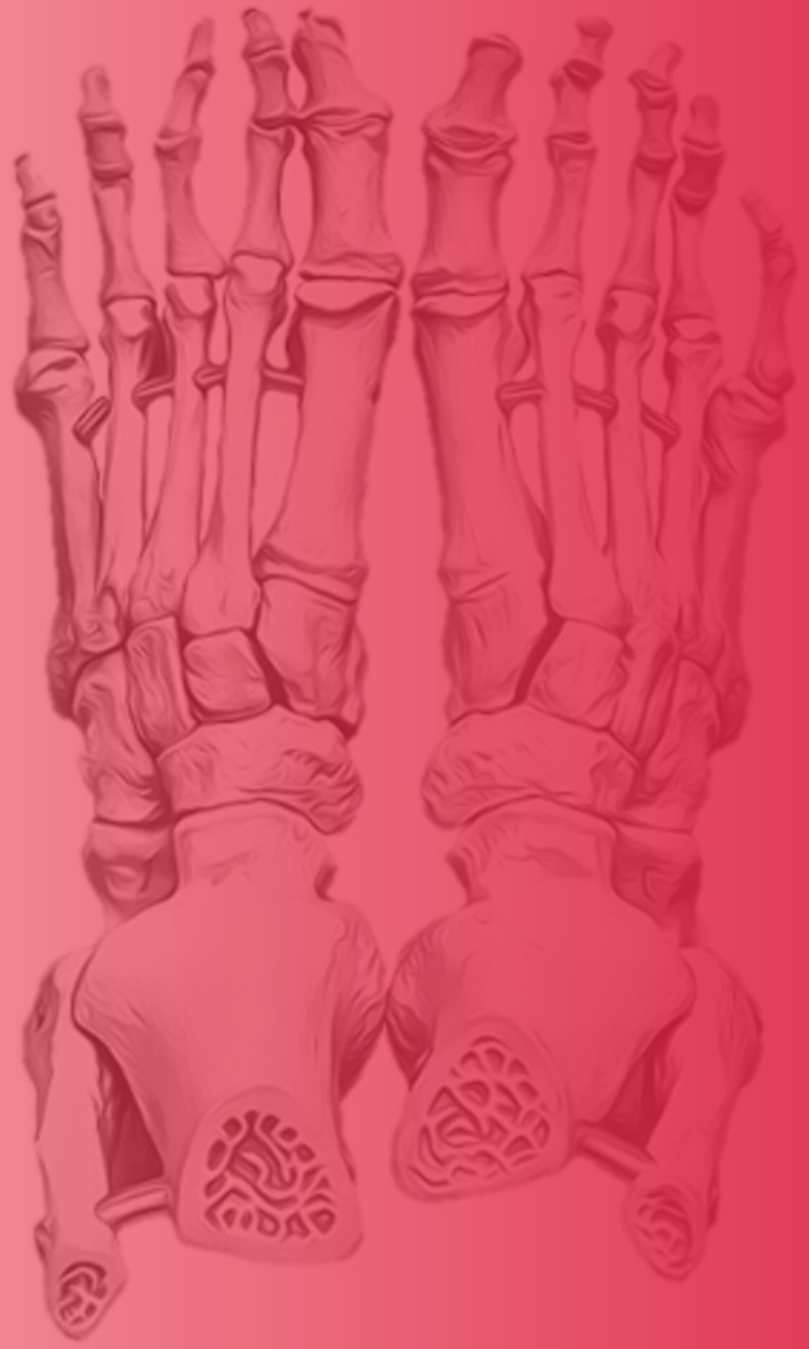


PrePodiatryStudy Case Studies

PrePodiatryStudy

OCD Lesion

Case

HPI: A 45-year-old male referred to podiatry clinic after being treated conservatively for an ankle sprain 6 months ago by his PCP. X-Rays have been “negative” since injury, however his pain has not improved. Pain is 3/10 when resting, but 6/10 when he is putting any weight on his foot. Pain is dull and achy, but throughout the ankle and particularly at the ankle joint line. Ankle also feels like it locks at times. Pain does not radiate.

What do you want to know next?

Past Medical History

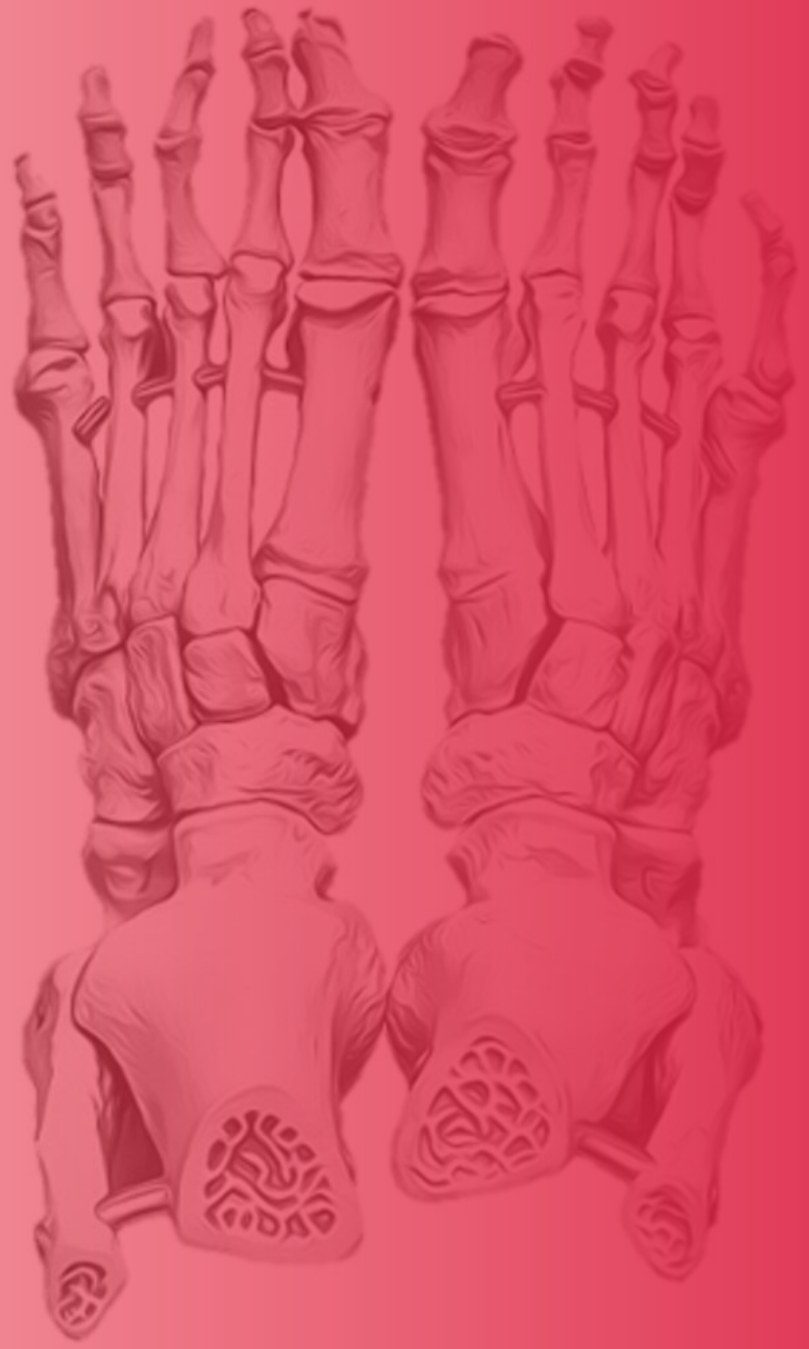
PMH:

- Illnesses: Healthy
- Meds: No Medications
- Surgical Hx: Right knee ACL repair
- Allergies: Betadine
- FH: Father has DM2
- SH: Denies smoking/drinking/recreational drugs. PE coach at an elementary school. Vegan diet.

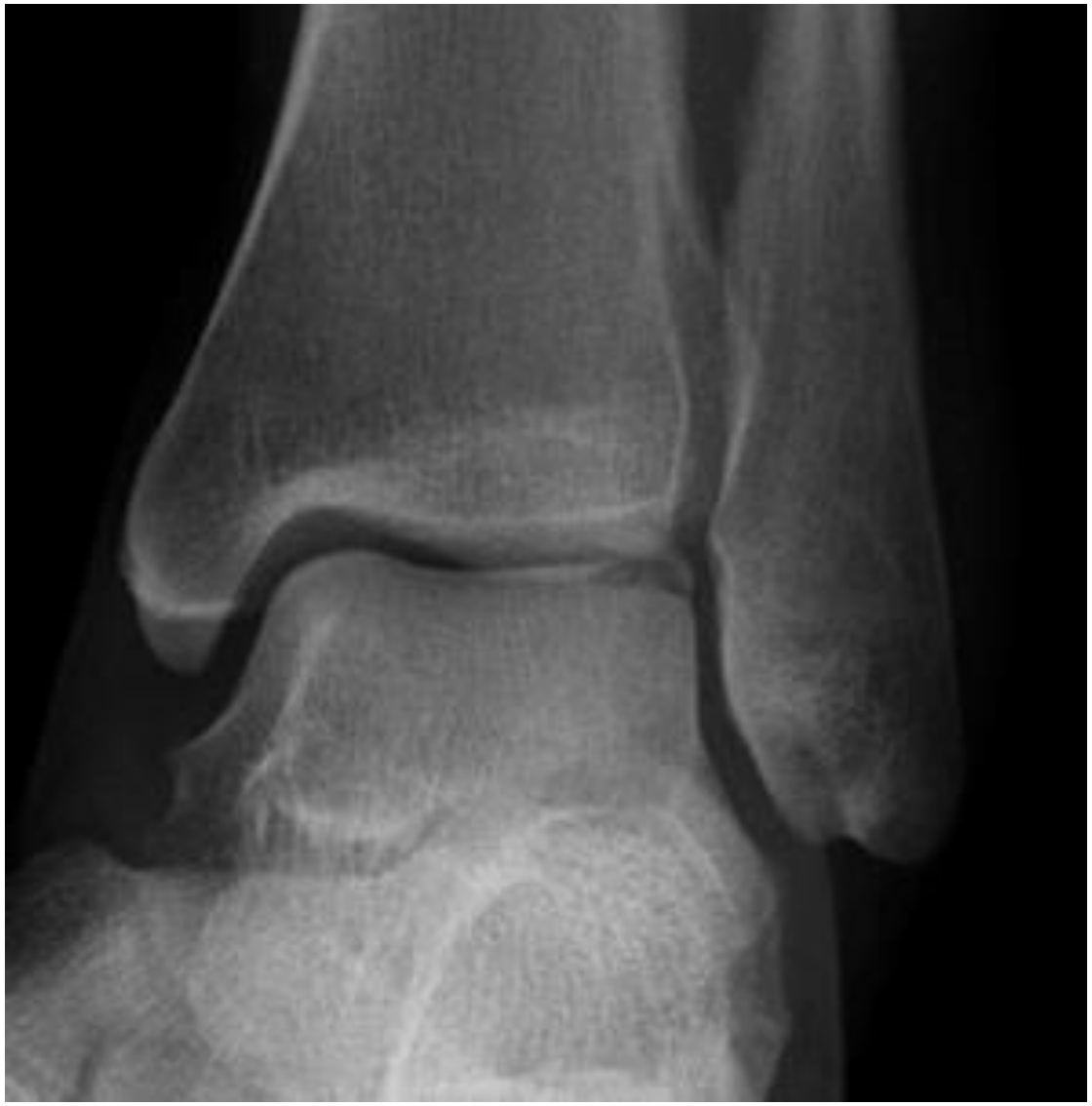
What do you want to know next?

Physical Exam

- Vascular
  - DP/PT palpable pulses
  - +1 non pitting edema of left ankle
- Dermatologic
  - (-) Openings, lacerations, ecchymosis
- Neurologic
  - (+) sensation with 10g SWMF
- Musculoskeletal
  - Pain on ankle range of motion
  - TTP to anterior ankle joint during plantarflexion
  - 5/5 Strength right, 4/5 strength left
  - Negative anterior drawer test

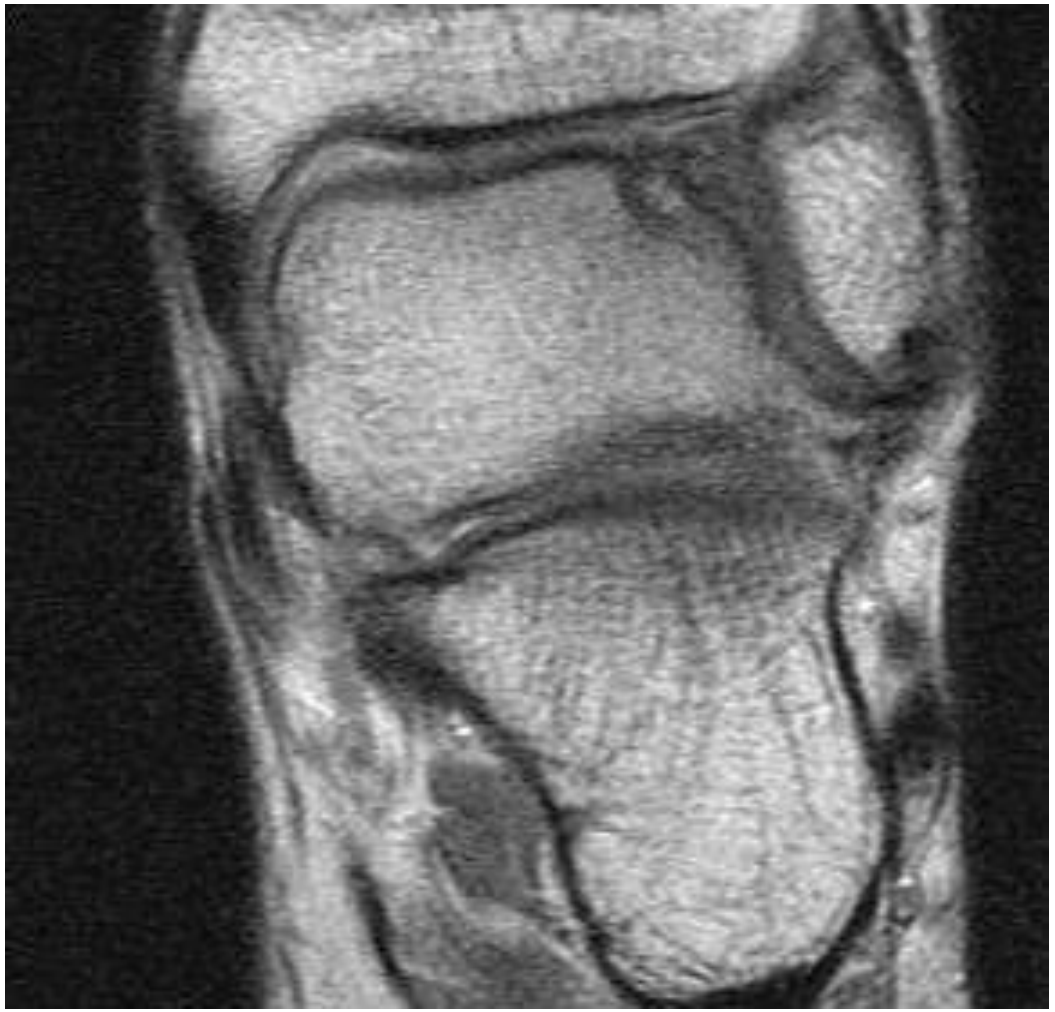


Read This X-Ray



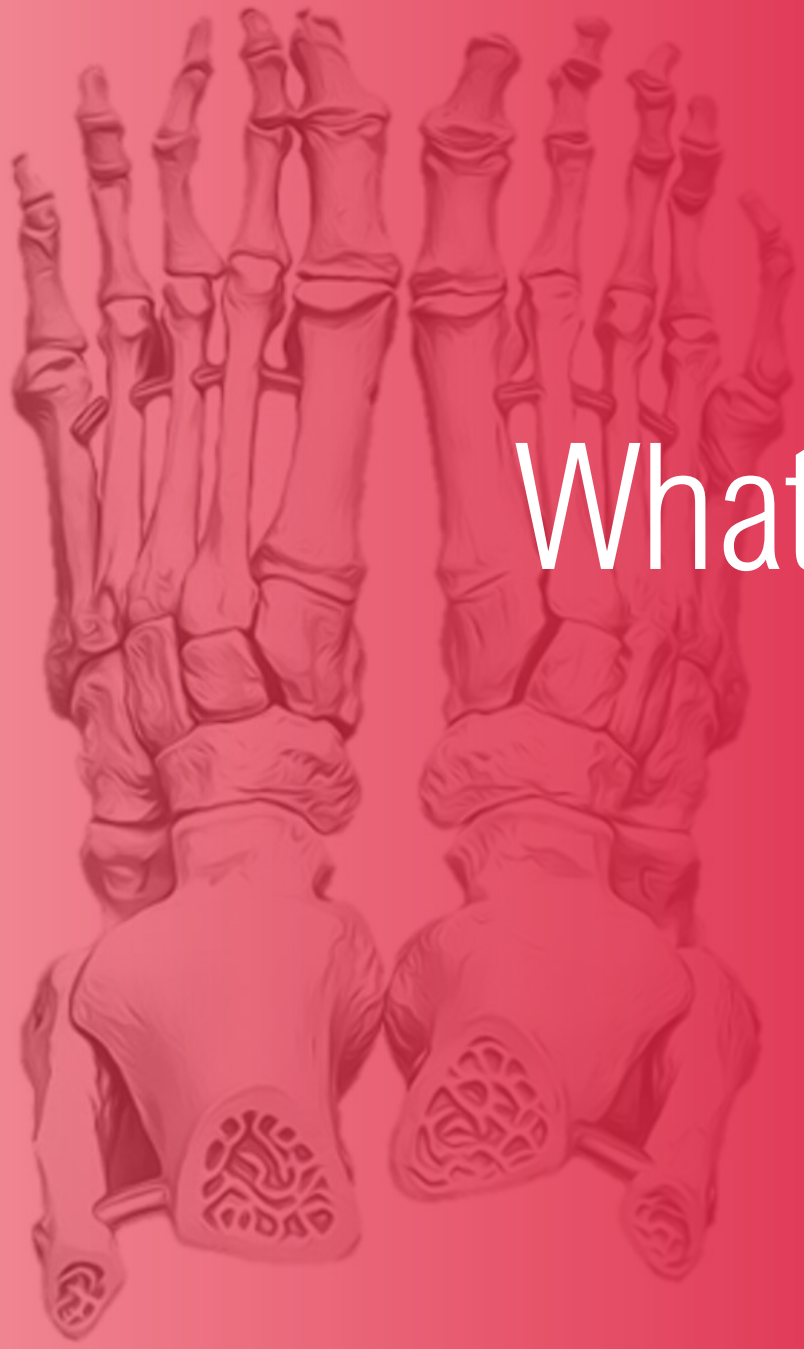
Imaging

Read the image.



Imaging

Read the image.



What's your diagnosis, Doctor?

Diagnosis?

- What classification system can you think of for this lesion?

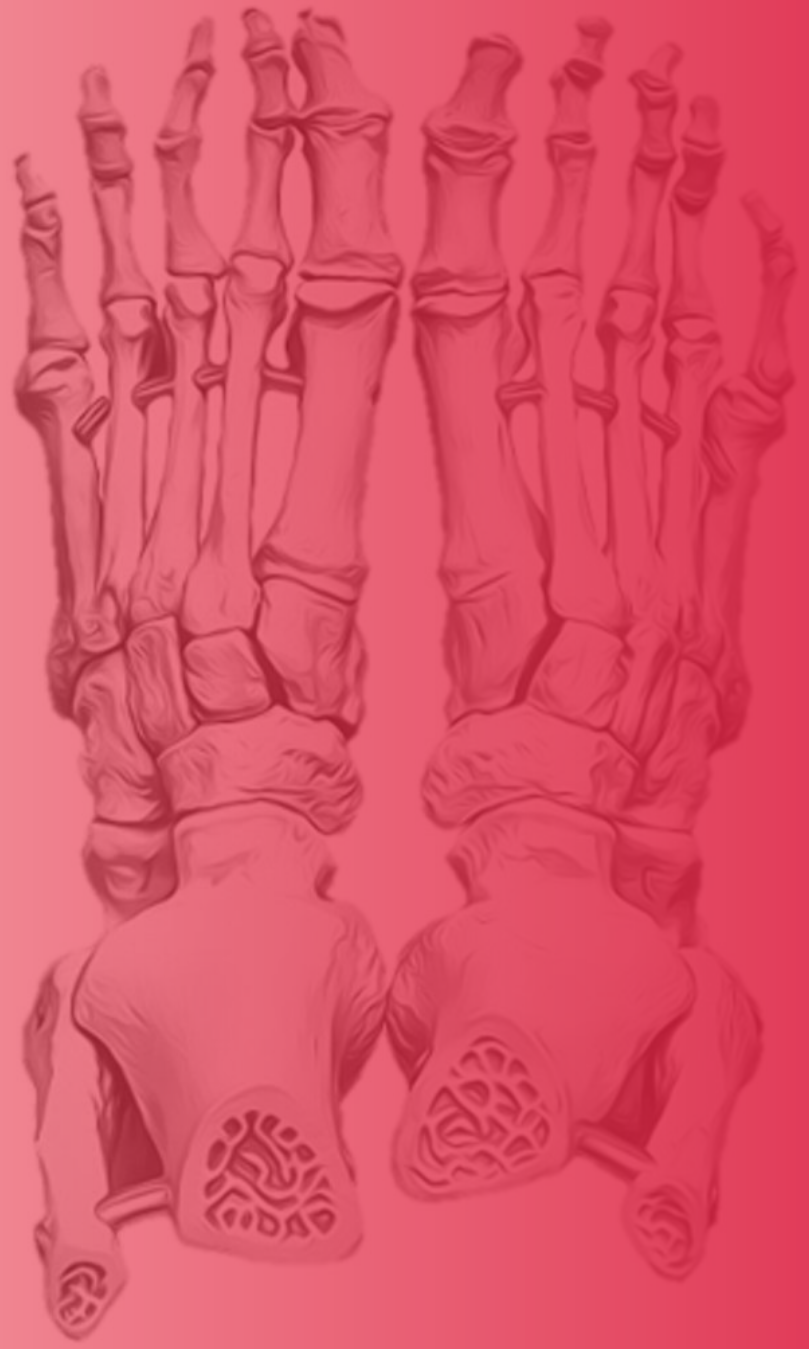
What's your plan, Doctor?

Conservative Plan

- What are the conservative measurements for this condition?
- What are the indications for conservative care?

Surgical Plan

- What is the first line of treatment for an OCD? Why?
- What would be your incision placement?
- What are secondary surgical options?



Rapid Fire Questions

Rapid Fire Questions

- What is the classical mechanism of action for an anterolateral lesion
- What is the classical mechanism of action for a posteromedial lesion
- What is the most common location for OCDs in the talus?
- What approaches are available for scopes?
- What structure are you worried about when making the incision for the anterolateral portal?

Rapid Fire Questions

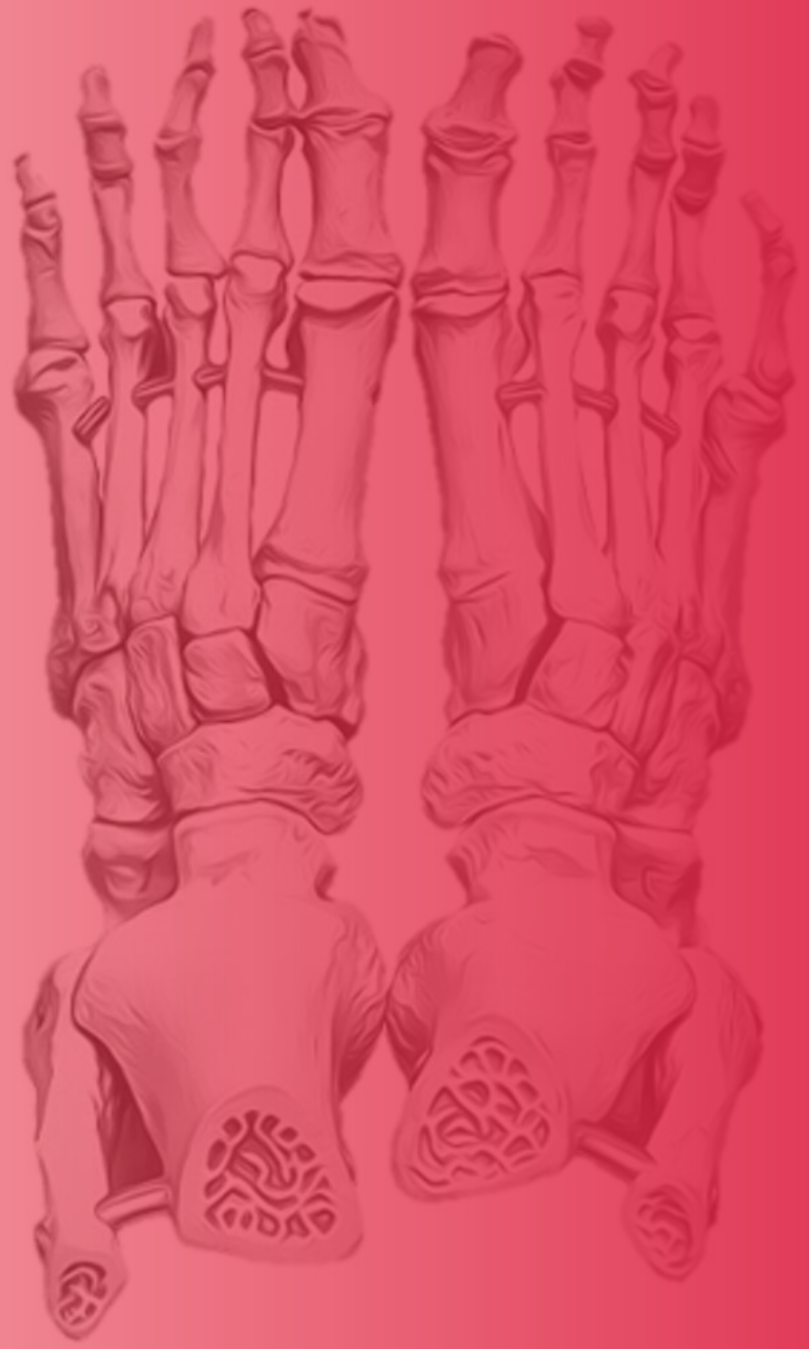
- Does awl size affect outcomes?
- What is the proposed mechanism for why bone marrow stimulation works?
- Microfracturing was originally proposed for treatment in which joint?
- What type of cartilage is typically formed after microfracturing?
- What is the difference between fibrocartilage and hyaline cartilage?
- Which one is type II collagen?

Rapid Fire Questions

- What size lesions are candidates for microfracturing?
- What does OATS stand for?
- What are some drawbacks to OATS?
- What does ACI stand for?
- What are some drawbacks to ACI?

Rapid Fire Questions

- True or False?
  - Cartilage is innervated
  - Bone is innervated
  - Joint capsules are innervated
  - Cartilage is avascular
  - Cartilage has a large chondrocyte to ECM ratio



Answers

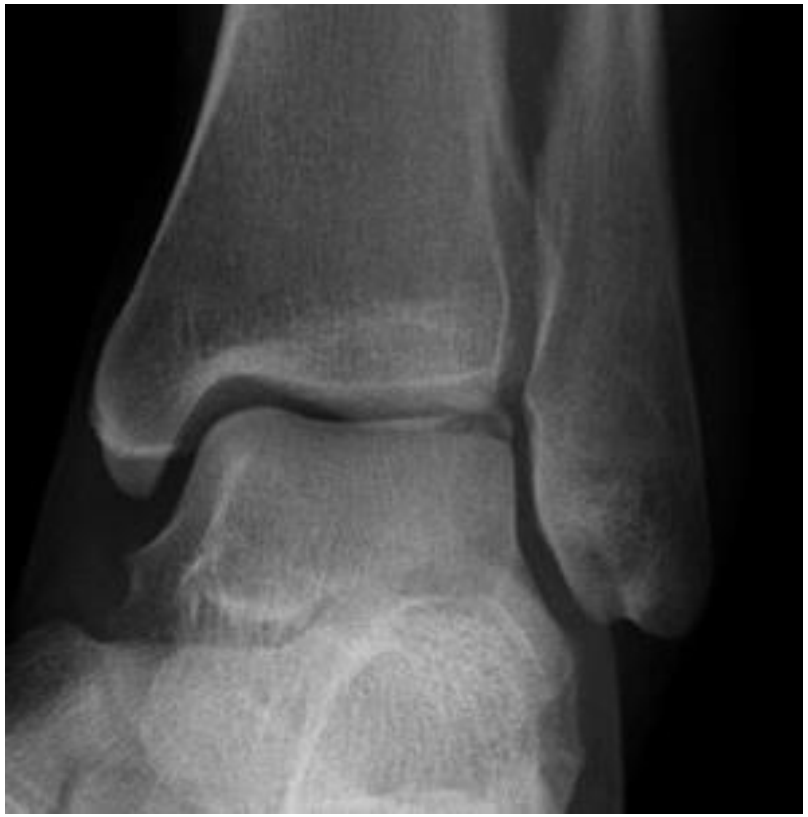
Case

HPI:

A 45-year-old male referred to podiatry clinic after being treated conservatively for an ankle sprain 6 months ago by his PCP. X-Rays have been “negative” since injury, however his pain has not improved.

What do you want to know next?

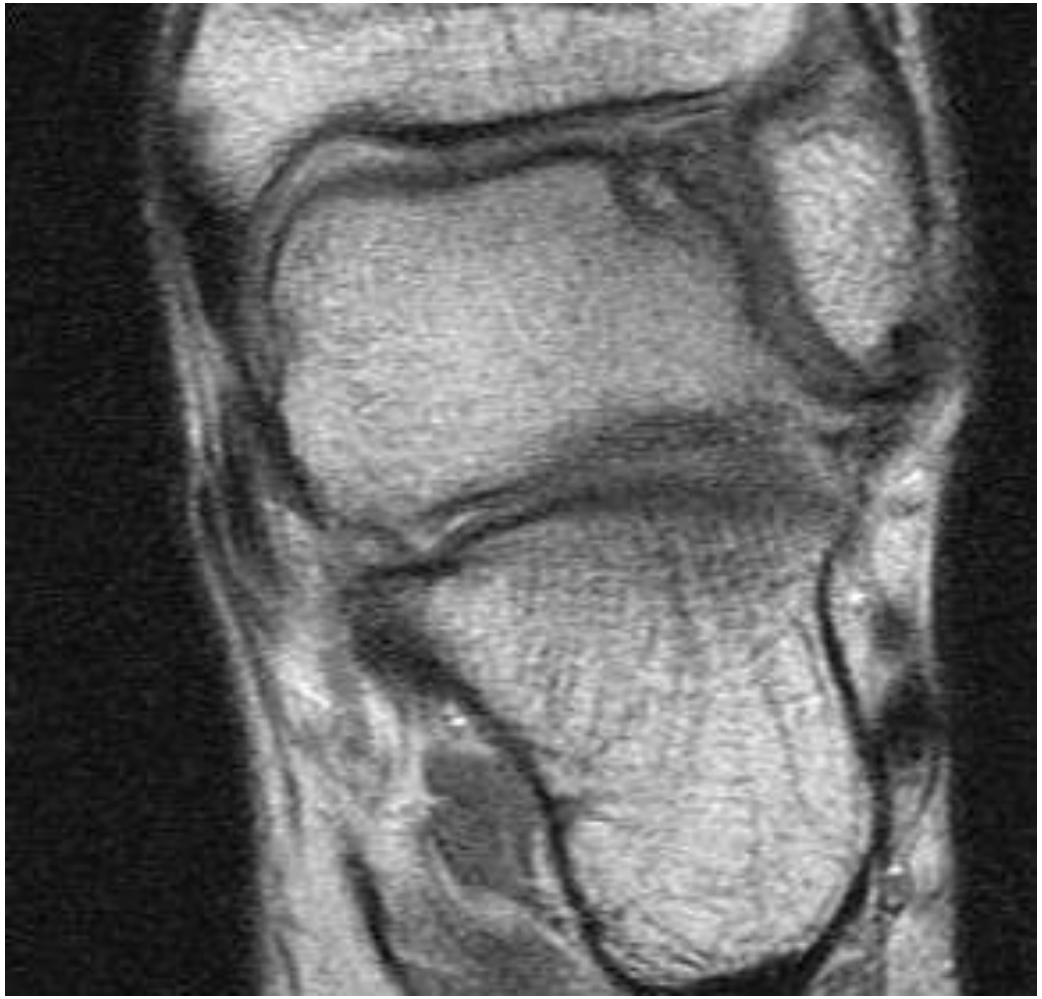
- Mechanism of injury? Social history? Pain on ROM? Does your pain radiate? Quality of Pain? Severity of pain? PMH? Past Surgical Hx? Conservative treatment regimen?



Imaging

Read the image.

Mortise view of the ankle unclear of WB or NWB. Some radiolucency observed at lateral shoulder of the talar dome. No evidence of cortical disruption in the fibular or medial malleolus. Tib/fib overlap WNL. Medial gutter spacing WNL.



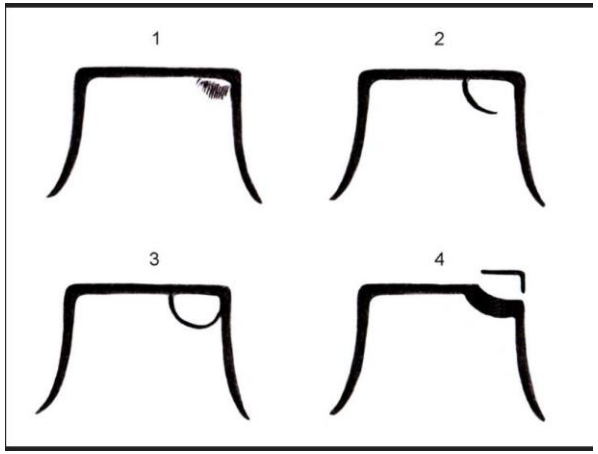
Imaging

Read the image.

Hypointense lesion in lateral shoulder of talar dome concerning for an osteochondral lesion.

Diagnosis

- Diagnosis?
  - OCD of the lateral shoulder of the talar dome
- What classification system can you think of for this lesion?
  - Berndt and Hardy



Conservative Plan

- What are the conservative measurements for this condition?
  - NWB and immobilization
- What are the indications for conservative care?
  - Acute injury
  - Nondisplaced fragment with incomplete fracture

Surgical Plan

- What is the first line of treatment for an OCD? Why?
  - Bone marrow stimulation
  - Bone marrow stimulation is believed to not burn any bridges to other surgical treatment options. It is also relatively inexpensive, there is a low morbidity, quick recovery, and high success rate (80-85%)
- What would be your incision placement?
  - Medial portal: At the level of the ankle joint, between medial malleolus and anterior tibialis tendon (as central as possible)
  - Lateral portal: At the level of the ankle joint, between the EDL tendon and lateral malleolus (as central as possible with care to avoid lateral dorsal cutaneous nerve)
- What are secondary surgical options?
  - OATS
  - ACI
  - TAR

Surgical Post-Operative Plan

- Pain Meds? Tylenol if possible, Oxycodone 5mg if needed for severe pain
- Post-Op protocol? CAM boot NWB for approximately 2 weeks, PT, passive ROM
- Return to clinic in how many days? 3 to assess for infection
- When to take sutures out? 10-14 days
- When to take X-rays? If no bony work, none.
- When do you start weightbearing? Why?
  - Grade 1 and 2= 1-2 weeks, Grade 3= 3-4 weeks
- When to return to regular shoe? 3-4 weeks

Rapid Fire Questions

- What is the classical mechanism of action for an anterolateral lesion
  - Dorsiflexion + Inversion
- What is the classical mechanism of action for a posteromedial lesion
  - Plantarflexion + Inversion
- What is the most common location for OCDs in the talus?
  - Central medial (Raikin 2007)
- What approaches are available for scopes?
  - Anterior and posterior
- What structure are you worried about when making the incision for the anterolateral portal?
  - Lateral dorsal cutaneous nerve

Rapid Fire Questions

- Does awl size affect outcomes?
  - Yes! There is evidence in in vitro studies that thinner and sharper awls allow for more hyaline-like cartilage repair, better bone marrow channel access, and better restoration of subchondral bone plate (Hoeman 2013) (Gianakos 2016)
- What is the proposed mechanism for why bone marrow stimulation works?
  - To bring Mesenchymal stem cells from the bone marrow to the surface and to differentiate into cartilage
- Microfracturing was originally proposed for treatment in which joint?
  - Pioneered by Steadman in the knee, later by Van Dijk in the ankle
- What type of cartilage is typically formed after microfracturing?
  - Fibrocartilage

Rapid Fire Questions

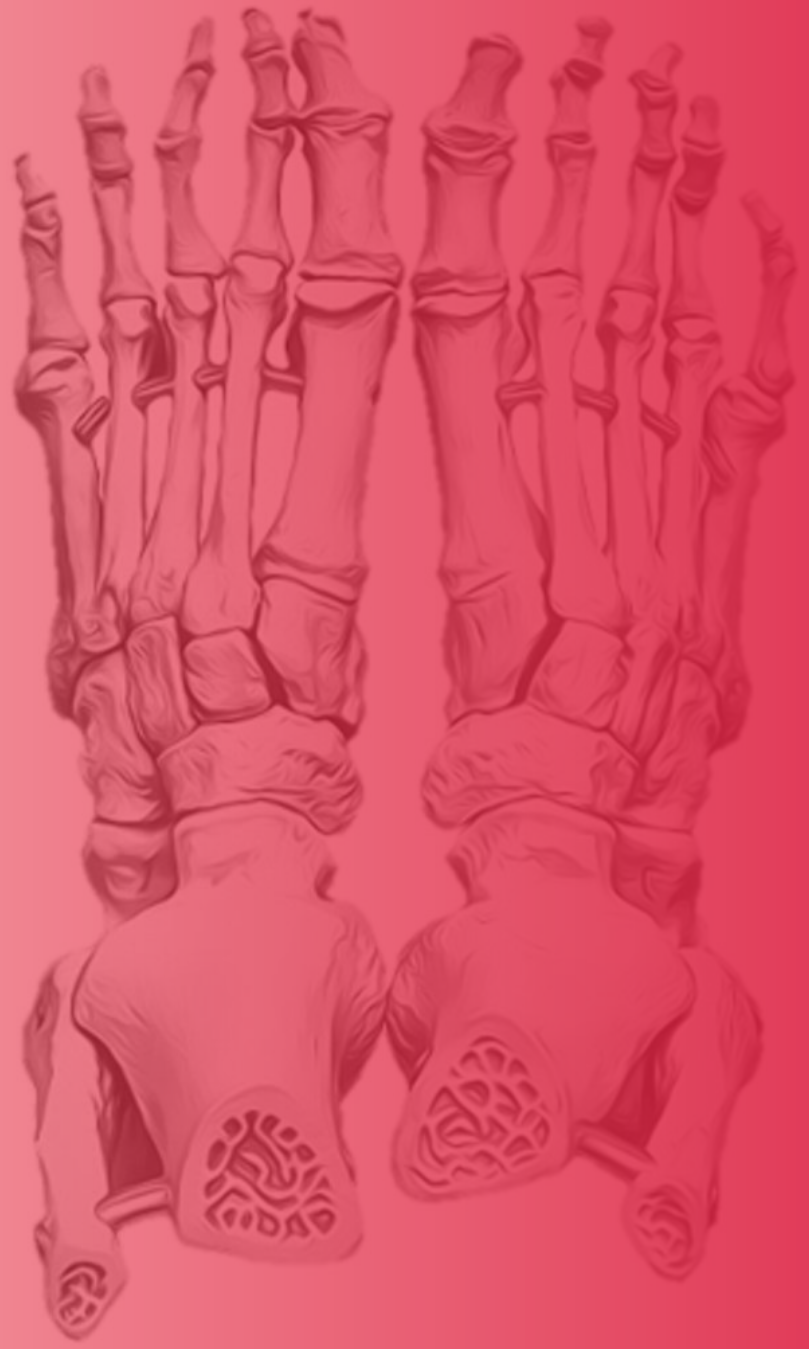
- What is the difference between fibrocartilage and hyaline cartilage?
  - Fibrocartilage is mechanically inferior and may deteriorate over time
- Which one is type II collagen?
  - Hyaline cartilage
- What size lesions are the best candidates for microfracturing?
  - <15mm diameter lesions (performs even better if <10mm)
- What does OATS stand for?
  - Osteochondral Autograft (sometimes allograft) Transfer System
  - 2 stage procedure

Rapid Fire Questions

- What are some drawbacks to OATS?
  - If autologous: morbidity of joint, since you create a defect there
- What does ACI stand for?
  - Autologous Cartilage Implantation
- What are some drawbacks to ACI?
  - Cost

Rapid Fire Questions

- True or False?
  - Cartilage is innervated
    - False
  - Bone is innervated
    - True
  - Joint capsules are innervated
    - True
  - Cartilage is avascular
    - True
  - Cartilage has a large chondrocyte to ECM ratio
    - False



PrePodiatryStudy
Thank You