

Presented by:
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0:00 Introduction

0:24 A good History and Physical is Key

0:39 Foot: Pronated Hand

0:58 Function

- Propulsion
- Support
- Flexibility
- Rigidity
- Gait mechanics: ankle and foot motions

1:39 Ankle Axis

- Thus, with leg fixed and foot free
- Dorsiflexion results in outward deviation of the foot
- Plantarflexion results in inward deviation

2:30 Ankle Axis: Opposite with foot fixed

- With foot fixed, dorsiflexion / Plantarflexion results in rotation of the leg
- Dorsiflexion results in internal rotation
- Plantarflexion results in external rotation

3:38 Subtalar Joint

- Eversion and inversion of the subtalar joint are directly tied to internal and external rotation of the tibia

4:44 Windlass Mechanism

- Dorsiflexion of the proximal phalanges pulls the plantar aponeurosis over the metatarsal heads, resulting in depression of the metatarsal head and elevation of the longitudinal arch

5:02 During gait: coupled motion between ankle and subtalar joints

- First
- Tibial internal rotation
- Talar eversion
- Foot pronation
- Third
- Tibial external rotation
- Talar inversion
- Foot supination

8:08 Leg Movement

8:37 Ankle: Modified Hinge Joint

Bony configuration

- Mortise
- Circular Pretzel

Ligamentous stability

- ATF and CF laterally
- Deltoid superficial and deep medially
- Syndesmosis superiorly

9:18 With complete history and physical and appropriate imaging, the diagnosis should be made and be specific.

9:34 Lateral Ankle Pain

- Sprain ATF and/or CF
- Sinus Tarsi Syndrome
- Subtalar Joint
- Arthrosis Fracture
- Cuboid Subluxation
- Peroneal Dysfunction

13:14 Summary of Findings From the National Collegiate Athletic Association Injury Surveillance System on Foot and Ankle Injury.

14:12 Basketball Injury Mechanism Video

14:47 EUA Gross instability, right ankle video

16:01 18 YO Female Gymnast

- Right ankle injury
- Landed awkwardly doing a back tuck
- Immediate pain and swelling, right ankle

16:10 Initial X-rays

16:41 Stress tests, L & R ankles

17:12 Dx lateral talus fracture displaced

17:33 Physical Exam of the Foot and Ankle Video

18:32 Lateral Ankle Pain Soft Tissue

Soft Tissue Mass

- Ganglion

Meniscoid of the Ankle

- Tomansen, Denmark 1982

Scar + Synovitis Gutter

- Ferkel's Phenomenon, AJSM 1991

Distal Slip Anterior Tibiofibular Ligament

- Bassett's Ligament, JBJS, 1990

19:13 14 YO Female

- Soccer athlete
- Left ankle
- Acute lateral talar dome fracture
- Documented by plain films and bone
- edema on MRI

19:16 Initial X-Rays

19:46 1 Month after Initial presentation

20:27 Talar Dome Fracture

20:45 Osteochondral Talar Lesions

Osteochondritis Dissecans

- Men 3 : 1 Women
- Medial : Lateral
- 2 : 1

Etiologies

- Trauma
- Vascular
- Repetitive Loading

21:11 Mechanism of injury of medial border of the dome of the talus.

•Berndt, A.L. and Harty, M.: "Transchondral fractures of the talus" – JBJS 41 –A:988, 1959

22:08 Soft Tissue Lesion Location

- Ankle
- Anterolateral
- ATF or CF Sprain
- Peroneal Tendinitis
- Posteromedial
- PT or FHL Tendinitis
- Deltoid Sprain

24:32 Physical Exam of the Foot and Ankle Video

25:12 Think About Peroneal Tendon Involvement If:

- Recurrent Ankle Complaints
- Sprain Not Getting Better
- Pain, Swelling Higher in Peroneal Tendon Sheath

25:37 In Acute Ankle Sprain, Assess Peroneal Function

25:58 17 YO WM

High school Baseball/Football Player

C/O Repeated Inversion Ankle Sprains

26:14 Peroneal Tendon Subluxing Video

27:42 Physical Exam of the Foot and Ankle Video

28:50 19 YO basketball player Os vesalianum bilateral feet.

29:20 Os peroneum

29:33 Medial Ankle Pain

Differential Diagnosis

- Deltoid Sprain
- Medial Malleolus Fracture
- Tendinitis
- Posterior Tibialis
- Flexor Hallucis Longus
- Osteochondral
- Talus Fracture
- Osteochondritis Dissecans

30:25 Posterior Tibial Tendon Dysfunction Stages

31:12 "Too Many Toes" Sign

34:16 18 YO Freshman Div. I basketball athlete

- C/O mid-foot pain, L > R
- Started when she was running, playing in shoes mandated by her school
- History of "normal" periods

34:55 Navicular

- Initial x-rays

37:06 Posterior Ankle Pain

Differential Diagnosis

- FHL Tendinitis
- Posterior Process Talus Fracture (Shepherds 1982)
- Posterior Impingement
- Os Trigonum
- Achilles Tendon
- Overuse
- Tear, partial vs. complete

37:48 Bony Impingement of the Ankle

Motion & Contact Areas

38:09 Anterior Tibiotalar Impingement Syndrome "Footballers" Ankle

38:32 FHL Tendinitis

- “Dancers” Tendinitis

39:19 Witherspoon MOI Video

40:27 Thompson Test Video

41:15 Achilles Tendon Video

43:20 Ankle Fracture Dislocations Video

44:40 Fractures

Maisonneuve Fracture

48:46 Fracture blisters Leave alone. Do not lance unless they look infected.

49:33 Football athlete: Twists ankle on Astro turf Video

50:22 On-site Physical Treatment Video

52:38 Fractures Dislocation

- Subtalar Dislocation

- Closed Reduction

53:19 Radiographs

- Out of Splint

- Include Obliques

- R/O Small Avulsion Fractures

54:08 14 YO Male

- Left ankle

- Tillaux fracture with displacement

54:44 Physical Exam Video

56:13 CT Scan

56:37 16 YO WM Basketball Athlete

- Injury: Left Ankle

- 8 months prior to KSM visit

- Continued ankle pain and swelling

56:55 Radiographs in ER post injury

Casted for 3 months

57:35 2 weeks post injury

58:40 2 months post injury

59:13 Surgery – 9 months post injury

1:00:41 1 month post surgery

1:01:40 Don't miss a Lisfranc midfoot fracture dislocation

1:02:56 Will require ORIF

1:03:43 Claw Toes Flex:ed PIPJ/DIPJ: Think Neurologic Involvement

1:04:29 Freiberg's Infracion

1:05:16 Turf Toe: Football Athlete

1:05:56 Heel Pain

Adolescent male

- Rheumatoid condition
- Ankylosing spondylitis
- Reiter's syndrome
- Enthesistis Related Arthritis

Infection

- Sever's disease (usually younger males, peaking at age 8)
- Stress fracture
- Conditions / tumors
- Osteoid osteoma

1:07:10 13 YO White Male

- Right midfoot pain for 1 month
- No specific injury
- Baseball athlete
- Rapid growth phase

PE:

- Tenderness over medial arch and midfoot
- Stable normal ankle exam
- Tenderness over posterior tibialis tendon

1:07:53 13 YO White Male

Workup:

- Plain xrays – negative
- MRI scan – medial cuneiform stress fracture

Treatment

- Boot
- Nonweightbearing 4 weeks
- Full weightbearing 4 weeks
- Improved
- Cleared for return to baseball

1:08:26 Films in early summer 2009

1:09:44 Followup

8 months later

PE: •Developed recurrent medial foot pain and swelling
•Mild ankle effusion, stable
•Swelling and pain over posterior tibialis tendon

Workup: •Plain films
•MRI scan

1:10:08 RIGHT FOOT

1:10:29 RIGHT ANKLE

1:10:51 MRI Scan
•Bone edema
•Medial malleolus
•medial and intermediate cuneiform
•Posterior tibialis tenosynovitis
•Ganglion cyst, talonavicular joint
•Tibiotalar effusion

1:11:29 Foot and Ankle Consult Recommended
•Open exploration

Surgery performed
•Tenosynovectomy, posterior tibialis tendon
•Biopsy

Laboratory work:
•Rheumatoid profile, rheumatoid factor negative

Followup
•Used AFO brace
•Returned to baseball 6 months later

1:12:19 1 Year Later
•Developed uveitis
•Pediatric ophthalmologist requested consult with pediatric
rheumatologist

Laboratory studies:
•HLAB 27: positive
•ANA: negative
•Rheumatoid factor: negative

1:13:16 Diagnosis
•Enthesitis Related Arthritis
•HLAB 27 Positive
•No clinical evidence of ankylosing spondylitis

Treatment:
•Medications:
•Methotrexate, Naprosyn
•Home Rehab program
•Returned to baseball wearing AFO

1:14:41 15 Y0 Male

- Right ankle
- 6 Months of Pain
- Initial x-ray:

1:15:16 1 month followup

1:19:08 14 months post op

1:19:18 17 Y0 Male

- Left ankle pain x3 weeks
- Trying to get in shape, played more basketball than usual
- Possible stress fracture of the medial malleolus

1:19:56 3 months after initial presentation

1:20:11 5 Months after initial presentation

1:20:53 7 months after initial presentation

1:21:13 Small Blue Cell Tumor

- Ewing's sarcoma
- vs.
- Lymphoma

1:21:23 A good History and Physical is Key

1:22:07 Thank You