1 **THE FOOT AND ANKLE PICTURE CAN BE WORTH 1000 WORDS**

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2 **DISCLOSURES**

- Paid Consultant to Arthrex
- Paid Consultant to Bioventus
- Consultant to Zimmer
- Consultant to Tornier
- No bearing on this lecture

3 **OBJECTIVES**

- Understand basic foot and ankle anatomy and how it correlates with common foot and ankle conditions
- Identify common foot and ankle orthopedic conditions that exist and how to manage them
- Offer different treatment strategies for basic foot and ankle pathologies and know when to refer to a specialist

4 **PATHOLOGIES WHERE THE PICTURE IS WORTH A THOUSAND WORDS**

- The High Ankle Sprain
- Lisfranc injuries
- Achilles ruptures
- Peroneal Tendon injuries/instability

5 **ANKLE ANATOMY**

6 **NOT JUST YOUR REGULAR SPRAIN**

7 **THE HIGH ANKLE SPRAIN**

- Syndesmosis
  - Anterior inferior tib/fib ligament
  - Posterior interior tib/fib ligament
  - Transverse ligament
  - Interosseus ligament
  - Interosseus membrane

- Sprain "above" the ankle
- Connection of the tibia and fibula
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8 **PRESENTATION**

- Twisting or rotational
  - Most commonly ER
- May or may not have a fracture
- May WB
- Pain above ankle
- Don't forget pain at deltoid
-

9 **SOME DIAGNOSTIC TESTS…**

- Squeeze test
- ER stress test
- Syndesmosis palpation
- Heel thump test
- Cross leg test

10 **THIS IS WHY THE "PICTURE" IS WORTH MORE**

- Don't forget the tib/fib xray AND 3 views of the ankle
- Beware the isolated medial malleolus fracture
- Beware the isolated posterior malleolus fracture
- Go the distance!!!
  - Measure the distance/space
  - Contralateral xray
  - Stress xray

11 **IT'S ALL ABOUT THE PICTURE!**

- Don't forget the other side
- AP
  - 42%!!!!
  -

- Mortis
  - Tib/fib overlap
    - > 1mm
  - Tib/fib clear space
    - < 5 mm
    -
    -

12 **PICTURES ARE WORTH 1000 WORDS BUT…**

- Consider the mechanism
- Apply to patient
- Correlate exam
- Understand the static limitation
- Convert to a dynamic diagnosis

13 **WHAT TO DO**

14 **WHAT TO TAKE AWAY?**

- Always be thinking of it
  - Sometimes not just the low ankle sprain
  - Exam is key
- Don't forget the WB or stress xray
  - Even subtlety
- MRI to assist when needed
- Consult when in doubt

15 **THE LISFRANC**

- Jacques de Lisfranc de St Martin-Napoleonic army
- Can be high or low energy
- Beware the low energy
- Keystone critical
- Soft tissue strength/stability
- No connection of first to second metatarsal

16 **HOW CAN IT HAPPEN?**

- Football and soccer common
- Twist and fall
- Hyperplantarflexed axial load
- Fall from height

17 **HIGH SUSPICION… AND…DON'T FORGET THAT PICTURE**

- Plantar ecchymosis
- Pain with palpation of midfoot
- Abduction pain
- Piano key test
- Single rise
- Fleck sign

18 **…THE WHOLE PICTURE!!**

- Get a WEIGHT BEARING xray
- Comparison view WB

- The "fleck sign"
- 3 views of the foot
- Fractures that are suspicious=CT
- Normal xrays with suspicious exam=MRI

19 **IF DIAGNOSED…**

- Pat yourself on the back
  - Most missed Dx in my office
- Keep patient non-weight bearing
- No boot if possible
  - Needs soft tissue rest
  - Elevation

20 **WHAT NEXT?**

- If wide/instability on Xray ?
  - Refer because likely surgery
- No widening + high suspicion?
  - Think about imaging
  - Close f/u and repeat xray
  - Plantar ligament injury = BAD
  - Isolated dorsal ligament injury = BETTER
    - May be conservative
    - NWB for 6- 8 weeks
-

21 **SUMMARY POINTS**

- Don't be scared to do the WB xray
- MRI or CT if suspicious
- Keep them NWB until you are sure
- Rest the soft tissues
  - Splint
- Refer with ANY instability

22 **ALL THE IMAGE YOU NEED!**

23 **ACHILLES RUPTURES**

- Largest tendon in the body
- Vulnerable to injury
  - Blood supply
- Gastroc/soleus to calcaneus
- Most common watershed
- Beware the avulsion!!
  - Surgical emergency

- MTJ do better
  - ? More vascular

24 **GET A GOOD HISTORY**

- Injections?
- Antibiotics?-Quinolones
- Pre-existing disease?
- Audible pop- "felt like I was kicked"
- Sometimes can walk
- I was "told it was just a sprain"

25 **PHYSICAL EXAM INCLUDES "APPEARANCE"!**

- Contour
- Palpable defect
- Thompson test
- Matle's Test

26 **AFTER YOU RECOGNIZE IT…**

- Forget plantigrade
- EQUINUS immobilization or equinus WB
- MRI only if needed
  - If you do get it, do it STAT!

27 **CAN I TREAT THESE?**

- YOU SHOULD ALWAYS FEEL COMFORTABLE REFERRING HOWEVER…
- Great evidence suggesting nonop management
  - *** HAVE TO HAVE functional rehab
- Athlete?-referral if in doubt
- Quicker return to sport?-referral
- Comorbid-non-op
- Splinted in PF and want nonop-non-op
- Musculotendinous junction?-non-op
- Insertional?-refer(Beware the emergency)
- Diseased tendon?-refer

28 **SUMMARY OF THE FACTS**

- No harm done if place in plantarflexion
  - May need surgery but won't burn bridge if not
- Don't delay for an MRI-GET IT ASAP if needed
  - Remember your reliable tests!
    - Matle's
    - Thompson
    - Palpate

- Remember good evidence to suggest non-op management

29 **THE PERONEAL TENDONS**

- Peroneus brevis and longus-"Fibularis"
- Primary evertor to the foot; primary 1st metatarsal plantarflexor
- Lateral compartment
- Retromalleolar groove that is deepened by a fibrocartilaginous rim
- Covered by the SPR
-

30 **WHAT HAPPENS?-REMEMBER, PICTURES TALK!**

- DORSIFLEXION injury
-
- Felt a pop
-
- Ankle instability/sprain
-
- PL ankle swelling
-

31 **THESE PICTURES TELL THE WHOLE STORY**

- "Fleck Sign"
- Os peroneum migration
- Dynamic and static US
- MRI
-

32 **WHAT YOU CAN DO**

- Non pro athlete-all can trial 6wk SLC if instability
  - What position would you cast?
- Activity modification
- Boot
- NSAIDS
- PT

33 **SURGICAL OPTIONS**

- Repair SPR
-
- Deepen groove
-
- Repair/re-tubularize

-
- Tenodesis
-
- Interposition grafting

34 **THE ONLY WAY IMAGES ARE WORTH IT**

- Always be suspicious!
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- Beware the avulsion fracture-may not be as “little” as you think
-
- You have to know what the anatomy
-
- You have to order the right “picture”
-
- Don’t shy from the WB xray

35 **SUMMARY**

- Knowing the anatomy is more than half the battle
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- Pay attention to the “little things”
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- Remember pictures(images) are worth 1000 words!

36 **THE END-QUESTIONS?**
THANK YOU!

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