

# History

- 33 y/o F with hx of palpable anterior tibial mass x 2 years, only painful with palpation

# Imaging

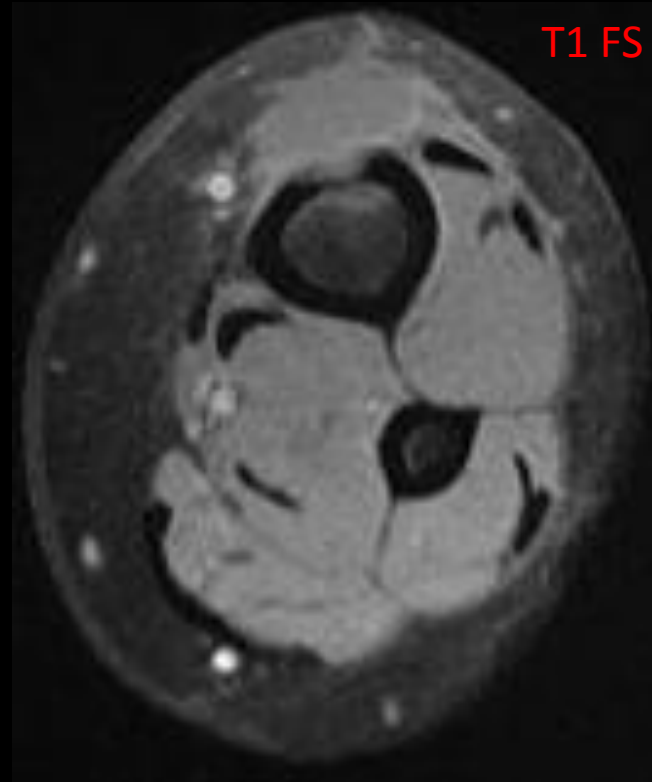
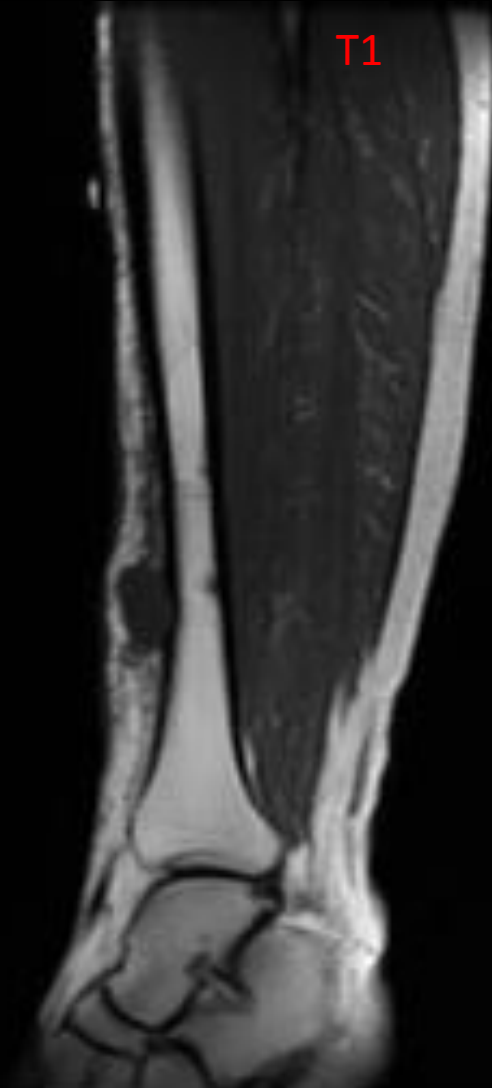


Patient also had a smaller lesion 1 cm proximal to this lesion, not seen radiographically.

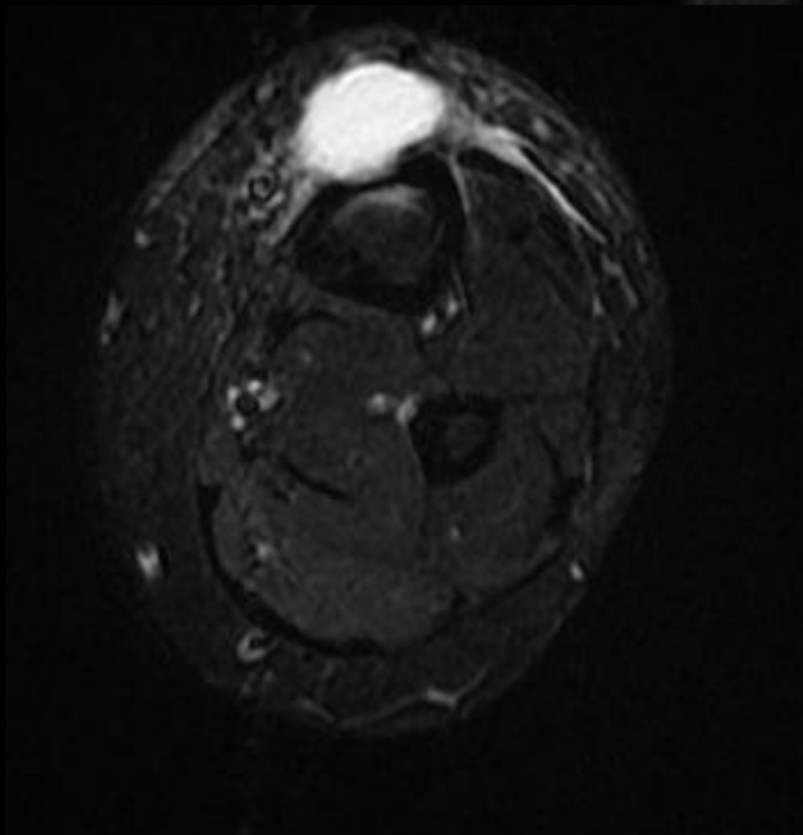
# Differential Dx - Radiographically

- NOF
- ABC
- Chondromyxoid Fibroma
- FD
- OFD
- Adamantinoma
- Low grade intraosseous osteosarcoma

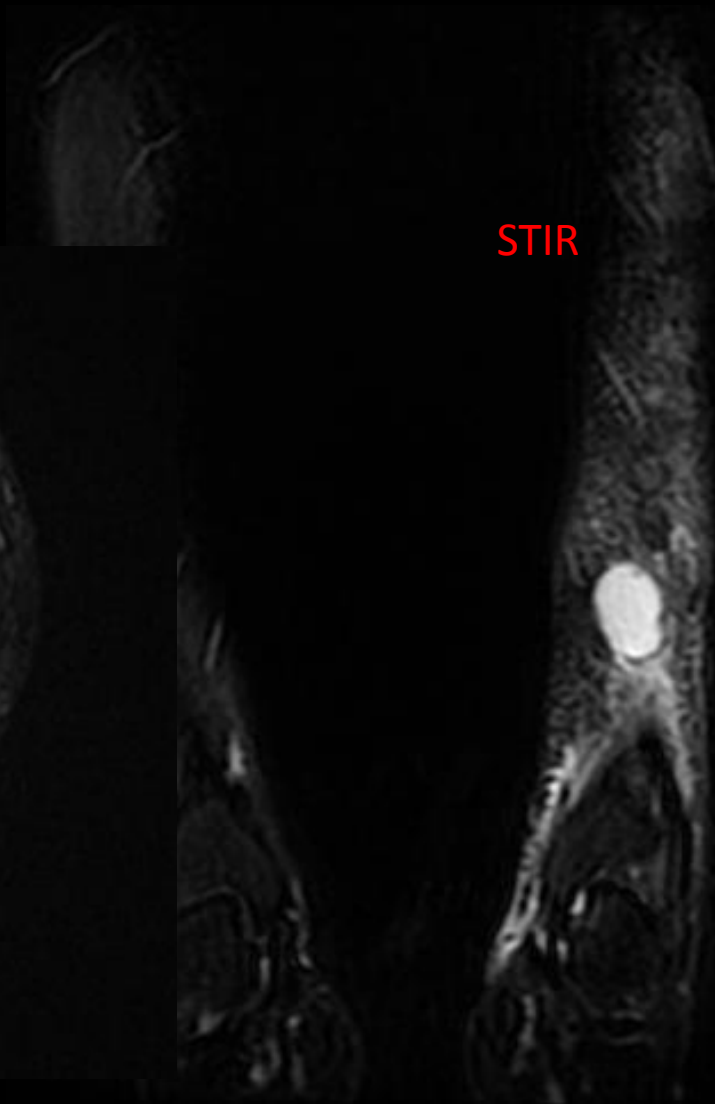
# Imaging

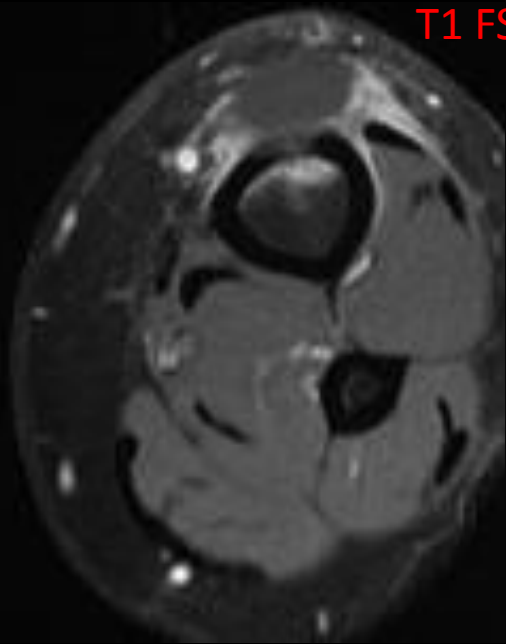


STIR

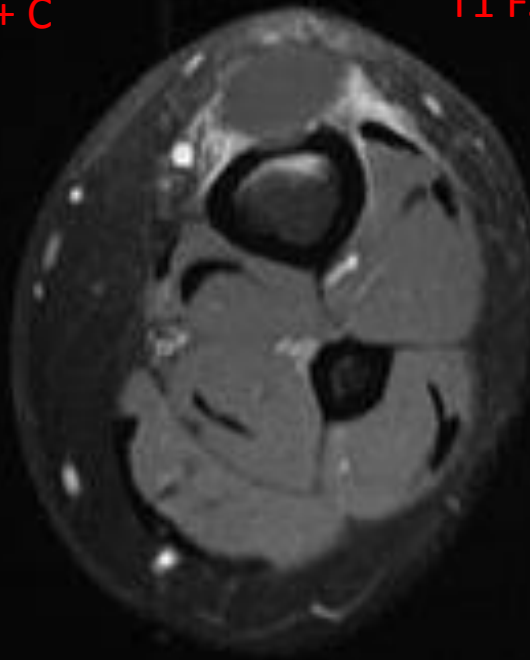


STIR

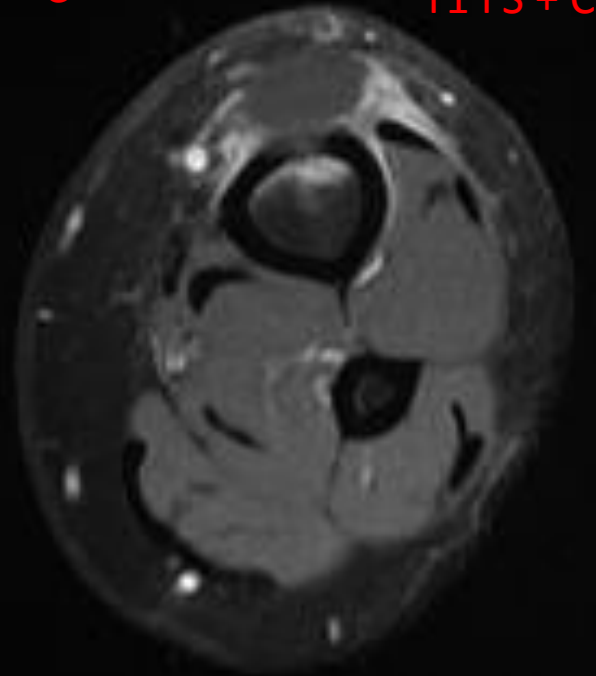




T1 FS + C



T1 FS + C



T1 FS + C

# Operative note

## PROCEDURE IN DETAIL:

After satisfactory anesthesia had been obtained with spinal anesthesia, the left leg was sterilely prepped and draped. A well-padded tourniquet was placed around the left proximal thigh and appropriate time-out was taken. The patient received Ancef preoperatively. The patient had 2 small lesions that were palpable over the anterior distal aspect of her tibia. The one more distal appeared to erode into the bone. An incision was made directly over this area and by sharp and blunt dissection carried down through the subcutaneous tissue over the distal incision. The incision was approximately 1 inch in length. What appeared to be a periosteal desmoid was then seen and dissected carefully away from the surrounding tissues that did erode into the tibia. The tibia was burred and copious irrigation was utilized. Bleeding was controlled. Closure was obtained using interrupted 0 Vicryl, followed by subcuticular closure with Steri-Strips. We did not cross-contaminate the wounds. With new sterile instruments, a separate incision was made approximately 1 inch above the other. An elliptical incision was made around the mass. It did appear to go down to the bone, but did not erode into bone as to the extent that the more distal lesion did. This lesion was then removed and identified, sent to Pathology for identification as well. Copious irrigation was utilized. The tourniquet was deflated. Bleeding was controlled with the Bovie cautery unit. Closure was with 0 Vicryl, followed by 2-0 Vicryl, followed by

# Diagnosis

- Adamantinoma

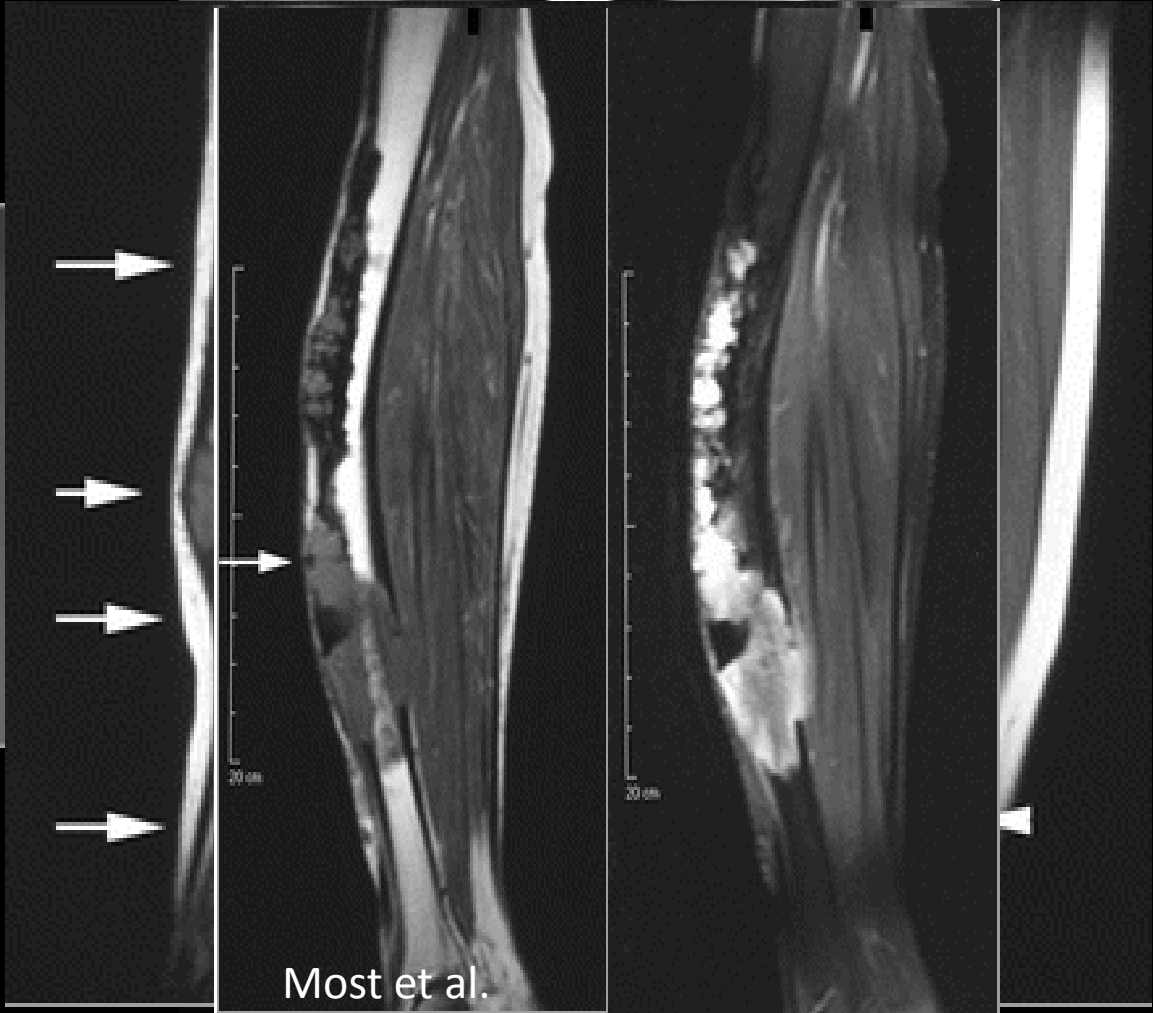


# Adamantinoma

- Epidemiology
  - “Displacement of basal epithelium of skin during embryo dev. To enchondrally formed bone, a.k.a tibia as closest to skin surface.
  - Low grade bone tumor – rare, 0.4 % of all bone tumors
  - Slow growing
  - Median age 25-35 y/o
  - M:F 1.25:1
- Presentation
  - Swelling/Mass w/wo pain, MC anterior tibial metadiaphyseal cortex (85-90%)
  - Approx 60% patients w/ history trauma
  - Path fracture - 15%
  - Multifocal in same bone – 27%; ipsilateral fibula – 10-15%
- Negative Prognostic factors
  - Extracompartmental growth
  - Male gender
  - Female < 20 y/o
  - Pain
  - Short duration of symptoms
  - Recurrence

# Imaging Features

- Radiographs
  - Eccentrically located, cortically based, osteolytic lesion
  - Grows along length of bone
  - Predom diaphyseal, although metaphyseal lesions present
  - Multilobulated, expansile w/ intervening sclerosis /septations– “soap bubble”
  - Periosteal rx can be mild to flagrant
  - Cortical destruction/breakthrough (15%) , ext to soft tissues
- MRI
  - Nonspecific T1 iso/hyperintense and T2 hyperintense, homogenous avid enhancement.
    - Homogenous
    - Multiple nodules within lesion
    - Lobulated pattern in solitary focus



Most et al.

# Adamantinoma

- Pathology

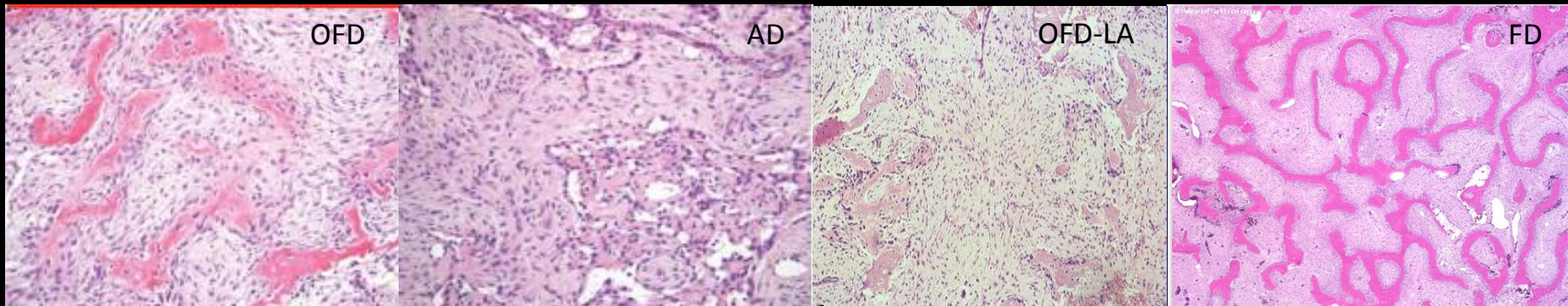
- Biphasic with epithelial and osteofibrous components in varying proportions on background of spindle cell fibrous stroma

## 2 Subtypes

- Classic - > 20 y/o, both epithelial and fibrous components, aggressive
- Differentiated / OFD-like adamantinoma < 20 y/o, predom fibrous w/ very sparse epithelial nests(keratin+) components, rel benign course

- Contrast this to

- OFD – loose, storiform fibrous background w/ spicules of bony trabecula lined “rimmed” by osteoblasts
- FD – irregular trabeculae of woven bone in mod cellular fibrous matrix, “alphabet soup”, “chinese letters”. No osteoblastic rimming



# Adamantinoma

- Biopsy
  - Epithelial cells are centrally located in AD, may be missed by FNA or single pass biopsy and misdx as OFD/OFD-like AD. Must biopsy central lytic part of lesion.
  - *Khanna, Delaney et al.* – needing to upgrade 21% of cases from OFD or OFD like AD to AD once surgical tissue available of 24 patients
- Treatment
  - AD
    - Wide resection
    - Local recurrence 19-32%; far as 7 years postop
    - If marginal resection – recurrence 90%
    - Mets – 30%, lungs + lymph nodes. As far as 27 years postop. 15% mortality.
  - OFD – like AD
    - Observation vs. wide resection

## Osteofibrous dysplasia, osteofibrous dysplasia-like adamantinoma and adamantinoma: correlation of radiological imaging features with surgical histology and assessment of the use of radiology in contributing to needle biopsy diagnosis

Monica Khanna ; David Delaney ;  
Roberto Tirabosco ; Asif Saifuddin

Goal – correlate imaging findings with surgical histology for OFD, OFD/LA, AD to determine additional role of imaging in correct diagnosis in cases of needle misdiagnosis.

24 cases – 5 OFD, 11 OFD/LA and 8 classic AD

19/24 had both biopsy + surgical histology specimens avail for review

4/19 (21%) discordance b/w needle bx and surgical specimen - 2/4 OFD/LA → AD, 1 OFD → AD, 1 OFD → OFD/LA

Features investigated – size, nature of margins, satellite lesions, periosteal rxn, matrix mineralization, extracortical- soft tissue/marrow inv, path fx, solid/cystic MRI signal

Features correlating with AD

mean length OFD 6.1 cm, OFD/LA 6.5 cm and AD 13.2 cm

moth eaten margins: 7/8 AD, 5/11 OFD/LA and 2/5 OFD's

cortical dest: 3/8 AD, 1/11 OFD/LA, 1/5 OFD

Medullary cavity inv: 7/8 AD, no OFD/LA or OFD did

Skip lesions may be higher in AD

# References

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