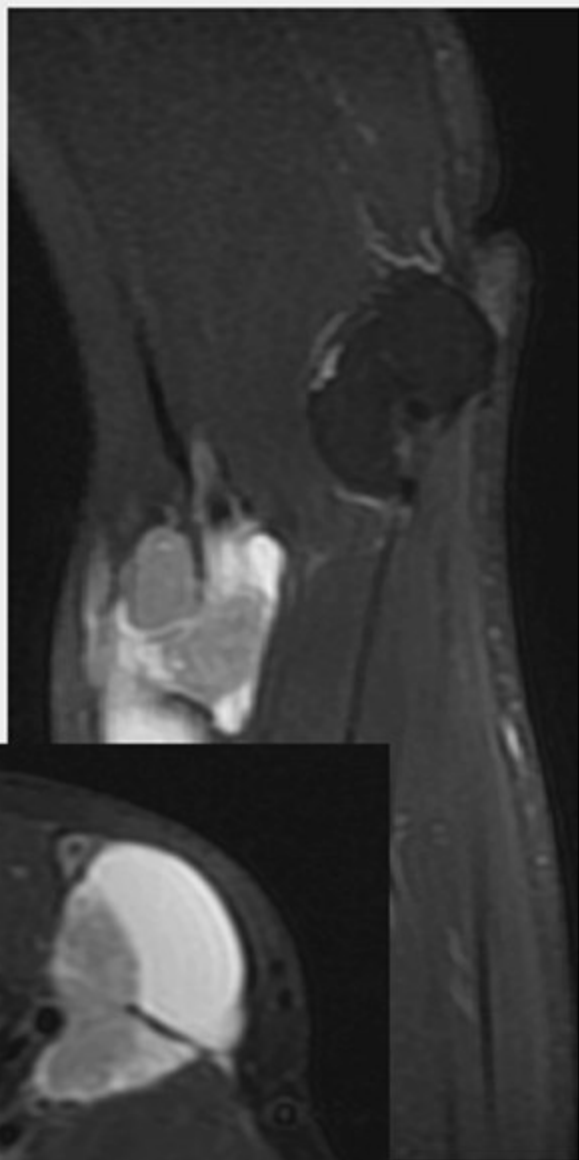
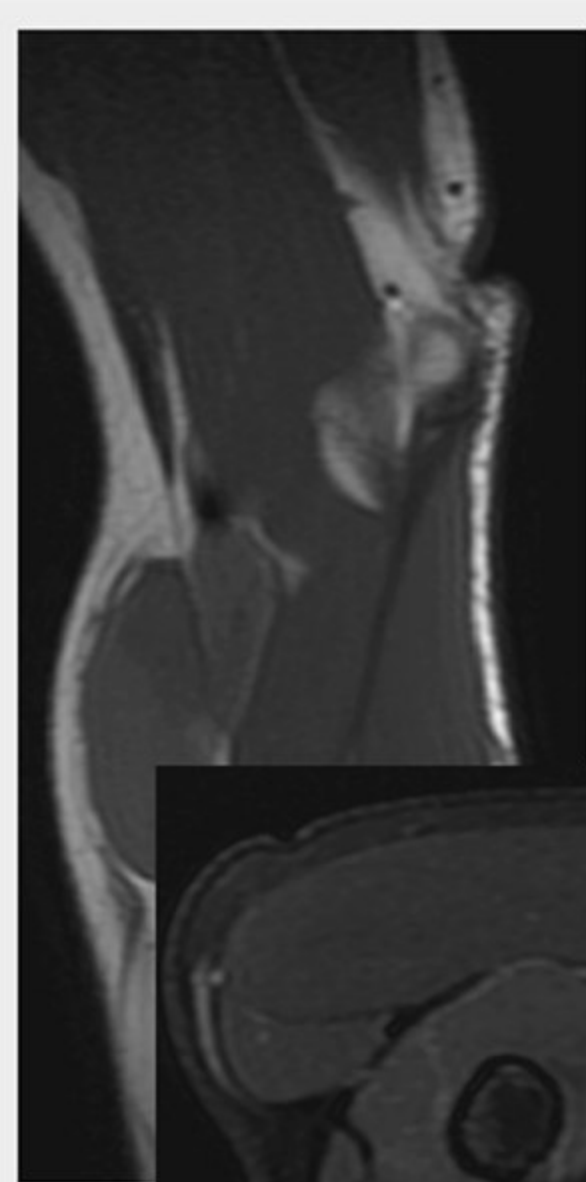
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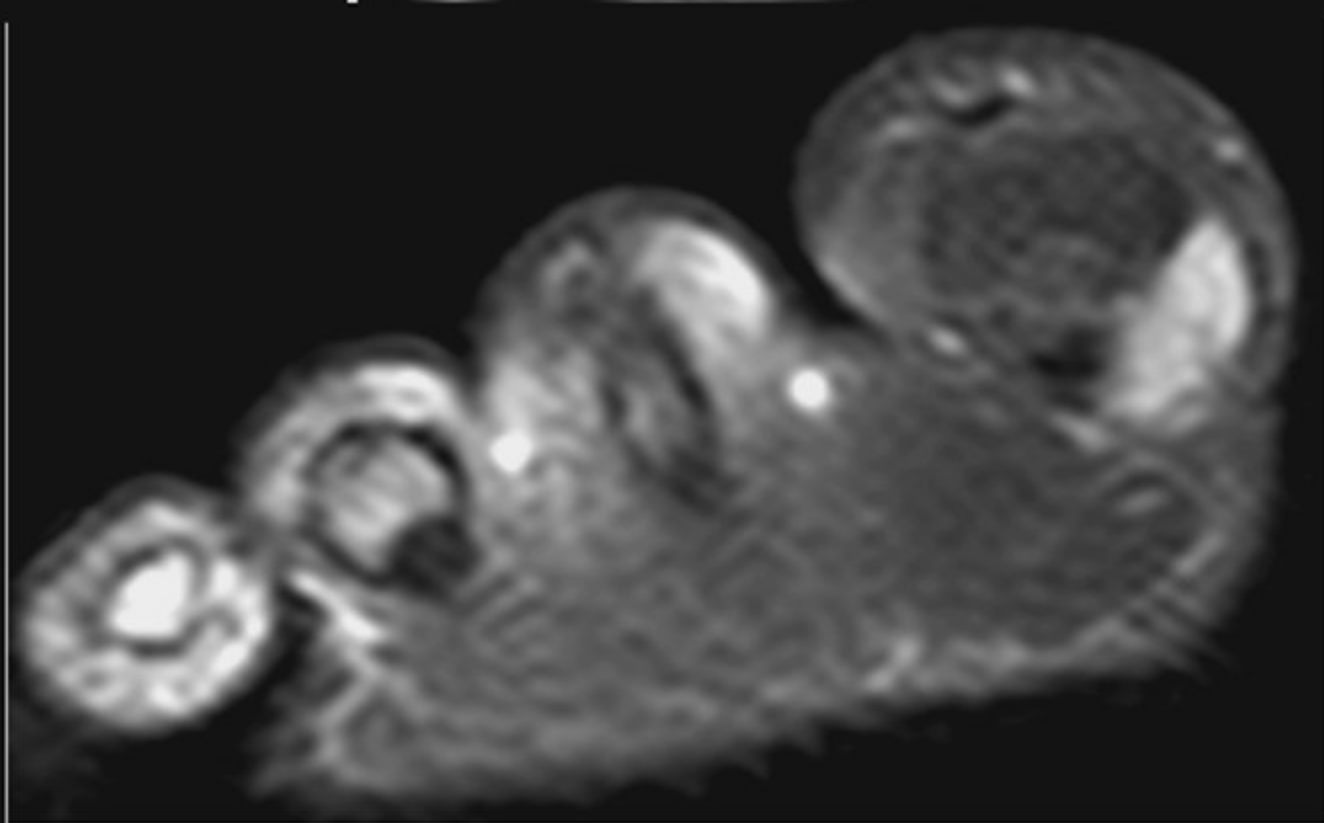
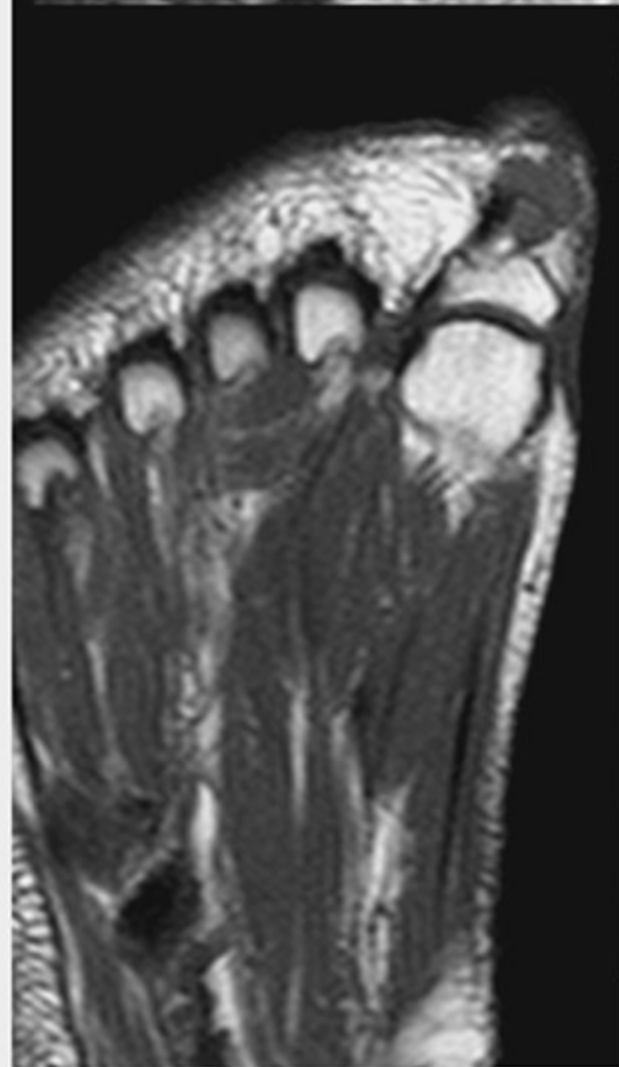
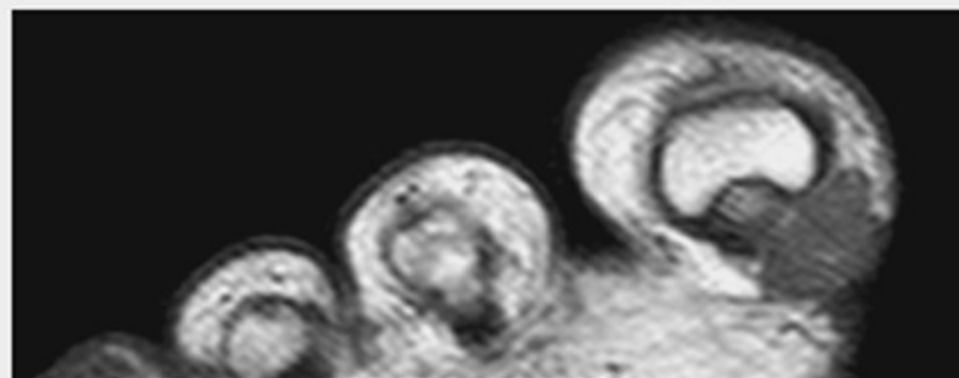


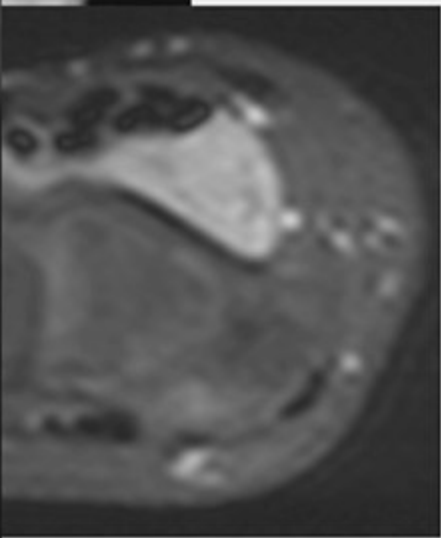
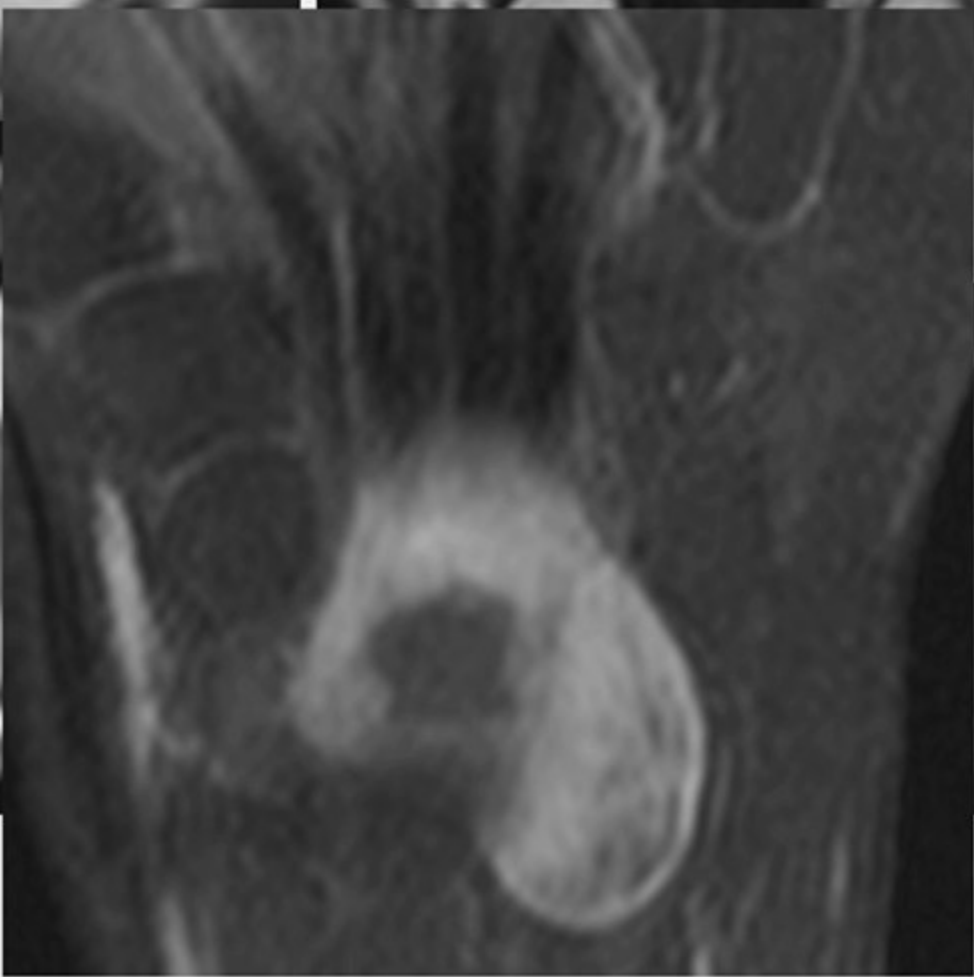
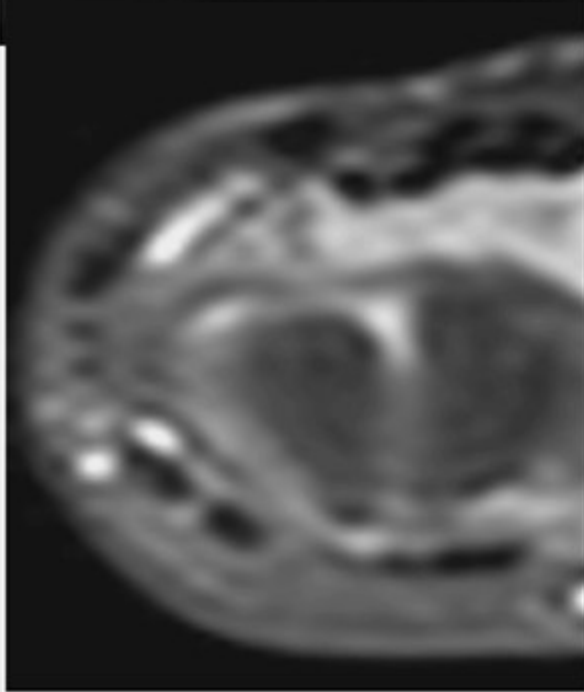
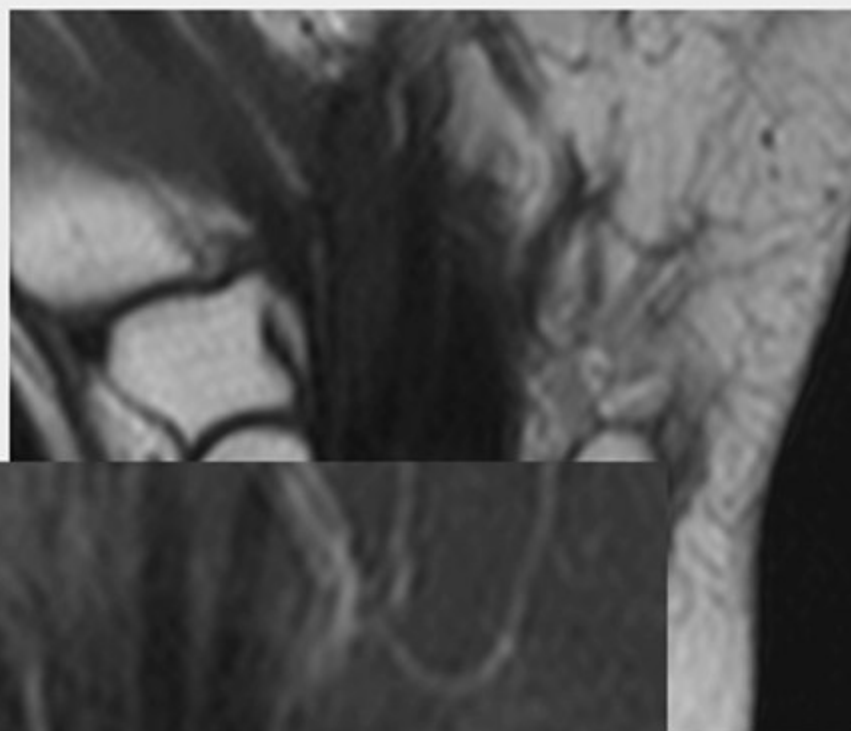
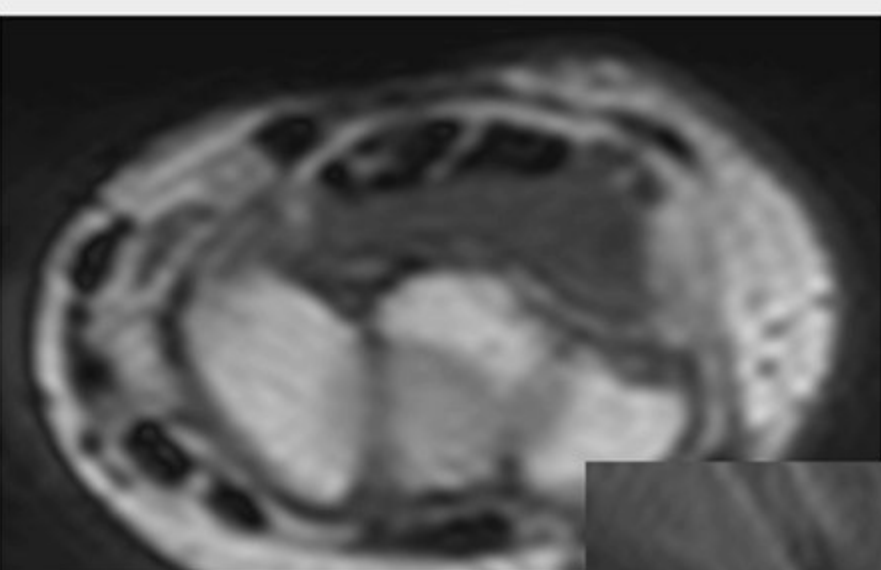


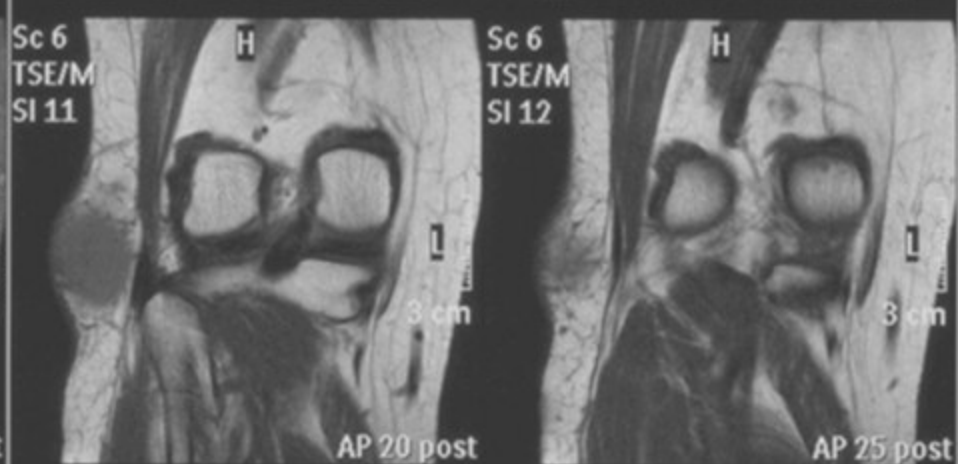
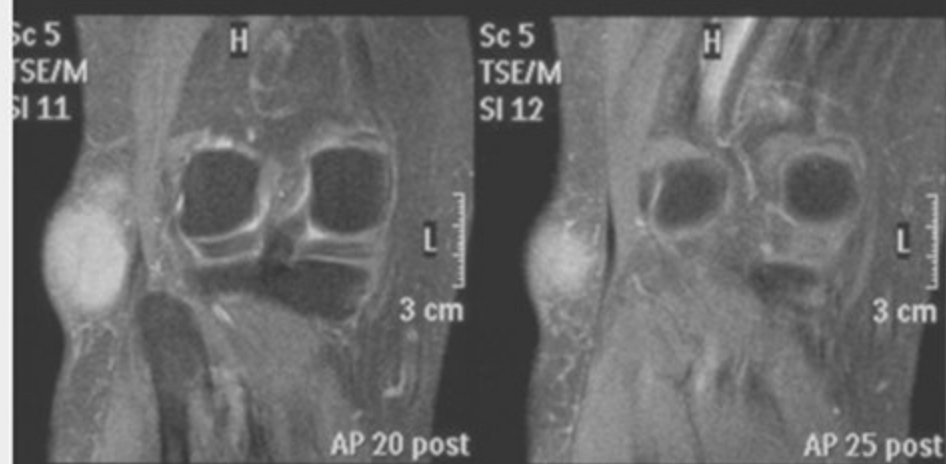
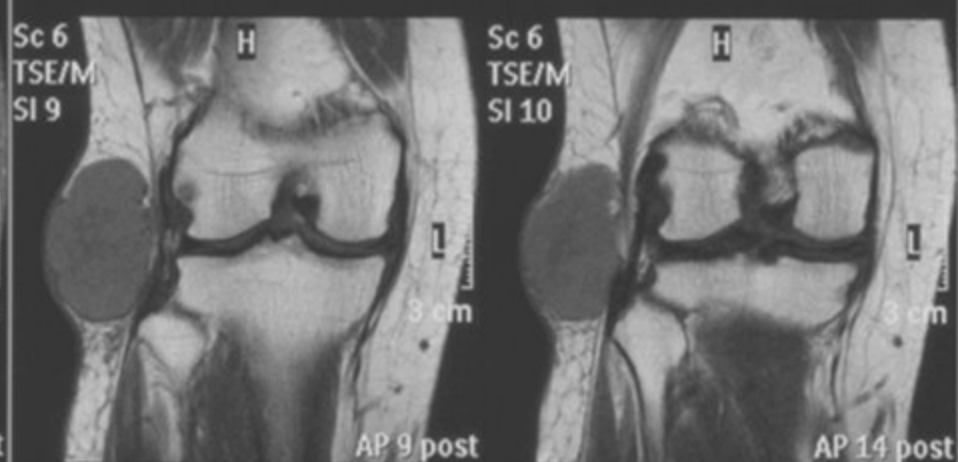
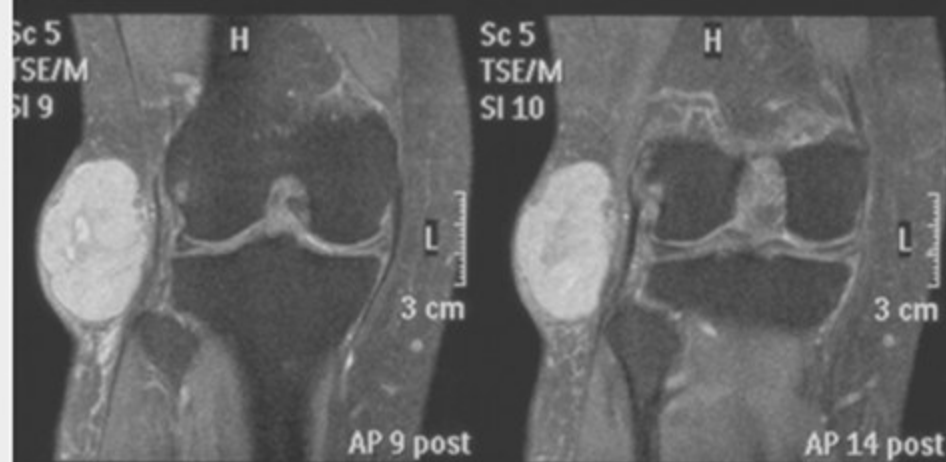
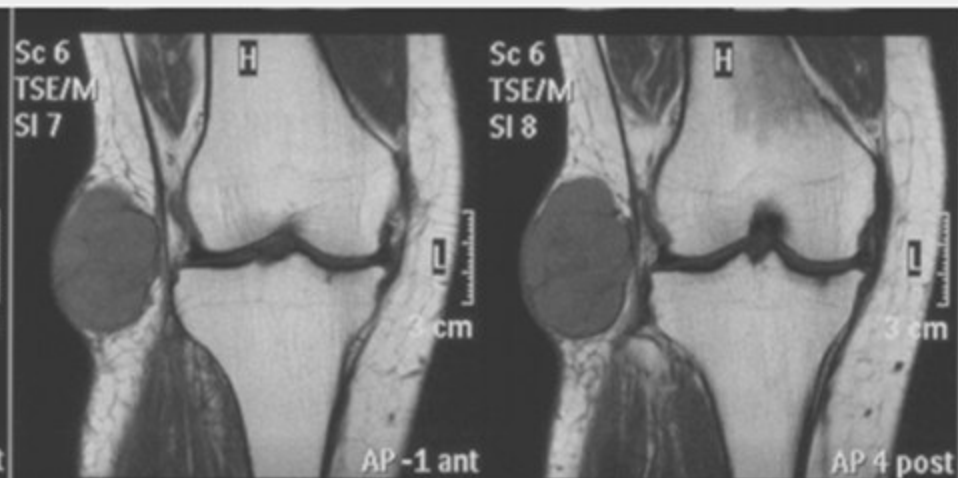
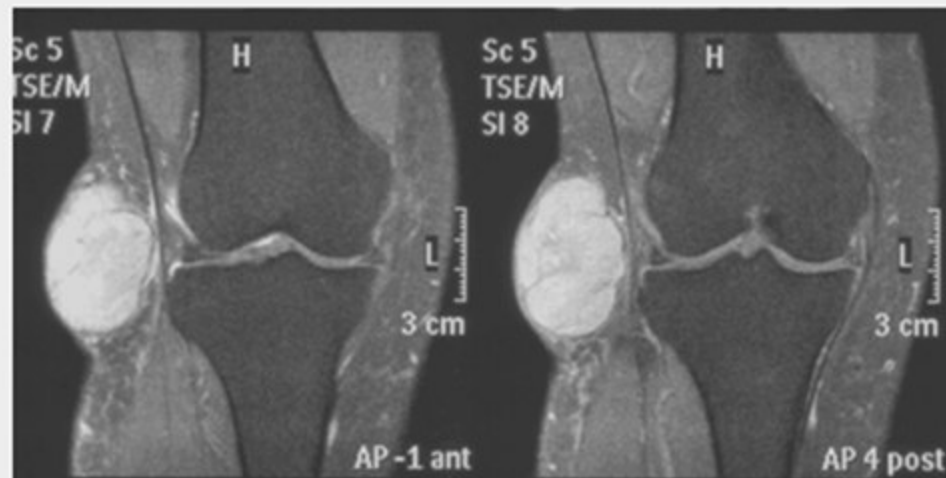


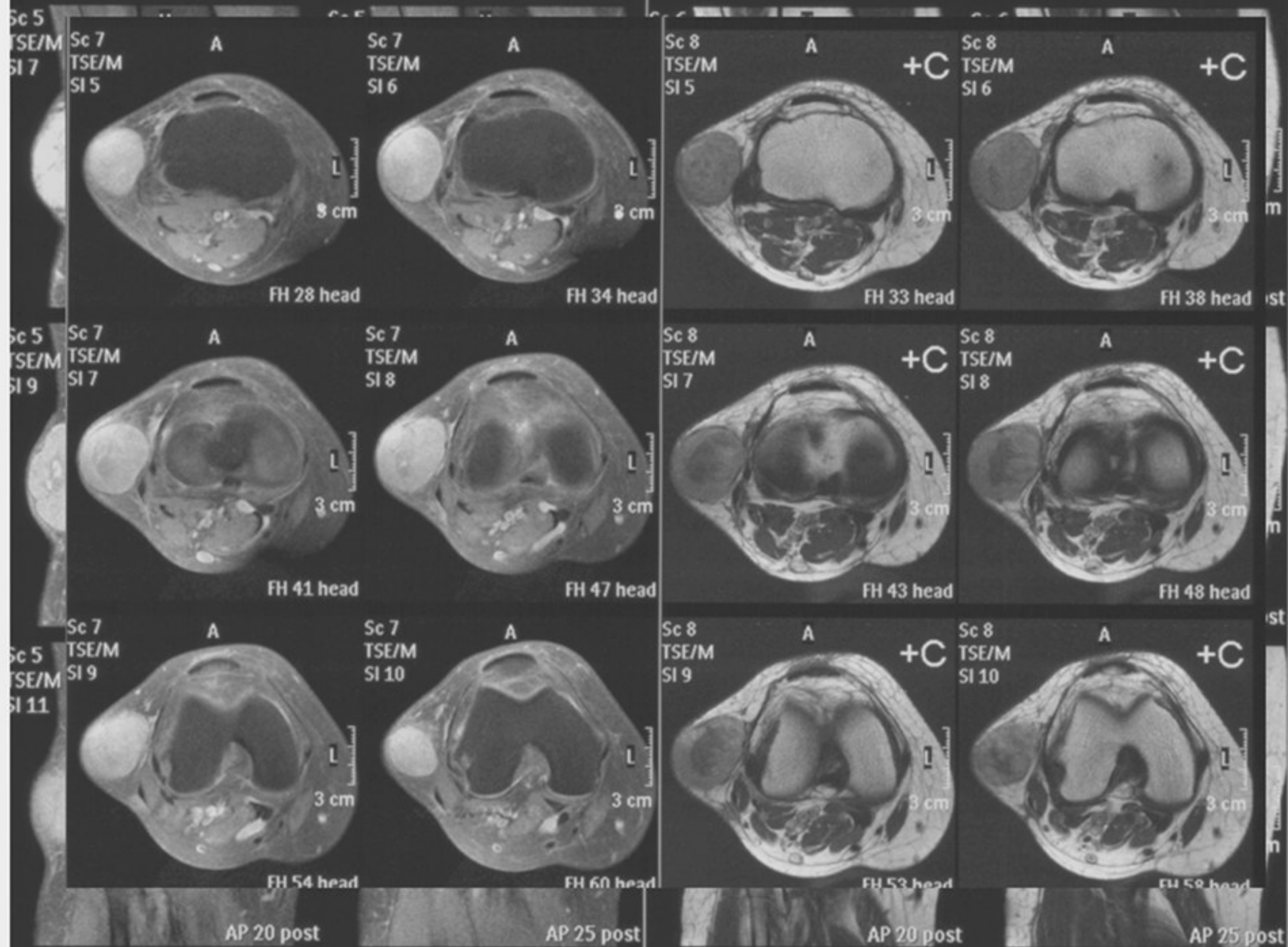


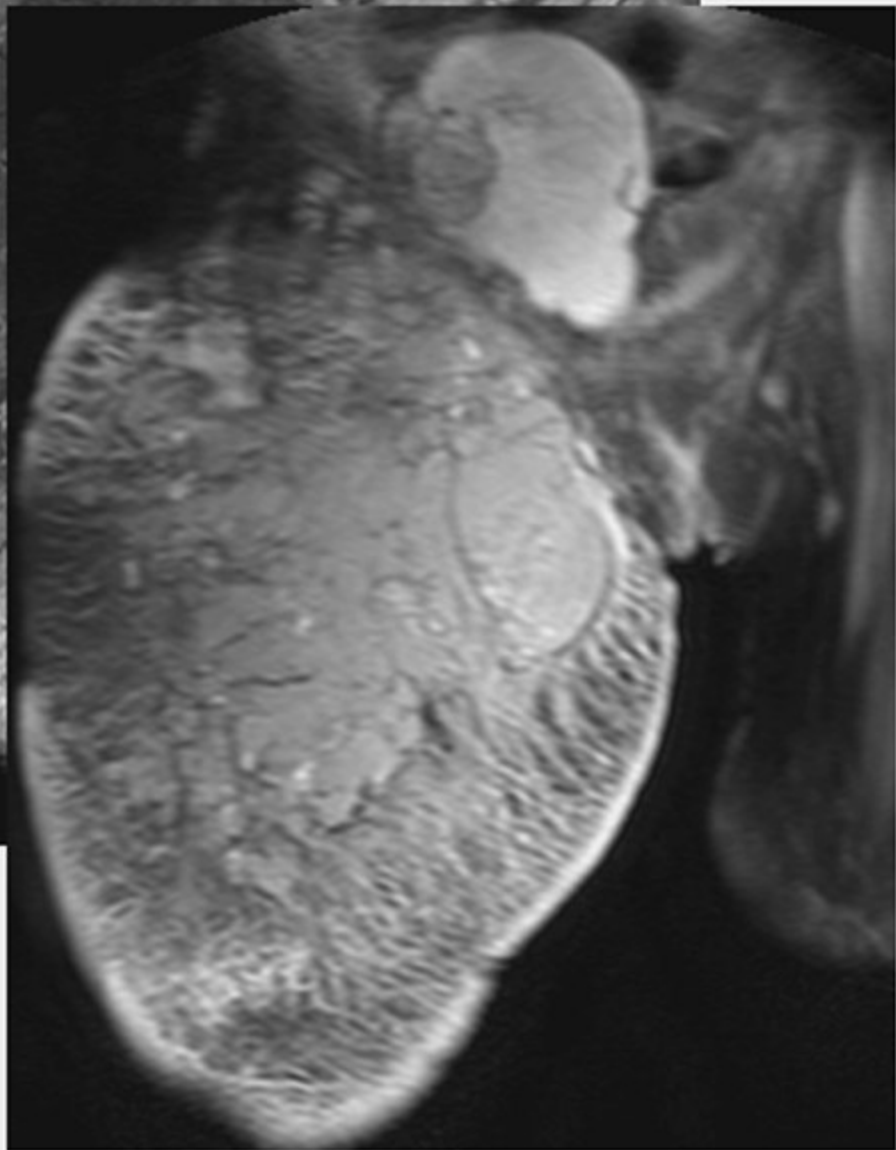
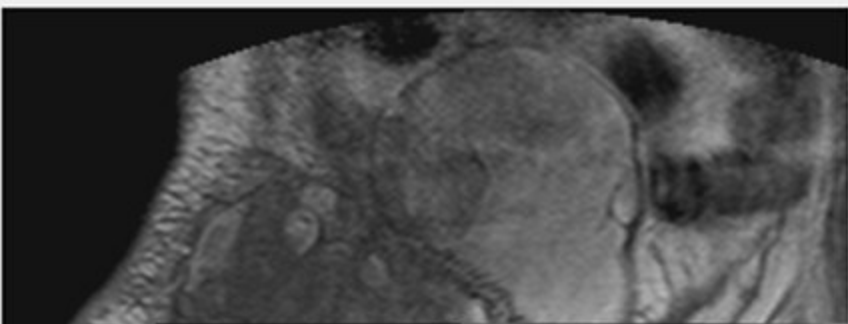


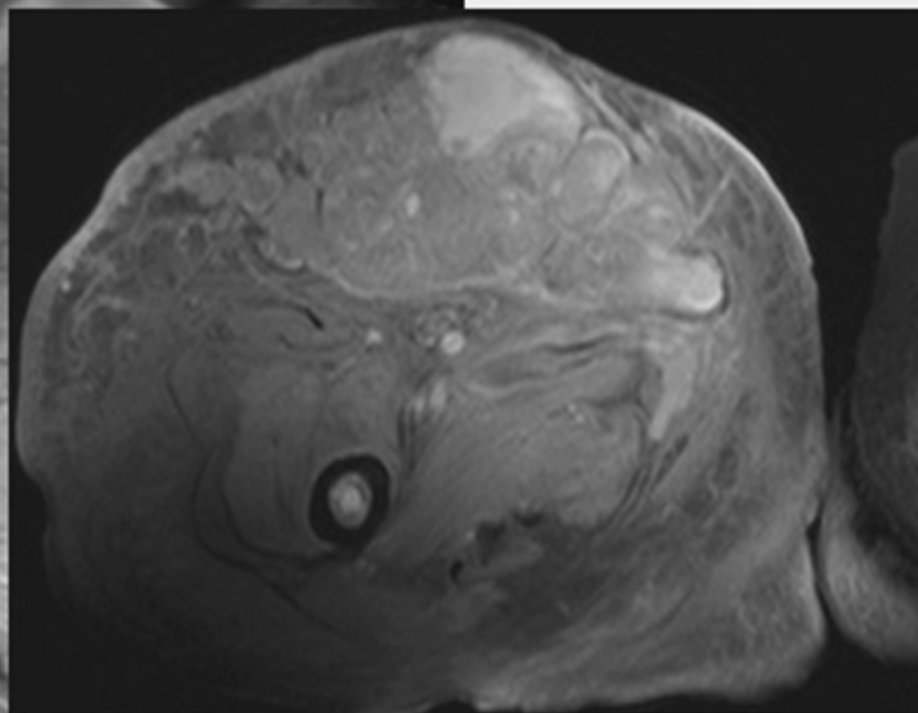
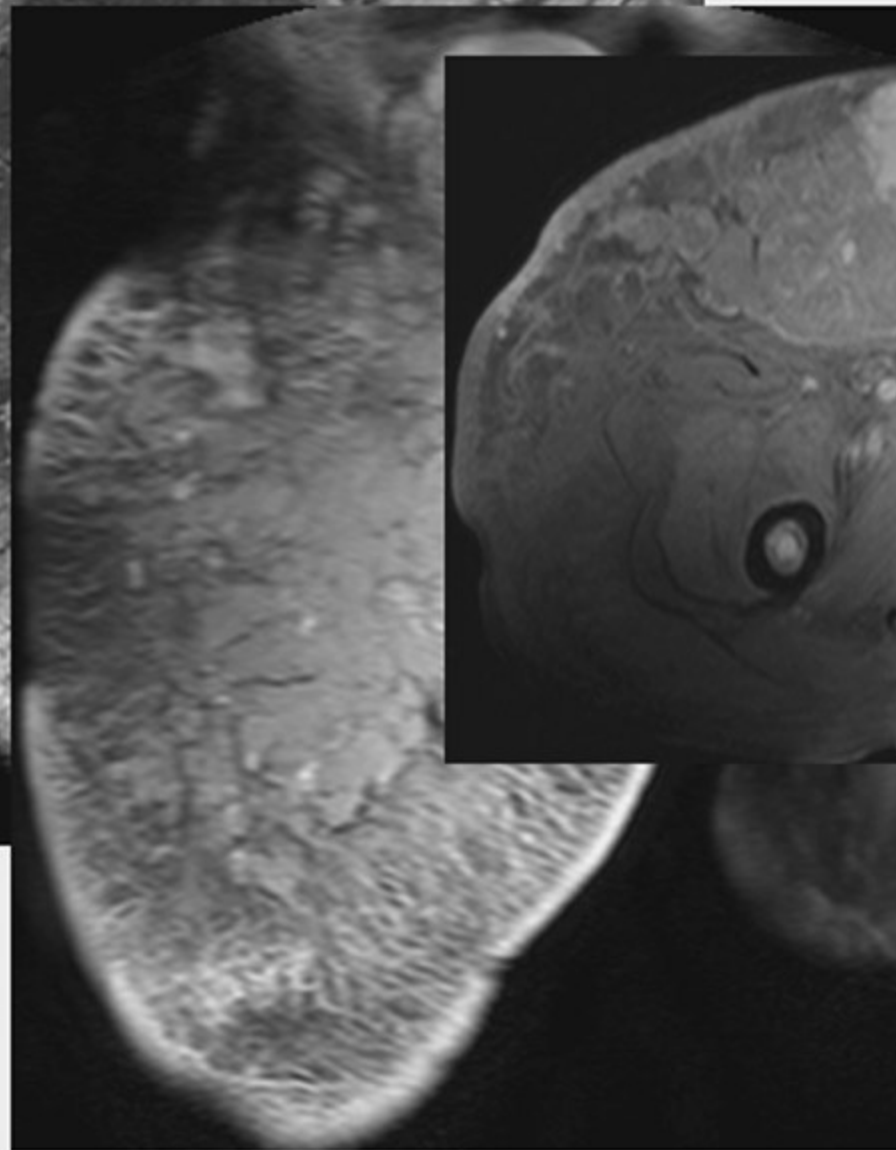
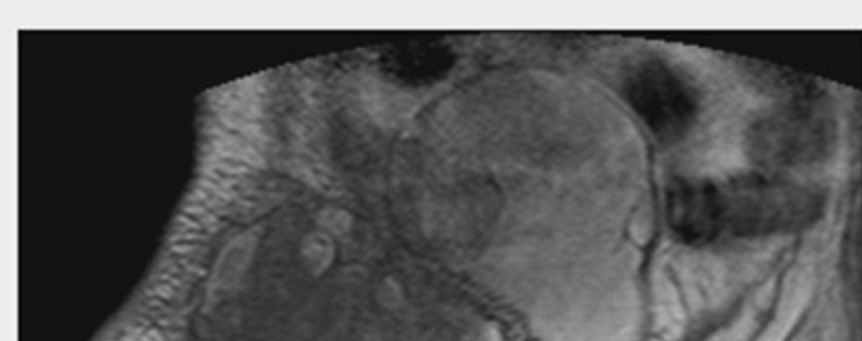


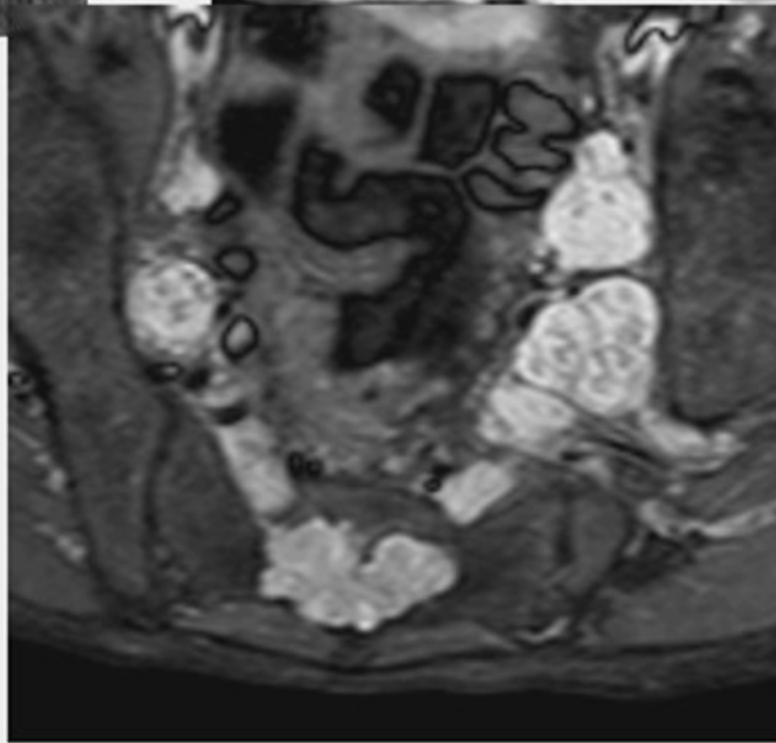
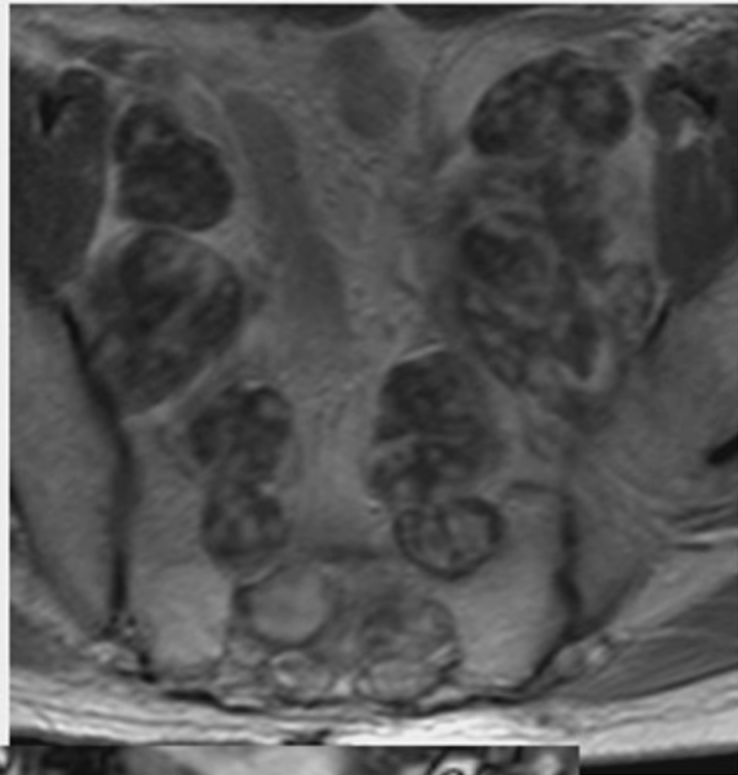
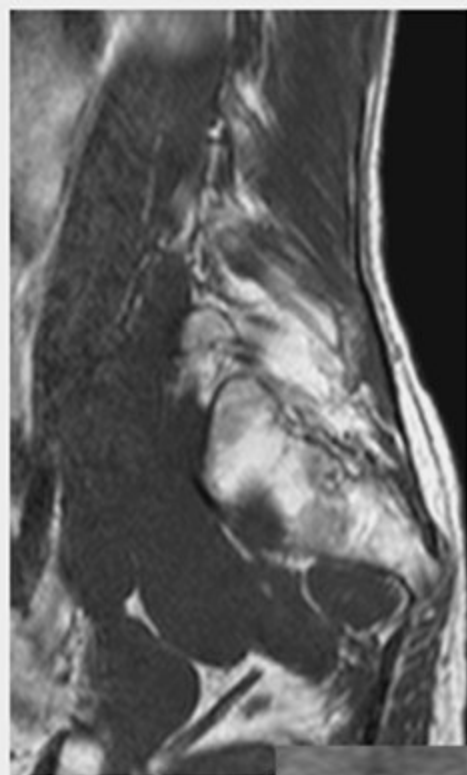


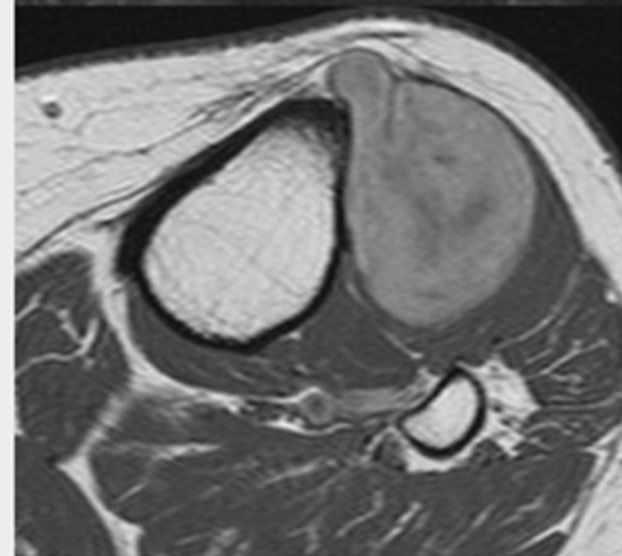
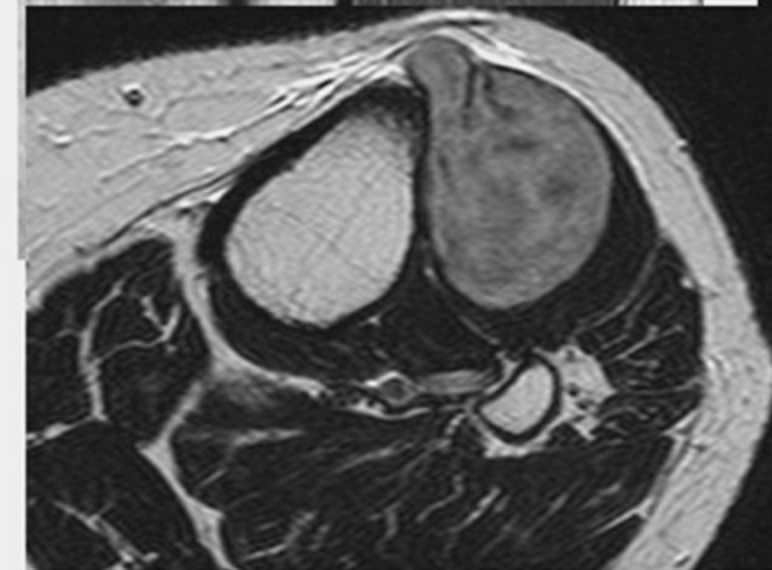
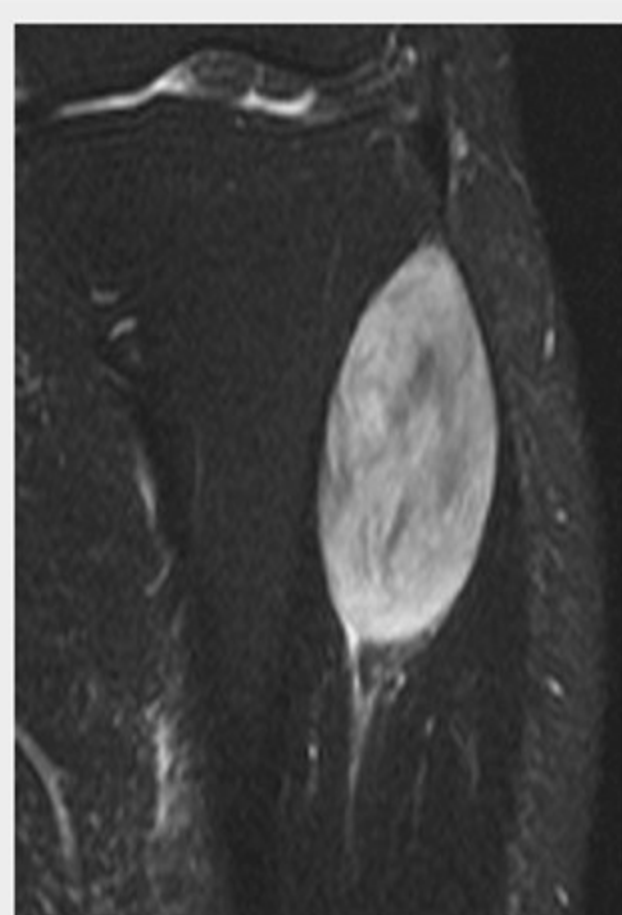


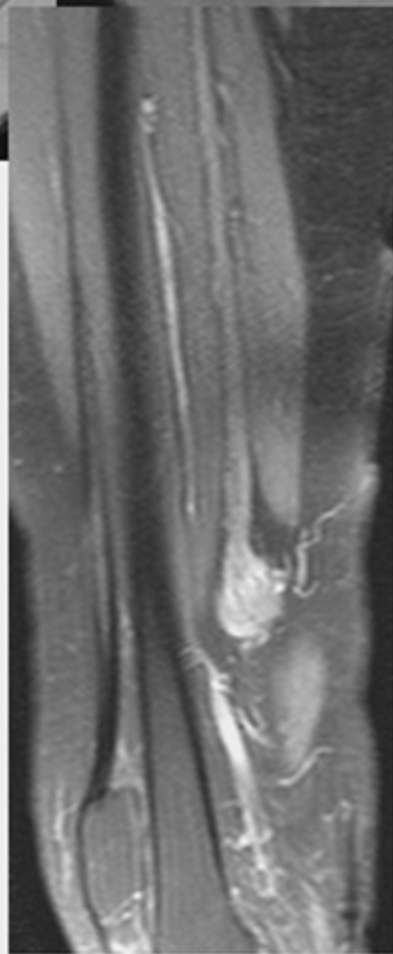
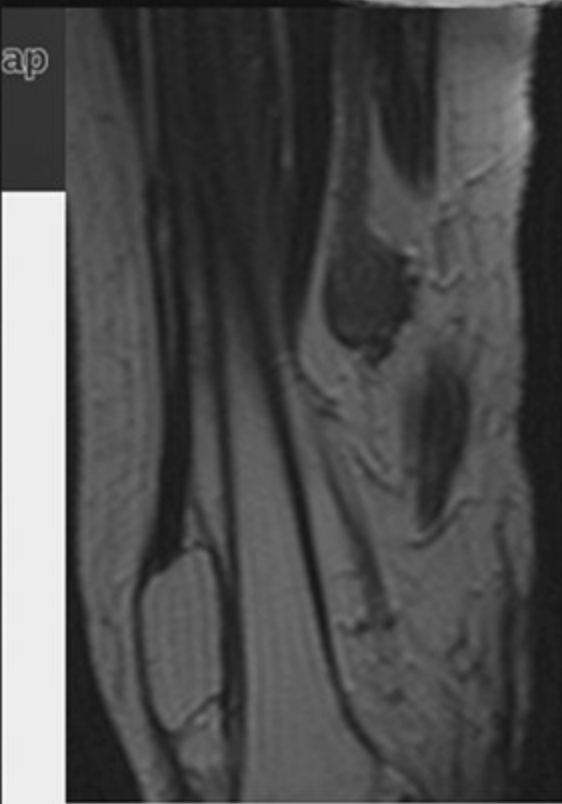
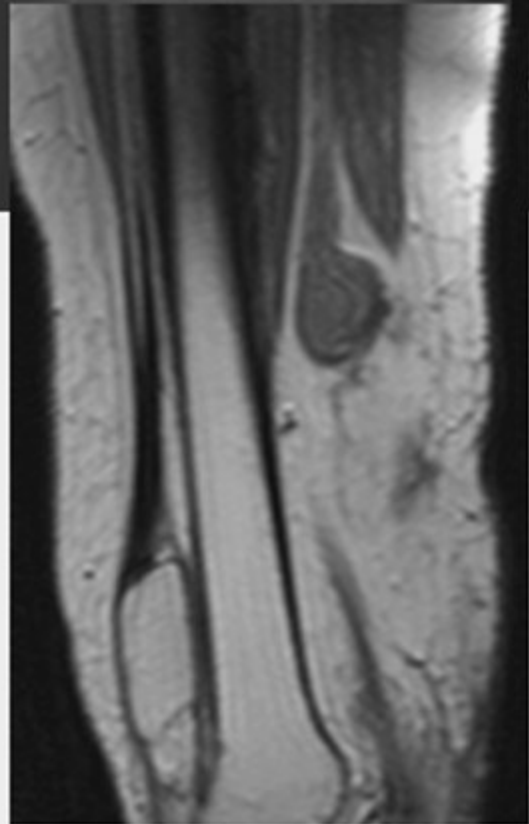
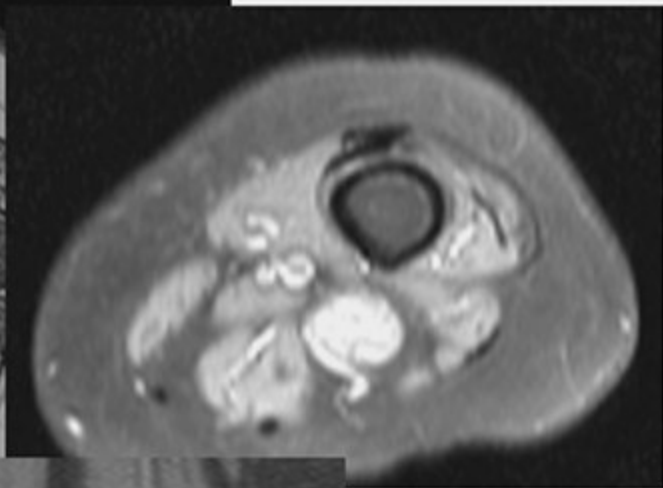
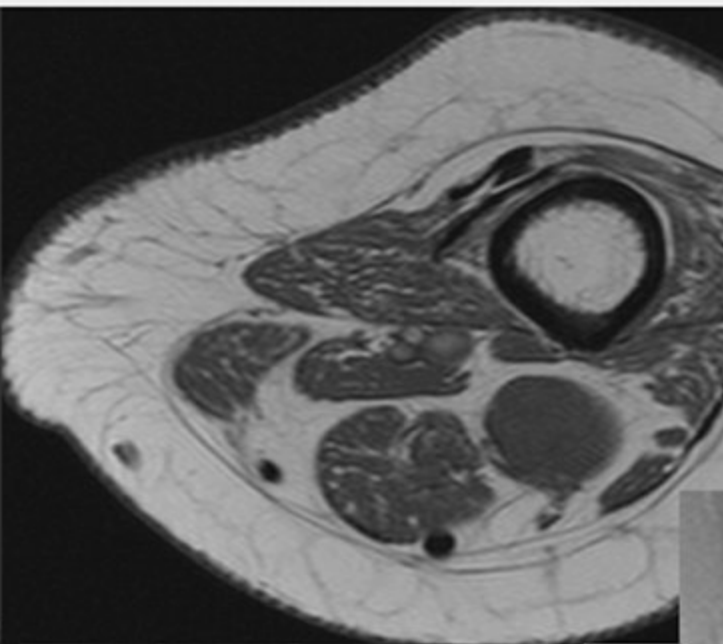
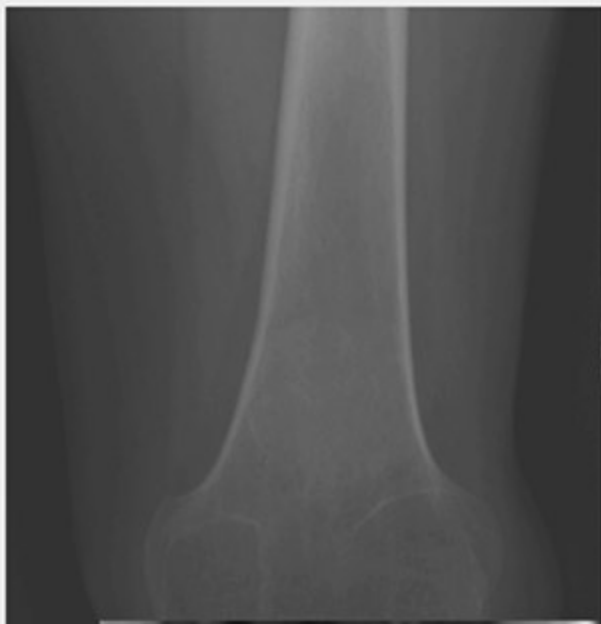


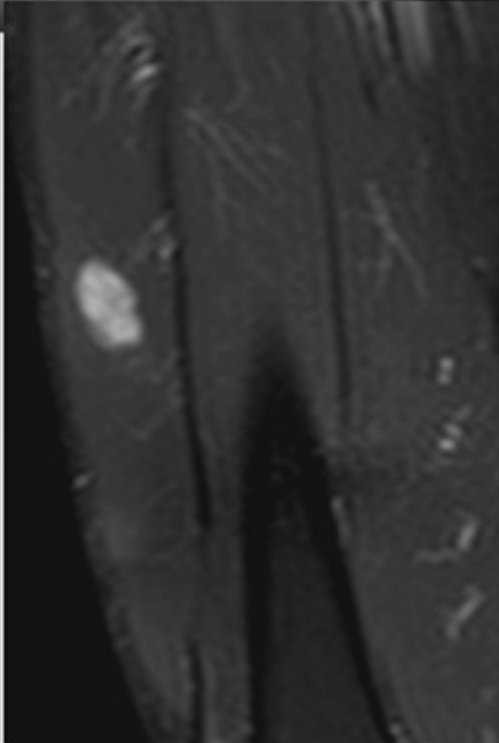
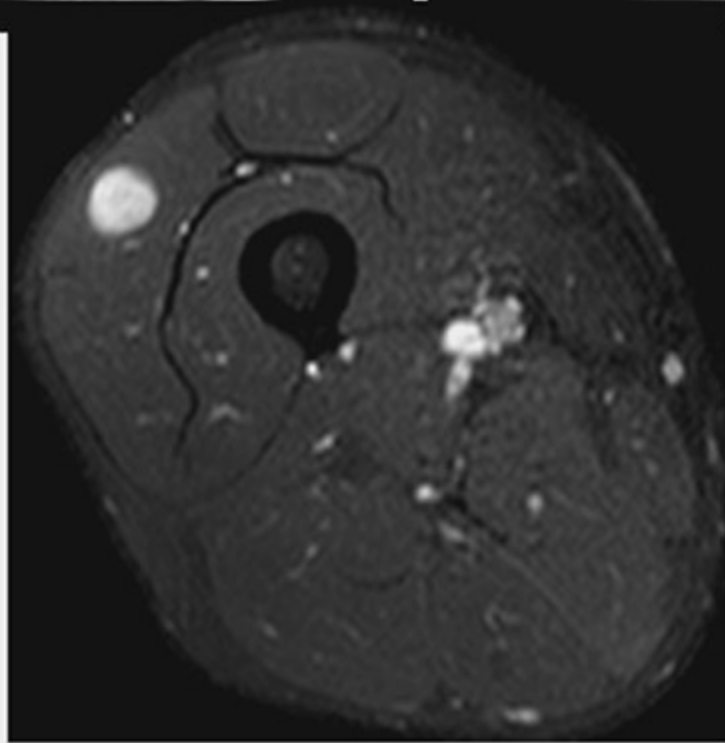
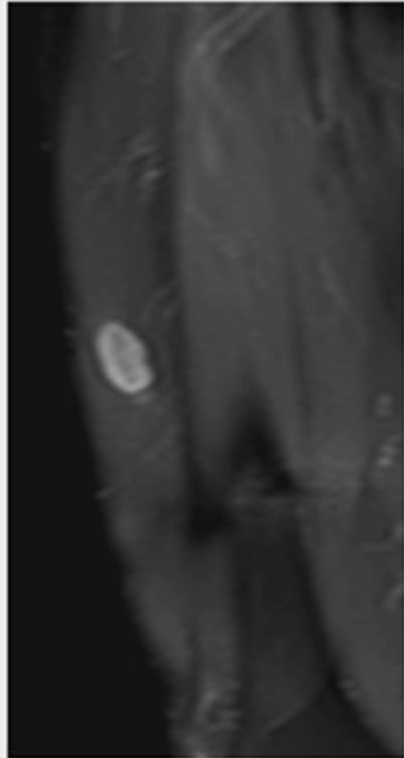
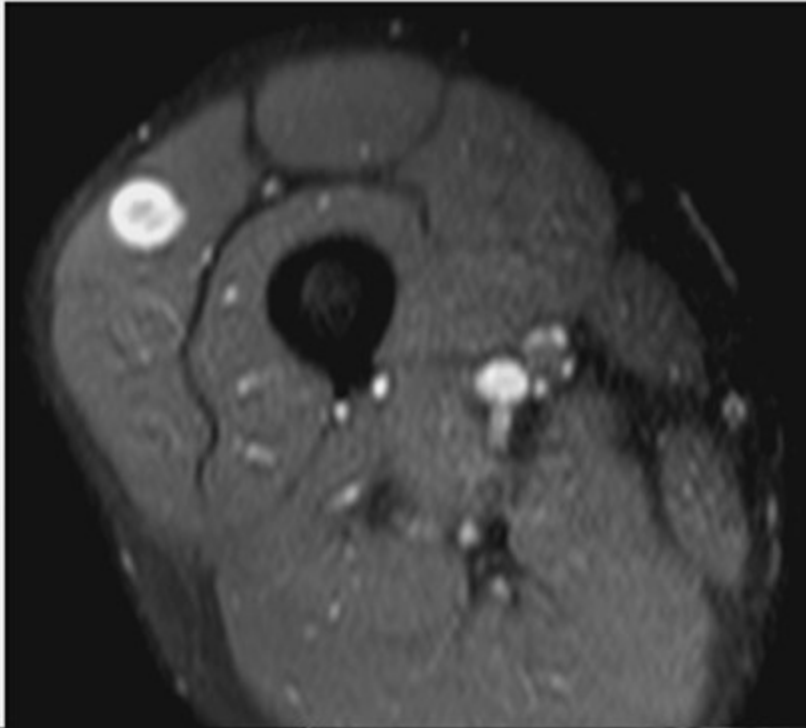
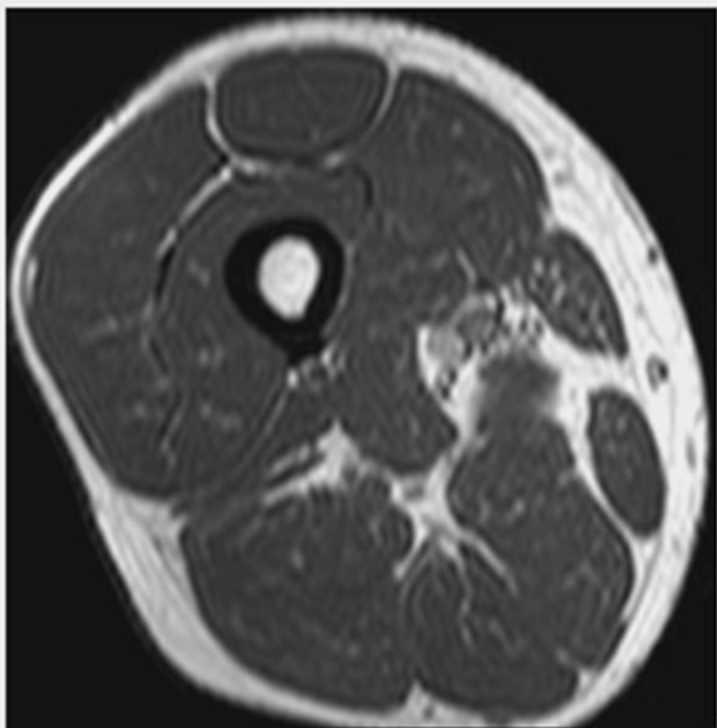


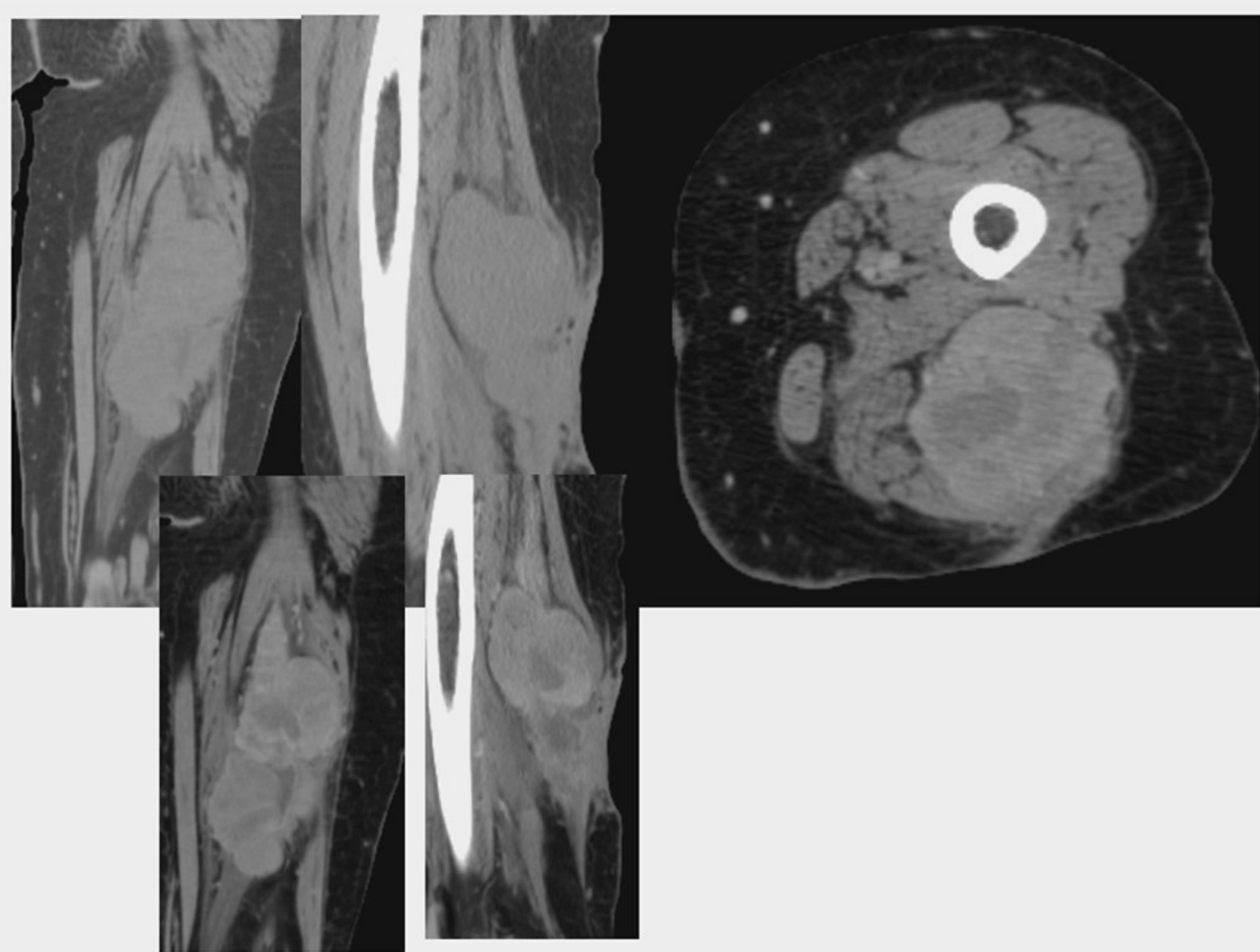


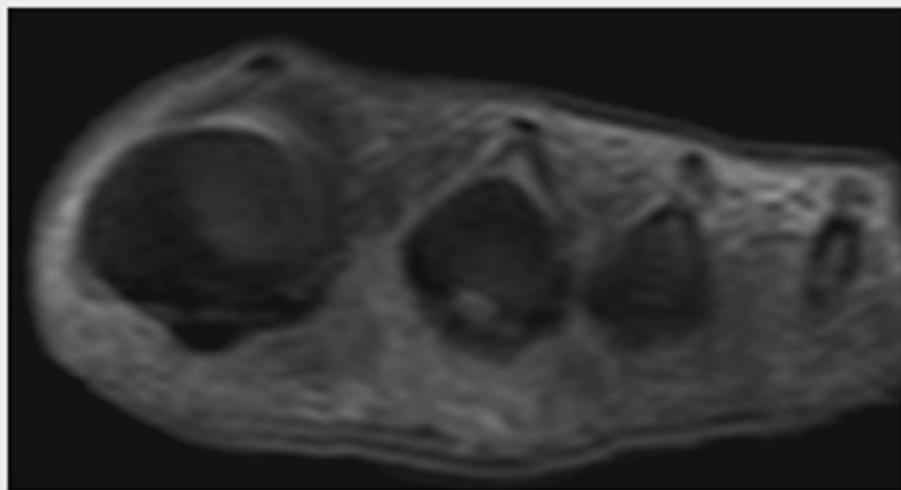
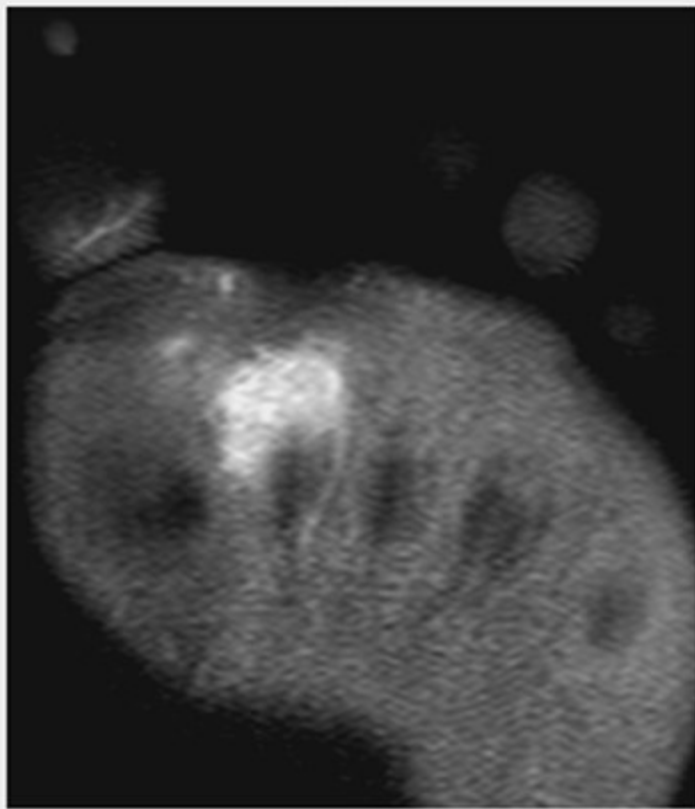
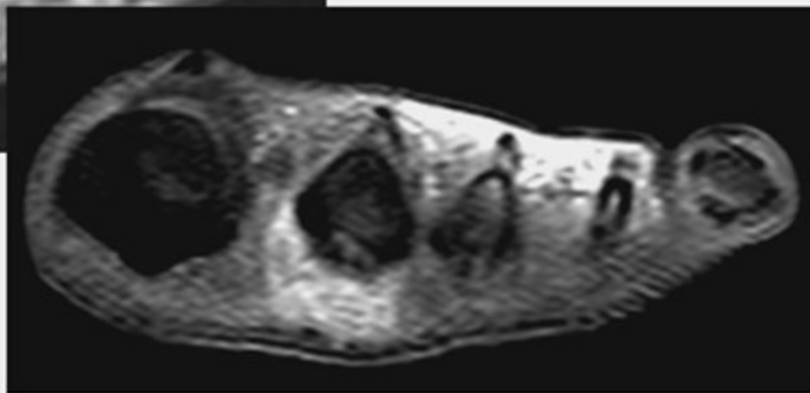
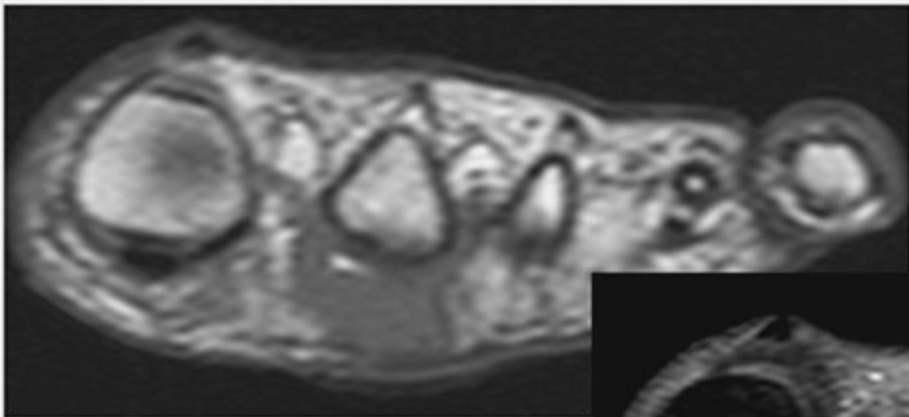




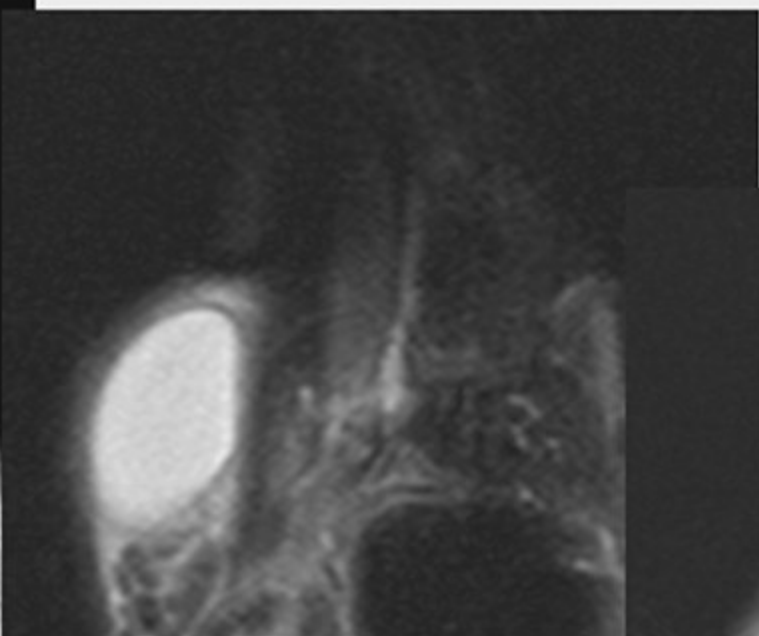


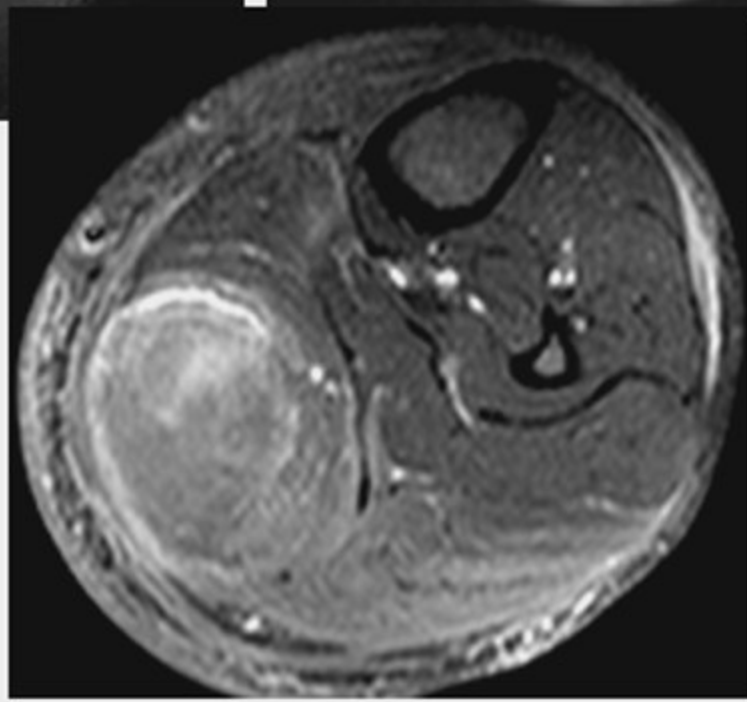
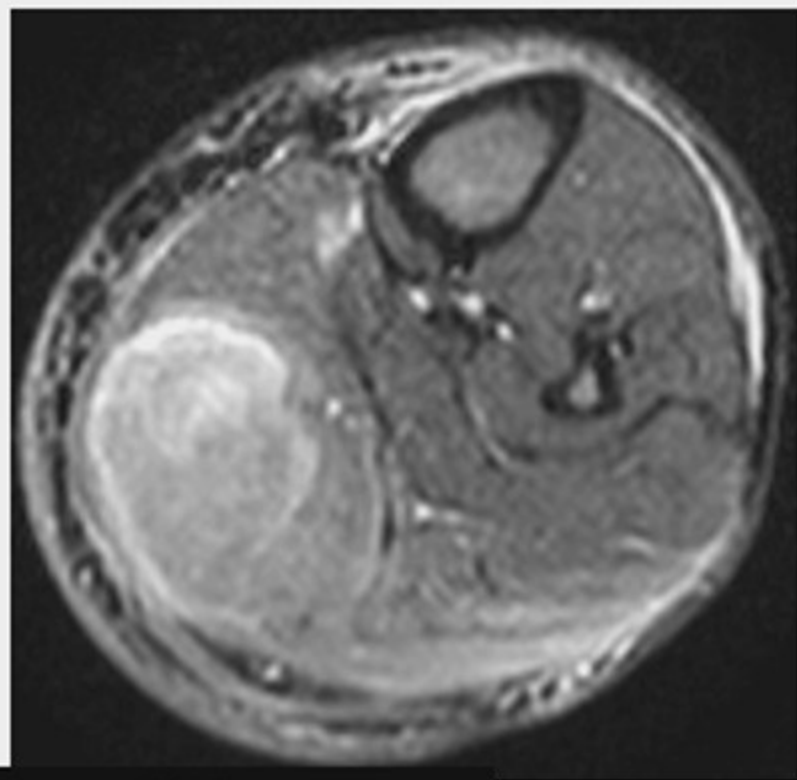
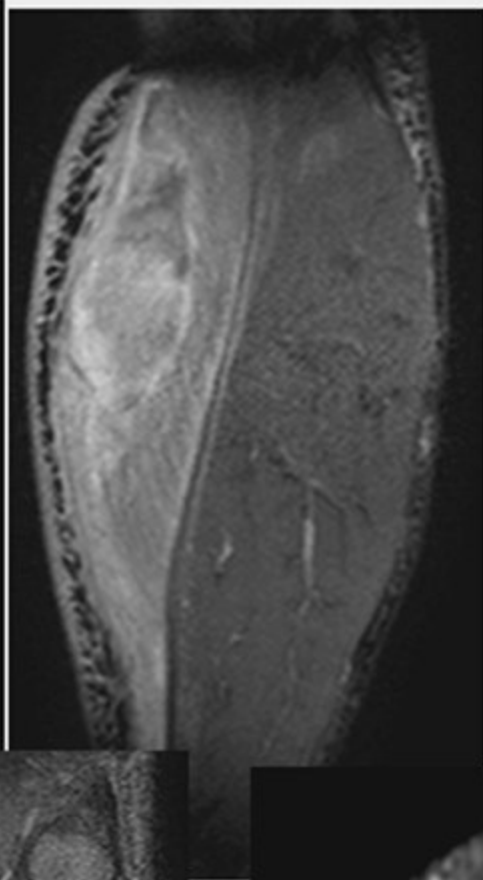
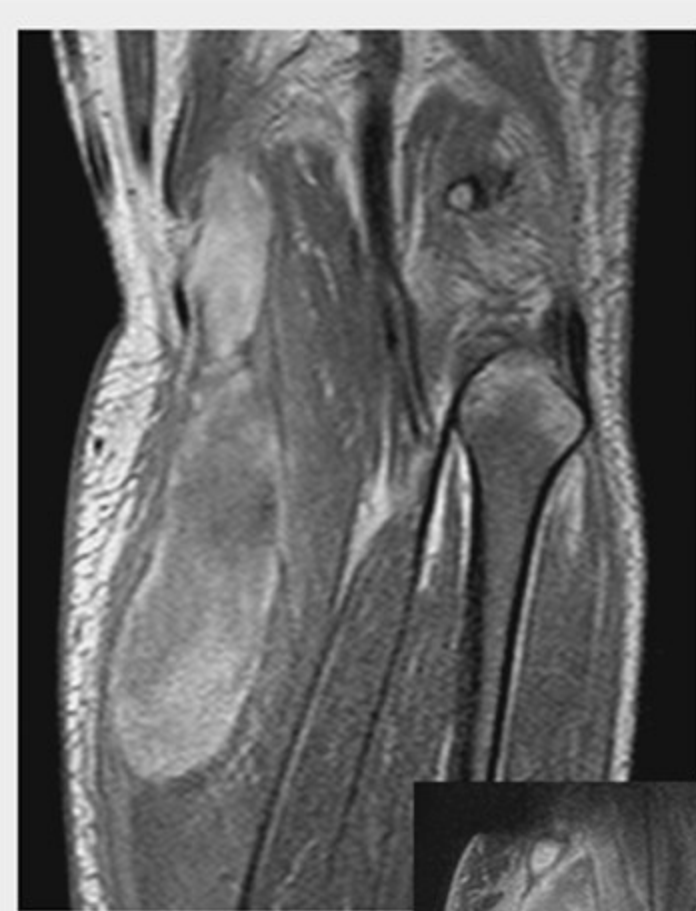


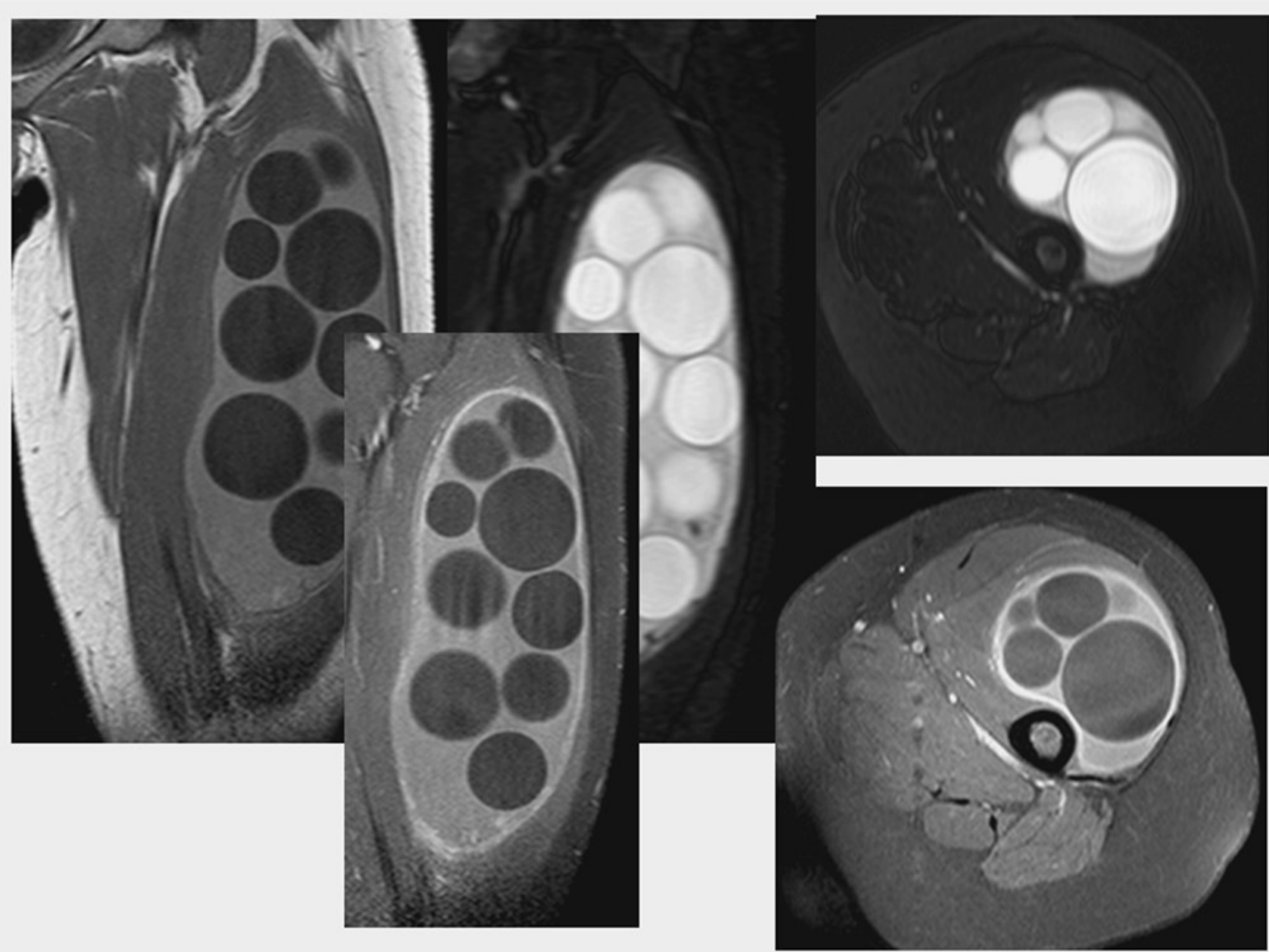


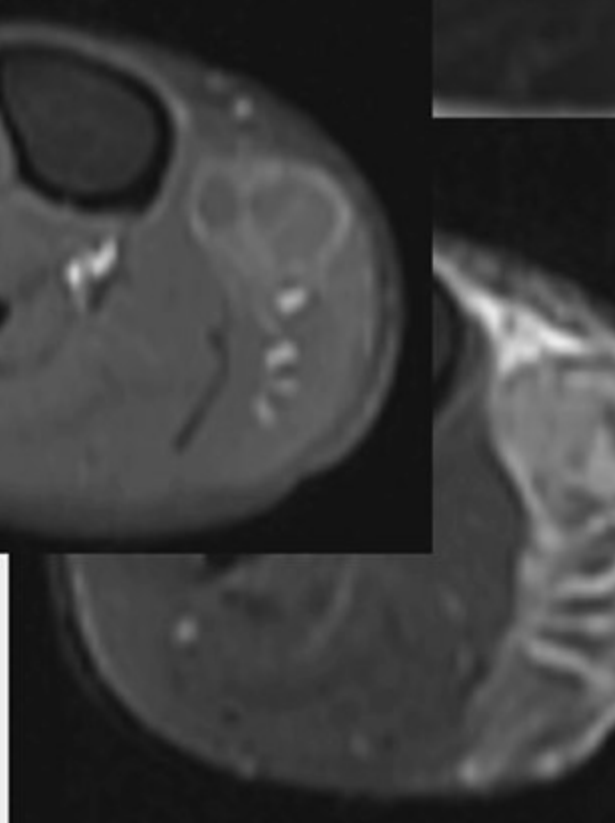
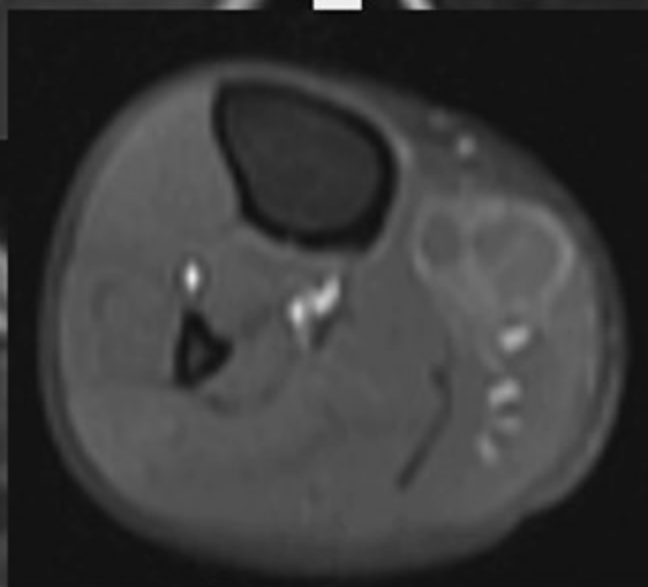
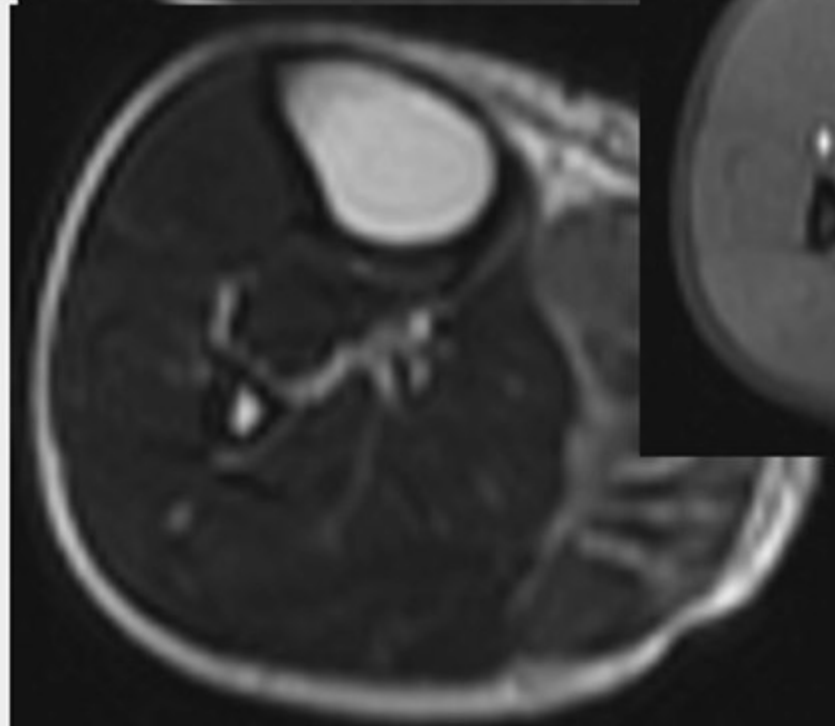
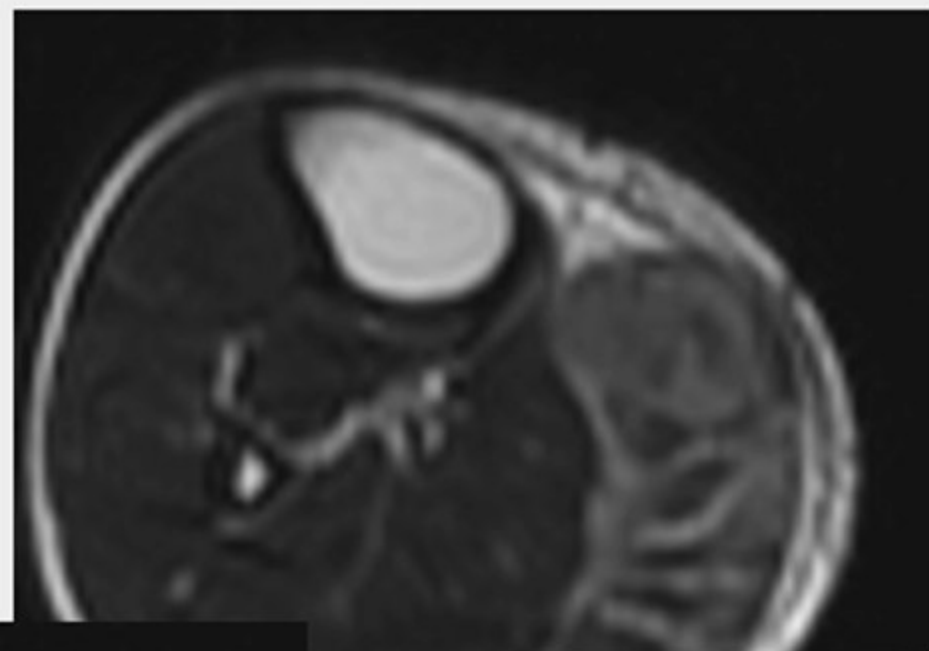
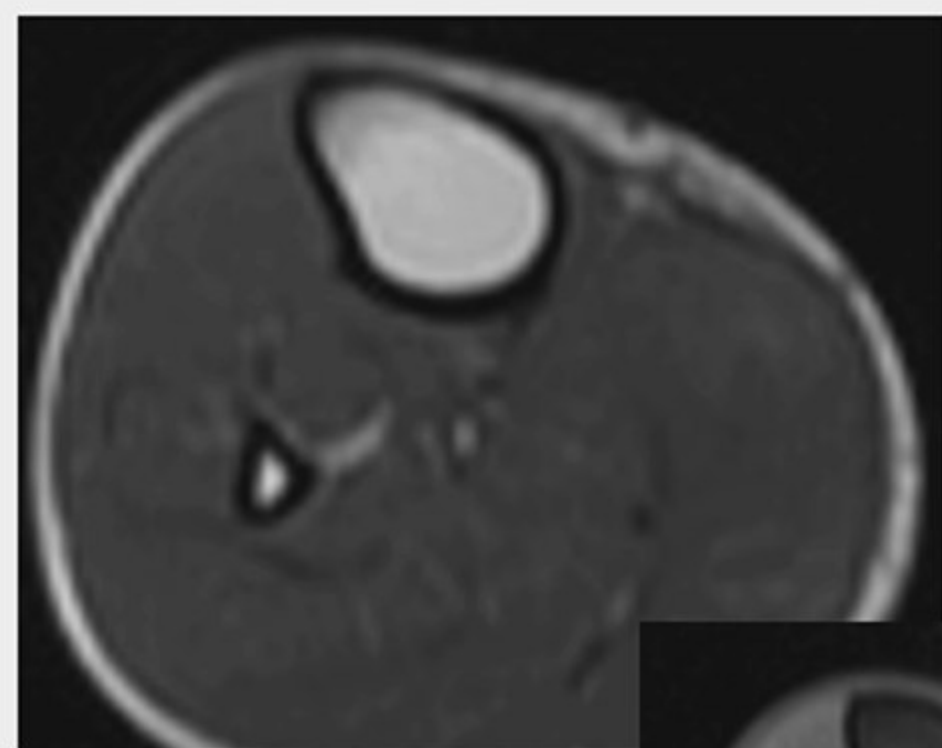


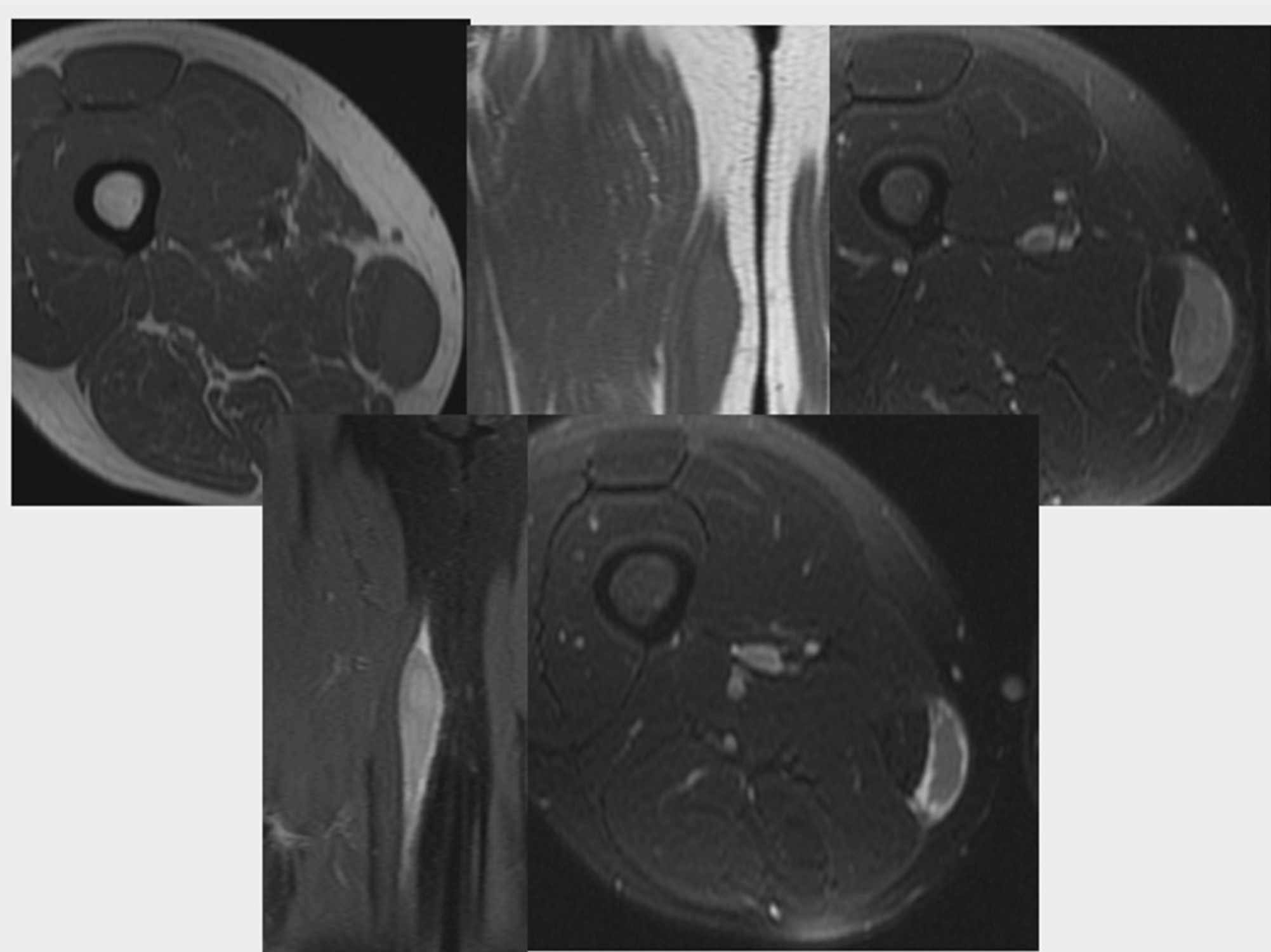
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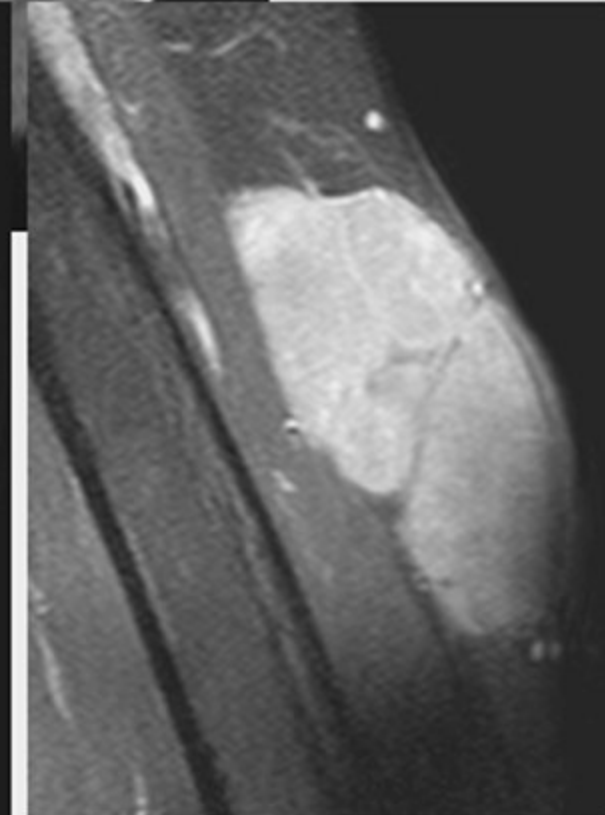
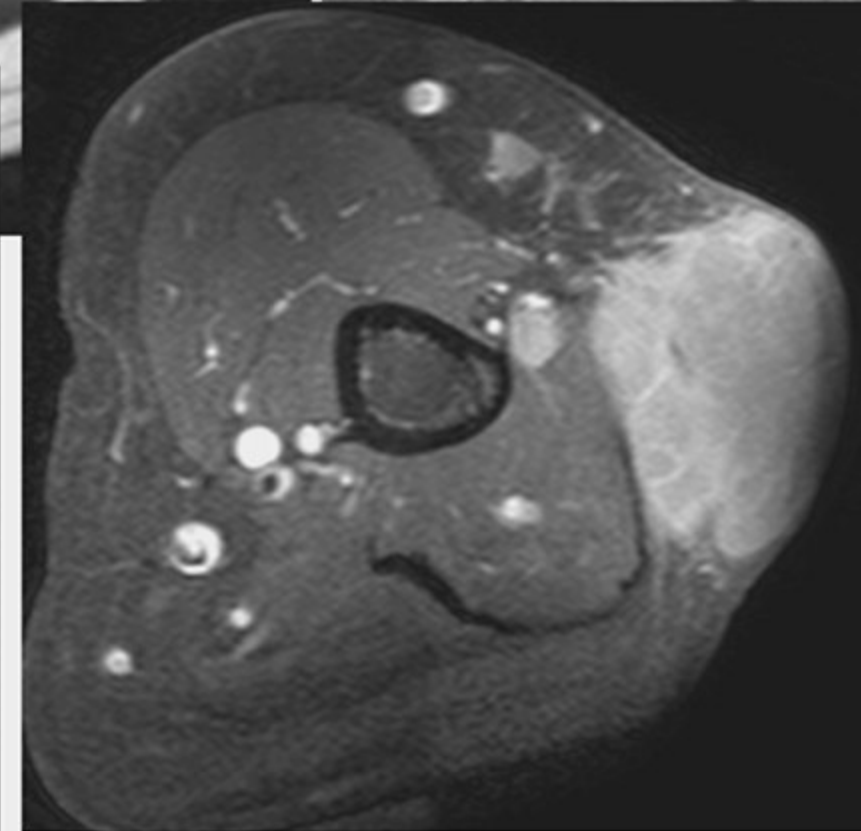
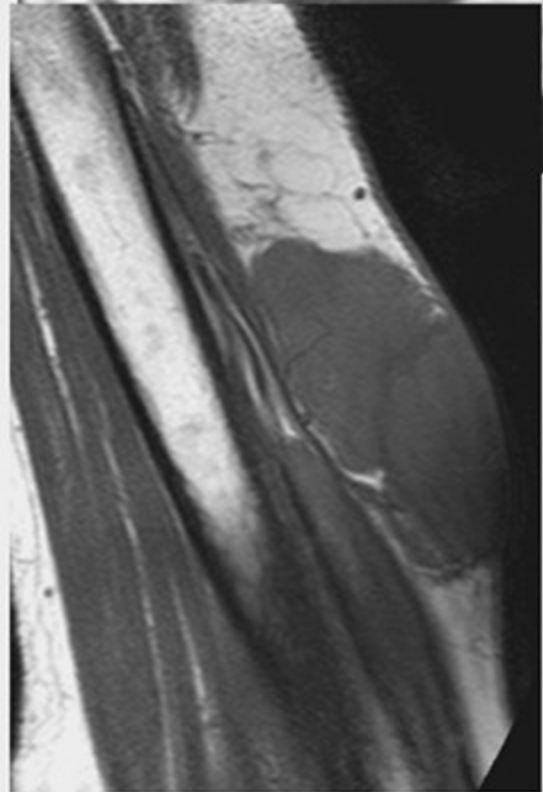
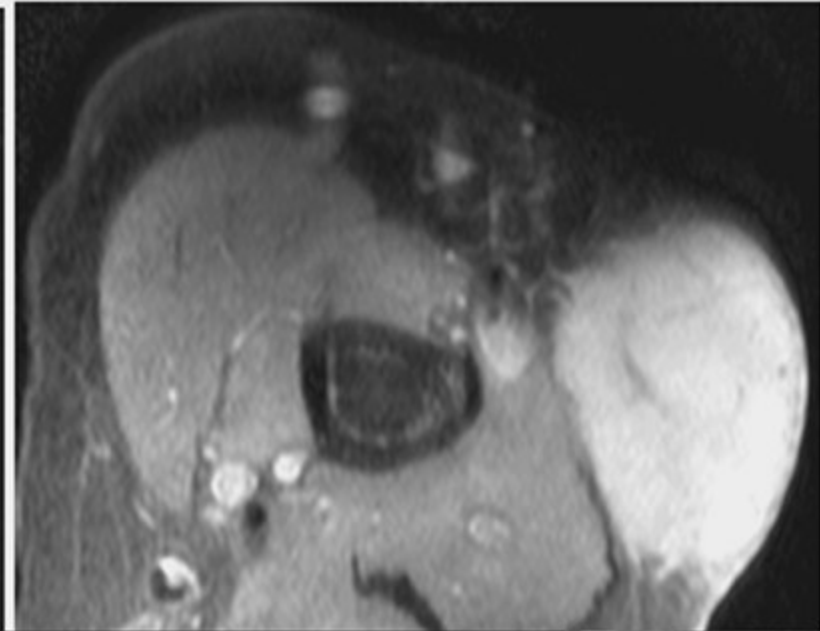
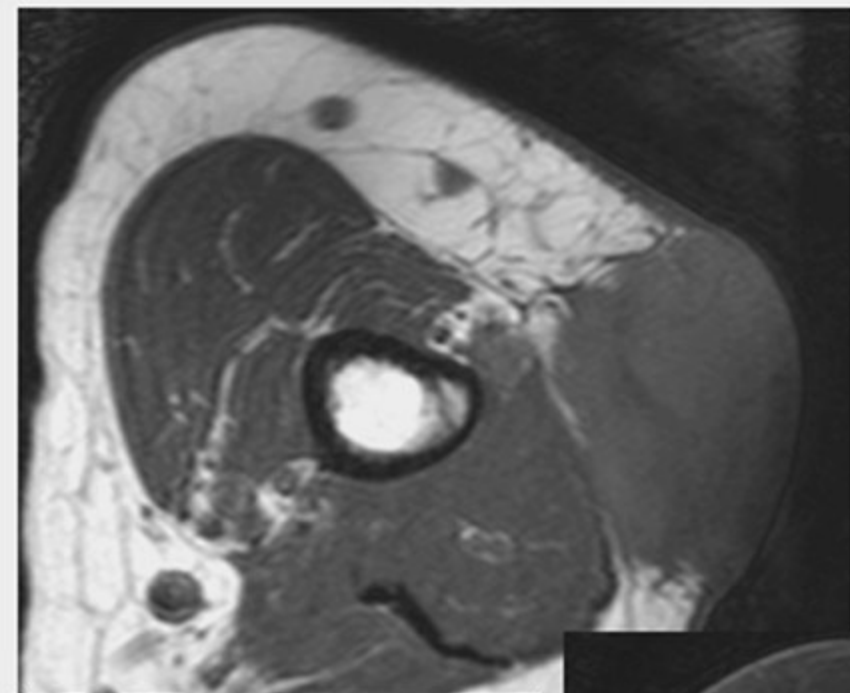














TEŞEKKÜR EDERİM