Common Foot & Ankle Problems

Know When To ‘HOLD em’

Know When to ‘SEND em’

Kenny Rogers 1976

American College of Physicians March, 2019

Steven K. Neufeld, MD
Board Certified Orthopaedic Surgeon
Disclosures

Merete – Royalties, Consultant
Vilex – Royalties, Consultant
Darco – Royalties, Consultant
CurveBeam – Consultant
Mimedex – Consultant
Trident Orthopedics – Consultant
Wright Medical – Research Support
JAAOS – reviewer
Medical Director: Inova Total Ankle Replacement Program

NONE ARE RELEVANT TO THIS TALK
Goals of Lecture

• Review Foot & Ankle Anatomy
• Common Foot & Ankle Pain
  – Diagnosis
  – Treatments
  – “HOLD em” or “SEND em”? 
Forefoot pain
• 9 of 10 women are wearing shoes that are too small for their feet.

• Bunion is not a growth – it is a deformity
Bunions (Hallux Valgus)

2 Common Causes

1) Shoes
   70X more common in shoe-wearers!
   Lam and Hodgson, JBJS 1958

2) Hereditary
   - 2007 study, 108 patients
   - 84% positive Family History
   - Of that group, 64% < 30yrs old
Conservative Therapy

- Always 1\textsuperscript{st} line of treatment
- Patient education is the most important component!
- Operate?
- Operate on the shoe!!!
  - shoe with sufficient size (1/2 size larger?)
  - wide toe box \textit{(step on piece of paper)}
  - soft upper

- Pads, Spacers, Splints…
Bunion Treatment

“You can change the shape of your foot to fit your shoe... Or you can change the shape of your shoe to fit your foot!”  Steven Neufeld, MD

“HOLD em”
Surgical Treatment

“symptoms that persist despite non-surgical treatment”
Great Toe Arthritis (Hallux Rigidus)

Not A “Bunion”!

- arthritis -> bump on the top
- bunion -> bump on the side
Conservative 1st Line treatment!

“HOLD em”

Stops the Joint from Moving!

Relieves the Pain
Traditional surgical Treatment:

“Remove” Arthritis

2003 study 80 patients
• 92% success at 9.6yr f/u
• Other studies have shown higher failure rates...
• Inadequate bone resection

“Joint Fusion”

• Review of 1451 fusions
• 90% success rate
• 93-100% fusion rates
New Trends: Implants that maintain motion (no fusion)
Case: 40 year old presents to Primary Care office...

CC: sudden onset red, stiff, swollen, *painful* joint
• precipitated by stubbing Hallux (episode happened one week ago)
Diagnosis?

- bone may appear normal early
- advanced: periarticular erosions (rat bite)
- hallux valgus may appear

“Negative birefringent” crystals
Gout

- alteration in purine metabolism
  - \( \uparrow \) production
  - \( \downarrow \) excretion
- sodium urate crystals precipitate in synovial fluid
- Incidence increases with age
- Increases with elevation of sodium urate
  - \( .1\% \) when serum urate <7 mg/dl
  - \( 22\% \) when serum urate = 9 mg/dl
- Most common in men (1\(^{st}\) MTP Joint)
- Common in postmenopausal women
Gout

Acute gouty attack:
- 4th – 6th decades of life
- Monarticular usually in lower extremity
- Sudden onset of intense pain
- Inflammation, redness, fever, chills
- May persist for 7-14 days
- ETOH, dehydration, trauma

Treatment
- colchicine/ Nsaids
- Prednisone
- allopurinol
- biologics
- Injection of steroids

‘HOLD em’
When to ‘SEND em’....

- Pain persistent despite conservative care
- any skin erosions
Ball of Foot Pain: “Capsulitis”

- Most Common Cause of “ball of the foot pain”
- Usually 2\textsuperscript{nd} MTP joint
  - Deviating toe
  - + “Lachman test”
Ball of Foot Pain: “Morton’s Neuroma”

- Nerve being pinched
- Feels like “walking on a marble”
- Tight Shoes can squeeze foot bones together
- Nerve inflamed
- 8-10x more common in women
Ball of Foot Pain: “Morton’s Neuroma”

- Usually pain between the 3rd & 4th toes
- May radiate into the toes
- Burning pain in the ball of the foot
- Intensifies with activity or shoe wear
- Numbness in the toes
- Night pain is rare
Ball of Foot Pain - Treatment

• Wear Wider Shoes
• Custom orthotics
• Oral Anti-inflammatory medication
• Pad in the shoe
• Cortisone Injection
• 80% get better without surgery
Midfoot pain

- Stress Fractures
Stress Fractures

“Occur due to excessive, repetitive stress applied to a bone that lacks the strength to withstand it”
Stress Fractures

• Described in every bone:
  – Metatarsals
  – Malleoli
  – Calcaneus, navicular, talus
• Initial X-rays frequently neg
• Dx by careful history & exam
Stress Fracture Diagnosis

- MRI – most accurate test for suspected lower extremity stress fractures
  - Meta-analysis
    - Radiographs (sensitivity 12-56%)
    - Bon Scans (sensitivity 50-97%)
    - CT scans (sensitivity 32-38%)
    - Ultrasound (sensitivity 43-99%)
    - MRI (sensitivity 68-99%)

Predisposing Factors

- Repetitive trauma
- Osteopenia
- Steroid Use
- **Female Athlete Triad:**
  1. Disordered eating
  2. Amenorrhea
  3. Osteoporosis
Stress Fractures

History

Anatomic variants

Pain on top of MT is a stress fracture until proven otherwise

X-rays initially may be negative

Michael Jordan: stress fracture-1985 missed 64 games

‘HOLD em’
Stress Fracture Management

- Activity Modification
- Physical Therapy when healed
- Immobilization (shoe, boot, cast)
- Bone Stimulator

‘HOLD em’
Hindfoot & Ankle Pain
Heel Pain

- Plantar Fasciitis
- Achilles problems
- Stress fracture
- Soft tissue atrophy
History & Physical Exam

- The exact location:
  - Weight bearing surface?
  - Plantar fascia origin?
  - Side of the calcaneus?
- Time of day, duration of the pain:
  - Night pain (tumor ?)
  - Morning/startup pain (plantar fasciitis)
- Radiation (L5-S1 radiculopathy?)
Achilles Tendinitis = Inflammation

- Very common
  - 11% of runners
  - 9% of dancers
  - 5% of gymnasts
  - 2% tennis players
Achilles Tendinosis = Degeneration

- Training errors
- Systemic Diseases
  - Obesity
  - HTN
  - IDDM
  - fluoroquinolones ??
Heel pain: Haglunds deformity or calcific spurs
Heel Pain: Treatment

- Activity modification
  - Lower impact exercises
  - Pool therapy
- Heel Lift, Shoe changes
- Physical Therapy
- Immobilization
- Surgery (if no improvement)

‘HOLD em’…
Heel Pain – Fat Pad Atrophy

- Occurs in elderly
- Soft, flattened heel pads
- Maximal pain over central weight-bearing area
- No role for surgery
- **Treatment**: Visco elastic heel pad

‘HOLD em…’
Heel Pain

Calcaneal Stress Fracture

• Most commonly in military recruits in excessive physical training
• Lateral X-ray – vertical sclerotic band
• Bone Scan or MRI if X-rays normal

• Treatment: Boot

‘HOLD em…’
What's the Deal with the Heel Spur?

50% of patients with heel pain do not have a spur!

15% of non-painful heels do have a spur!
Heel Pain (Plantar fasciitis)

- Pain & tenderness over the medial calcaneal tuberosity
- Severe in the morning (startup)
- Prolonged sitting then standing
- Tight calf
Plantar fasciitis

**1st Visit**: Plantar fascia stretching, night splint, +/- boot

**2nd**: formal Physical therapy

**3rd**: injection/Orthotic

**4th**: referral!
Treatment

• 95% cured with conservative Treatment w/in 3 months

‘HOLD em’…

cortisone injection
Reports of rupture!
Case: 47 year old follows up after a “sprain”

- 47 yo. female with ankle inversion
- Diagnosed with sprain by her Urgicare Center
- Placed in CAM boot and sent to Dr. Fox
- Exam – swollen ankle, pain with walking
Dr. Fox’s pt.
Still having pain/weakness so an MRI is ordered:

Diagnosis ??
Achilles Tendon Rupture

- 75% of all achilles ruptures occur during sports
- Most are not highly competitive professional athletes
- “Weekend Warrior”
  - 30-40 yr. old, sedentary, male, white-collared worker who over-exerts himself while playing on the weekend
Achilles Tendon Ruptures

Increased popularity of Recreational Athletics

– Prior to 1929 < 66 cases of Achilles tendon ruptures reported (by 1989 – most common)

• Acute “Pop”

• Clinical diagnosis
  – Palpable defect
  – PF weakness/hyperdorsiflexion
  – Thompson test
Achilles Tendon Ruptures: Treatment

define patient goals, lifestyle, medical history

- Non-Operative
  - Lea - JBJS, 1972
  - Nistor - JBJS, 1981

- Operative
  - Christensen et al - Acta Scand, 1954
  - Cetti* - AJSM, 1993
    - lower rerupture rates, improved strength, higher return to sports

  - trend toward aggressive postoperative rehab program
Achilles Tendon Rupture: 2019

• Recent studies show no difference in outcomes between surgical and non-surgical treatment with early functional rehabilitation
  – No difference in re-rupture rates
  – Surgery patients had higher complications than non-surgical patients (sural nerve injury, wound issues, infections)

“Hold em or Send em”
Case

- 54 yo male IDDM
- 7 days with a swollen foot
  - Reports a minor “sprain”
- A1c 11.2
- HTN, micro-albuminuria, retinopathy
- Good cap refill
- Can’t feel 5.07 gauge monofilament
What is the Diagnosis? Time to vote

1) Cellulitis
2) Charcot
3) Sprain
4) DVT
• Foot issues are the #1 reason for hospital admission in diabetes (20%)
• Charcot development/collapse common!

- ulceration
- infection
- tissue necrosis
- Charcot deformity
- amputation
Charcot Joint

• Can develop with “simple” ankle and foot fractures

• The problem remains:
  – poorly recognized
  – under diagnosed
  – poorly managed

• Occurs in patients with:
  – IDDM
  – NIDDM (even those with diet controlled diabetes)
Charcot Vs. Cellulitis

• Elevate the foot!
  – If redness goes away -> Charcot
  – If redness does not go away -> Cellulitis

• X-ray, MRI, Bone Scan if unsure

“Send Em !!”
Conclusions

• Changing or modifying shoes frequently works
• Remember common foot problems can usually be solved with simple solutions
• Recognize more serious problems
• Don’t hesitate to call or refer to an orthopedic foot & ankle surgeon
THANK YOU !!
Helpful Web Sites

- **www.aofas.org**
  - Site of the American Orthopaedic Foot and Ankle Society

- **www.FootCareMD.org**

- **www.footeducation.com**