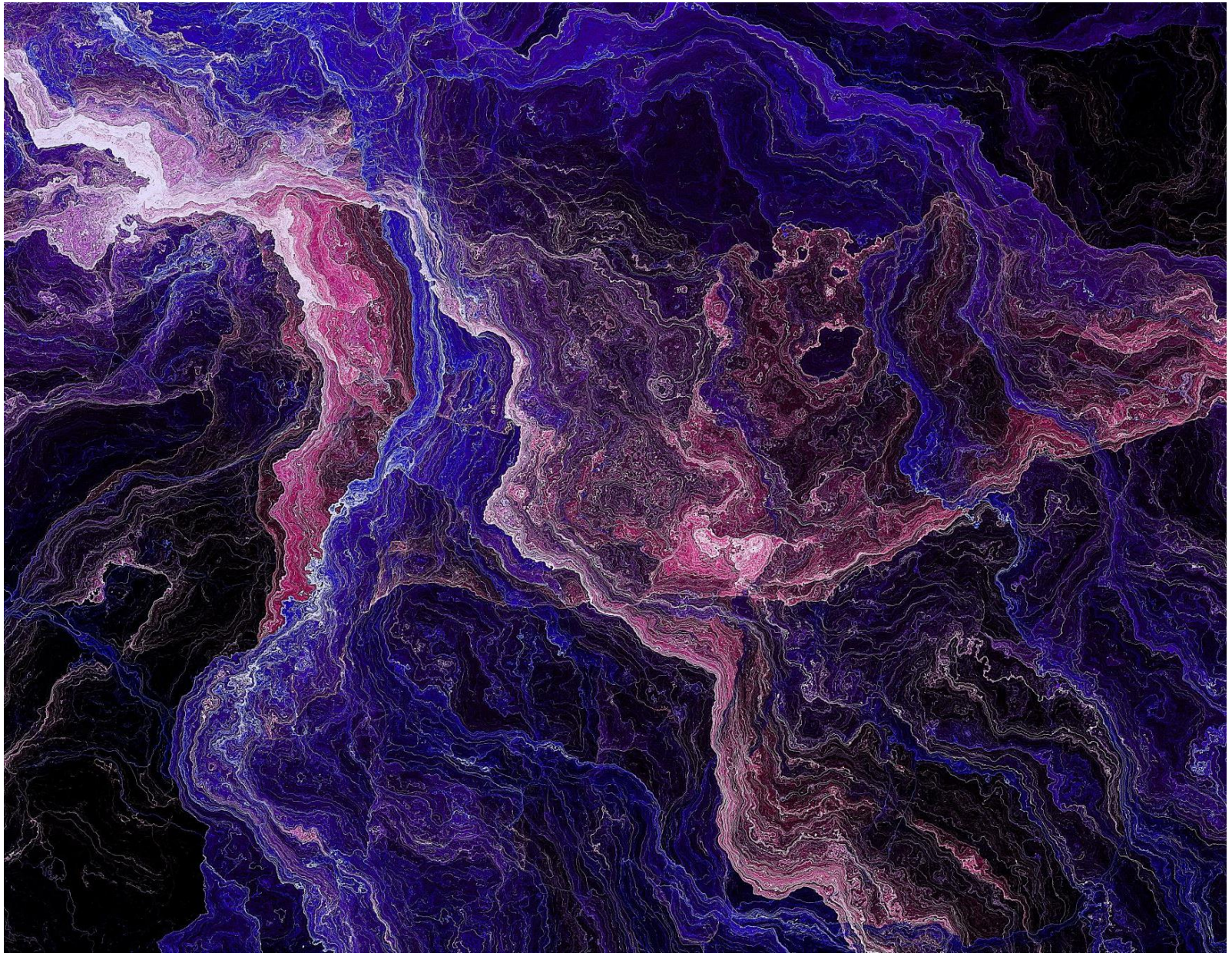


MINIMALLY INVASIVE FOOT AND ANKLE SURGERY

PERIOP CONNECT 2024
AORN CT 0701

DR THOMAS A. MCDONALD MD FAAOS

ORTHOPEDIC ASSOCIATES OF HARTFORD, PC

HARTFORD HEALTHCARE BONE AND JOINT INSTITUTE

THANK YOU!

Periop CONNECT
powered by OR TODAY
AORN Connecticut 0701

Hartford HealthCare

OAH
ORTHOPEDIC ASSOCIATES OF HARTFORD

Congratulations…

For Being Here on a Saturday!

Mobility is Medicine

What we do TOGETHER on any given weekday has HUGE implications in people's lives

It's a privilege to share space on these TEAMS of people

Important to Remember: Success Requires Work
Safety Requires Systems

The SYSTEMS in place	Might not always seem necessary	"Dad: That's a little see a little EXTRA…"
• "Personalities" • Paperwork • Safety protocols • Standardizations	• Extra Work? • Extra Time? • Extra Hassle?	• Eyeroll

At the End of the Day…
Who would you rather fly with?

LET'S TALK ABOUT FEET !

"DOC - WHY FEET???"

WHAT'S EXCITING ABOUT FEET?

"Summer Toes Deformity"

Some Are Here, Some Are There...

What do we do in Foot and Ankle?

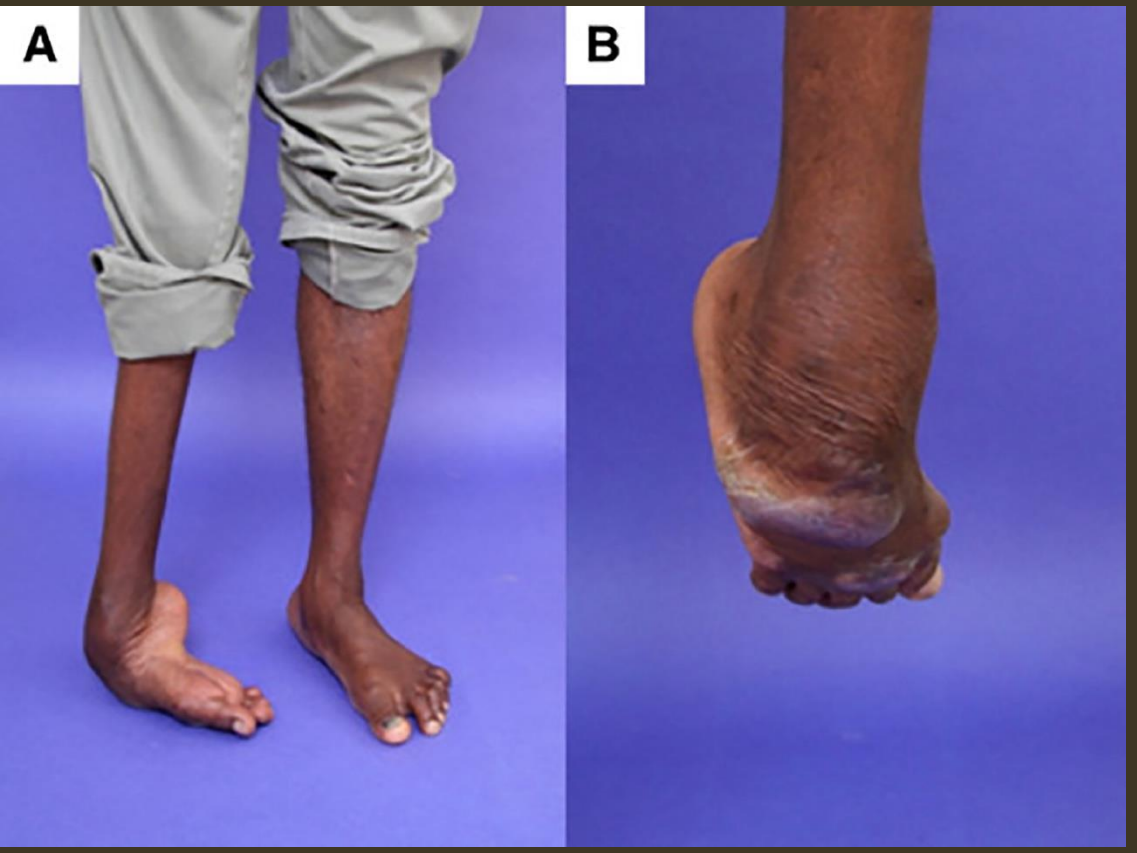
Confusing

Mysterious

Multifocal

Why is Foot Surgery Interesting?

- We NEED These Things!!!
- Have you Ever Tried to Walk on your Hands?!?



- **More Than Just Bunions and Hammertoes…**
- Trauma
- Sports
- Joint Replacement
- Arthritic Pain
- Forefoot Deformity
- Neurologic Deformity

PTT Transfer 6 weeks out (2)

IF DEFORMITY AND DIVERSITY DON'T EXCITE YOU…Maybe you're in the wrong place

- BUT MAYBE PROGRESS AND EVOLUTION WILL EXCITE YOU!
- MINIMALLY INVASIVE SURGERY IS WHAT'S NEW AND HOT IN FOOT AND ANKLE

GOALS

TALK ABOUT FOOT SURGERY IN A WAY THAT DOESN'T MAKE YOU GROSSED OUT OR BORED.

OVERVIEW OF MIS CONCEPTS IN FOOT AND ANKLE

THREE AREAS OF IMPACT

- FOREFOOT SURGERY
- TRAUMASURGERY
- DEFORMITY CORRECTION

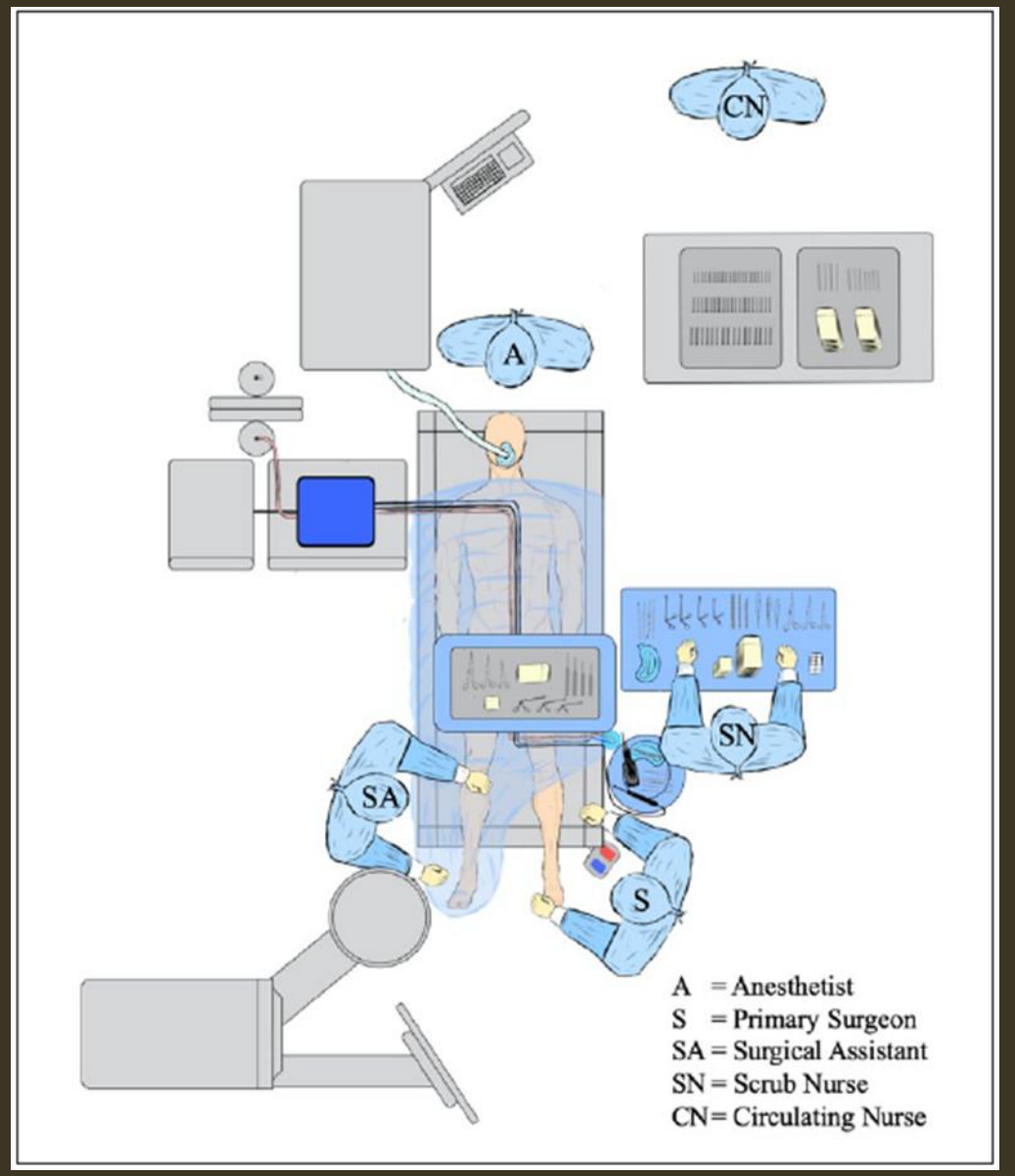
CASE EXAMPLES

Foot & Ankle MIS

- Advantages of F&A percutaneous & MIS approaches
  - Tiny incisions/scars
    - Cosmetically pleasing
    - Less dissection & disruption of soft tissues/blood supply
  - Decreased postop pain/swelling
  - Decreased joint stiffness
  - Quicker healing, earlier time to weightbearing/activity

Operative Setup

- ❑Position foot off end of bed
- ❑Frog-leg non-op extremity, or place off extra arm board
- ❑No tourniquet, slight head-down Trendelenburg table positioning
- ❑Position mini c-arm for minimal manipulation & clear screen visibility
- ❑Fluoro & power pedals side-by-side
- ❑Draw landmarks


CN
A
SN
SA
S
A = Anesthetist
S = Primary Surgeon
SA = Surgical Assistant
SN = Scrub Nurse
CN = Circulating Nurse

Dedicated Instrumentation for MIS:

- Surgical knife
- Elevators
- Rasp
- Fluoroscopy

- Shannon Bur(R)
  - 2x8, 2x12, 2x20 mm

- High torque, low speed burr
  - 5000 RPM

enovis

- Transverse First Metatarsal Osteotomy

Percutaneous Transverse Osteotomy Technique

Percutaneous Transverse Osteotomy Technique

- V[illegible] Final AP View

Foot & Ankle MIS

Case Example 2

6 weeks postop follow-up visit

MIS / Percutaneous vs Open

- Why MIS/perc over traditional open techniques?
  - ✓Less pain
  - ✓Less joint stiffness
  - ✓Improved cosmesis
  - ✓Decreased OR time
  - ✓Early weightbearing
  - ✓Less overall complications

Traditional Open

Percutaneous

Does MIS Foot Surgery apply to Trauma??

It's not just for Bunions anymore!

Ankle Fractures

Achilles Ruptures

Very Common Ankle Fracture Pattern

"Slip and Trip" Community Fall

Minimally displaced Fibular fracture

Wide medial clear space

Syndesmotic and/or Deltoid ligament injury

Possible cartilage damage

A number of ways to fix this…

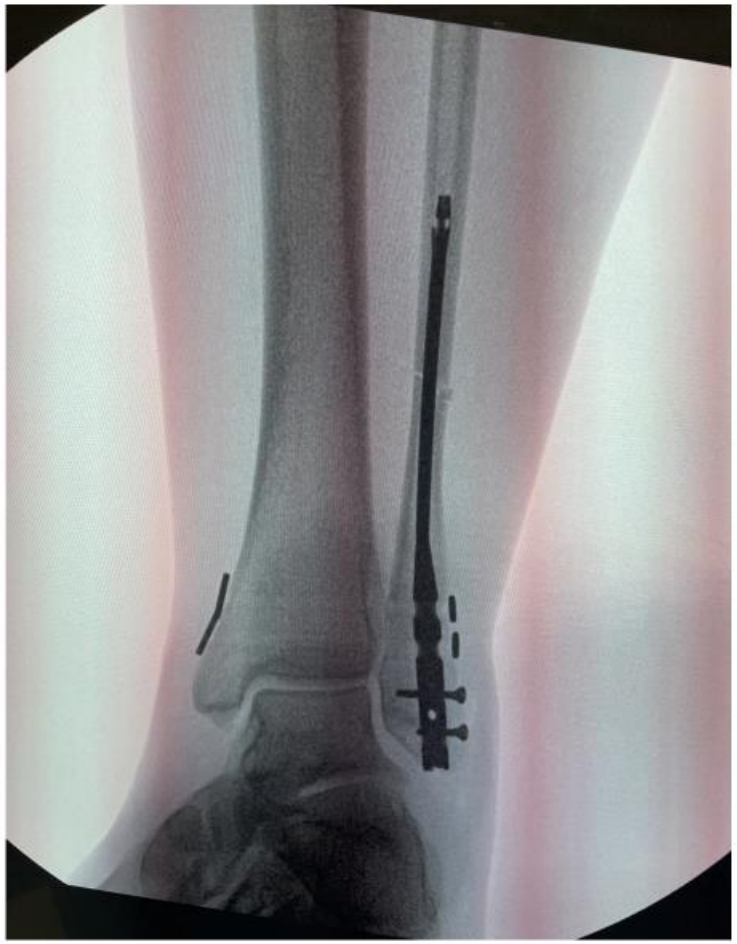
- Casting
- ORIF – “Plates and Screws”, standard open technique
- Minimally Invasive

Typical Techniques

A less common but evolving approach to this common problem...

Minimally Invasive Ankle Fracture fixation:

1. +/- Ankle Arthroscopy
2. Fibular Nail fixation
3. Flexible Syndesmotic Fixation



High Transverse Fibula Fracture
Credit Dr. William Crawford

Case # 6 – The "Complicated Trimall"

-Higher level or comminuted Fibula
-Dislocation with Posterior Malleolar Component

Case # 6

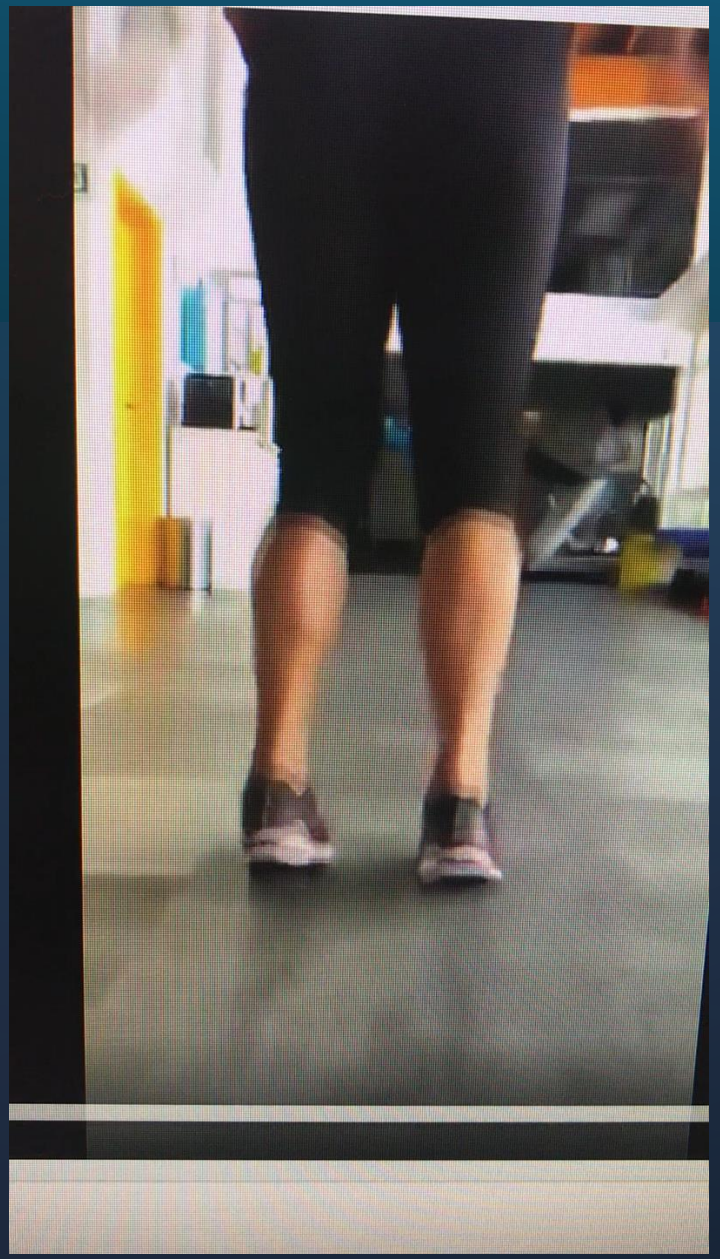
Case # 6

Case # 6

Case # 6

Case # 6

What About Achilles Ruptures?



Fairly Easy to Diagnose

- History and Physical
- Palpable Gap
- Weakness
- “Thompson Test”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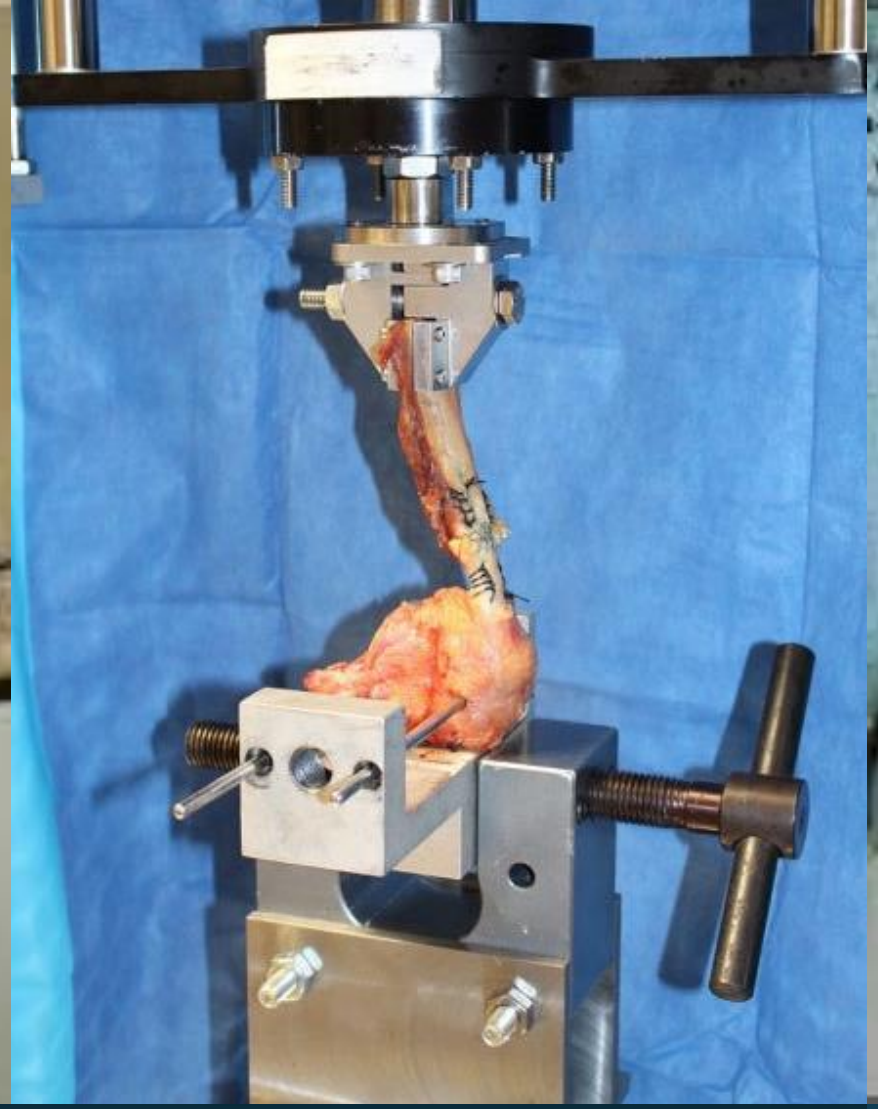


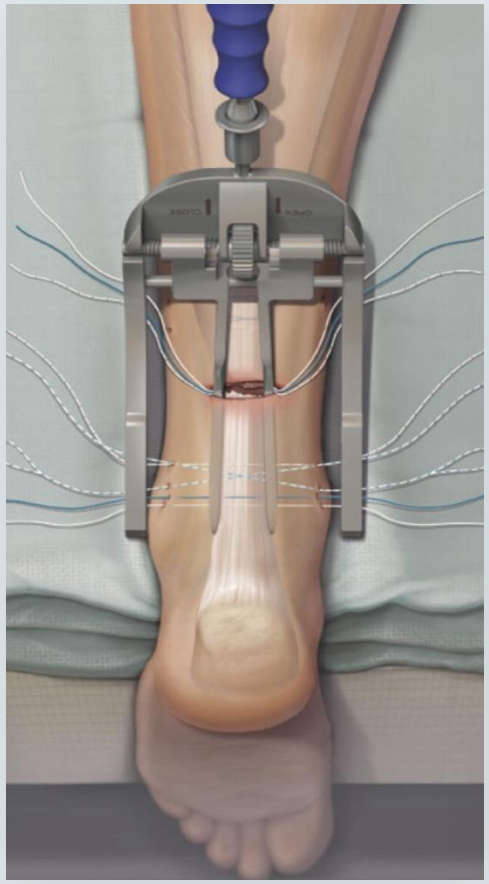
There HAS been some Evolution in Achilles Fixation

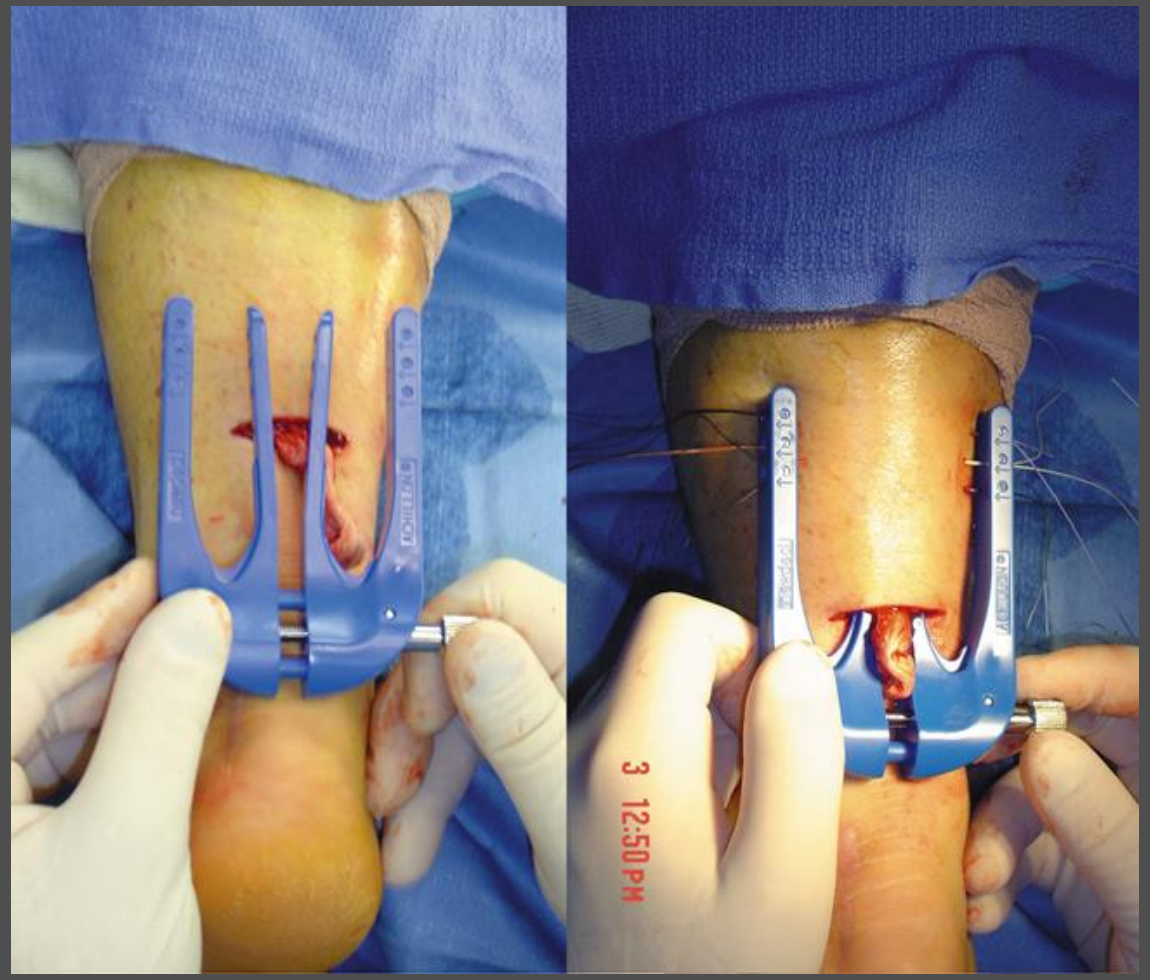
Scars can Cause Pain...

Modern Definition of Achilles Surgery is Changing…

- As in virtually all of Orthopedic Sports Medicine, the science and Surgical perspective on Achilles repair has evolved into a Minimalistic Approach

Evolution of Instruments and Techniques

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WHAT ABOUT MIS DEFORMITY CORRECTION?

36 YO FEMALE, 15 YRS S/P LAWNMOWER TRAUMA

OPTIONS

-Amputation

- Poor pulse, chronic dermatitis

-Revision


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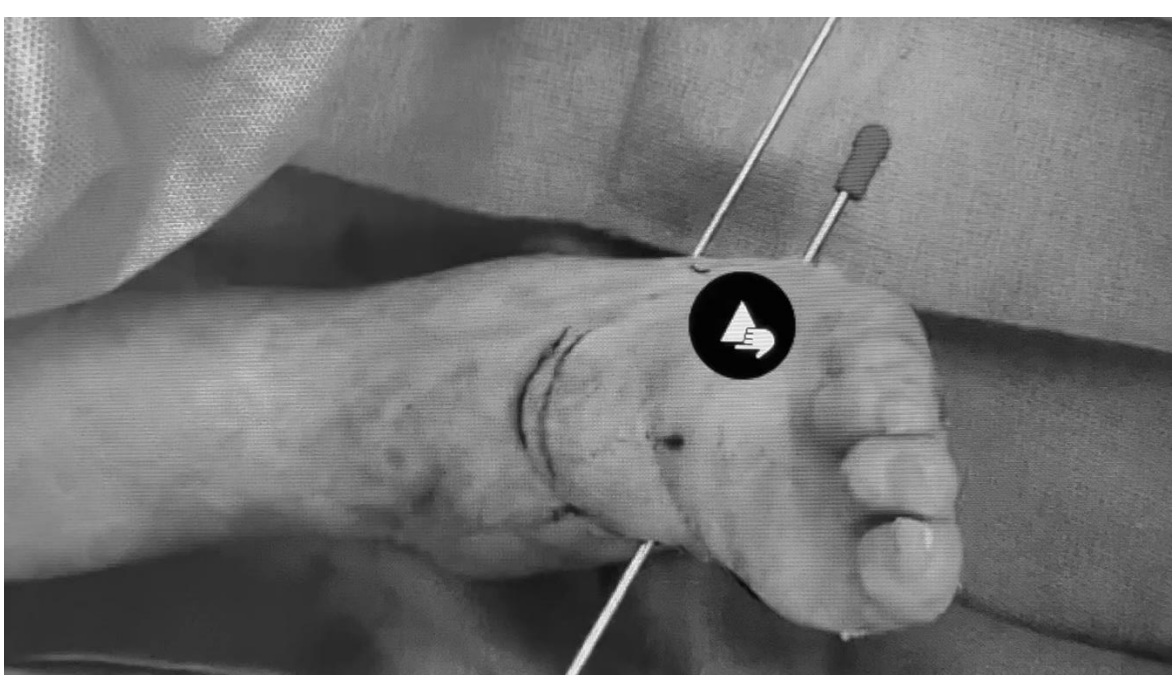
7-000
stryker



Pre v Post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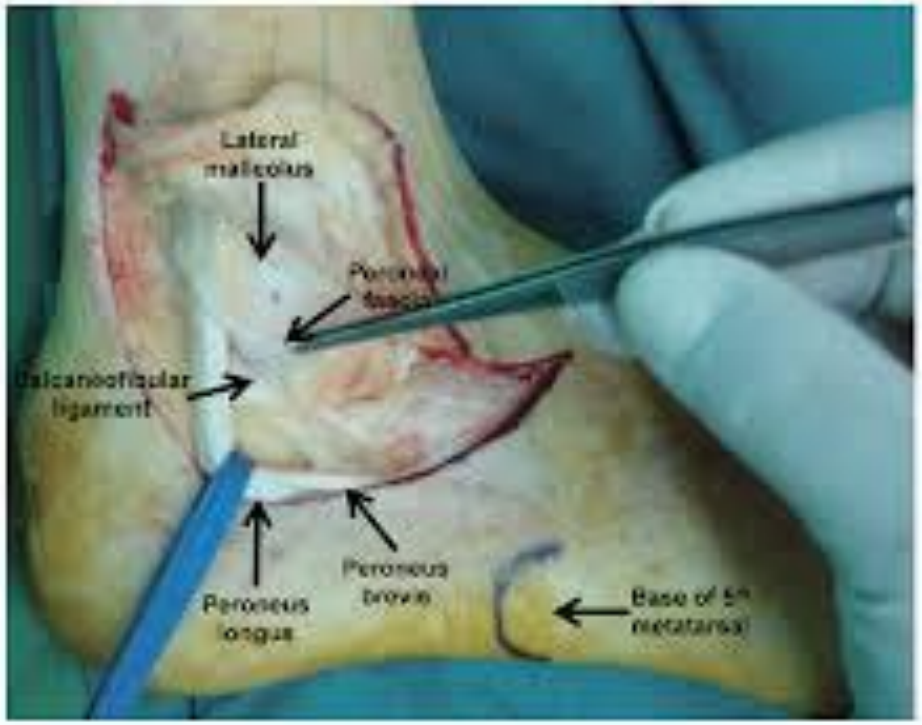

Lateral malleolus
Peroneal tendons
Calcaneofibular ligament
Peroneus longus
Peroneus brevis
Base of 5th metatarsal

FIG. 6


1

WHERE THIS REALLY GETS EXCITING...

IS APPLYING THIS EVOLVED MIS TECHNIQUE TO THE MOST FRAIL OF OUR PATIENTS

Dynamic. Decisive. Dedicated.

AMERICAN ORTHOPAEDIC FOOT & ANKLE SOCIETY®

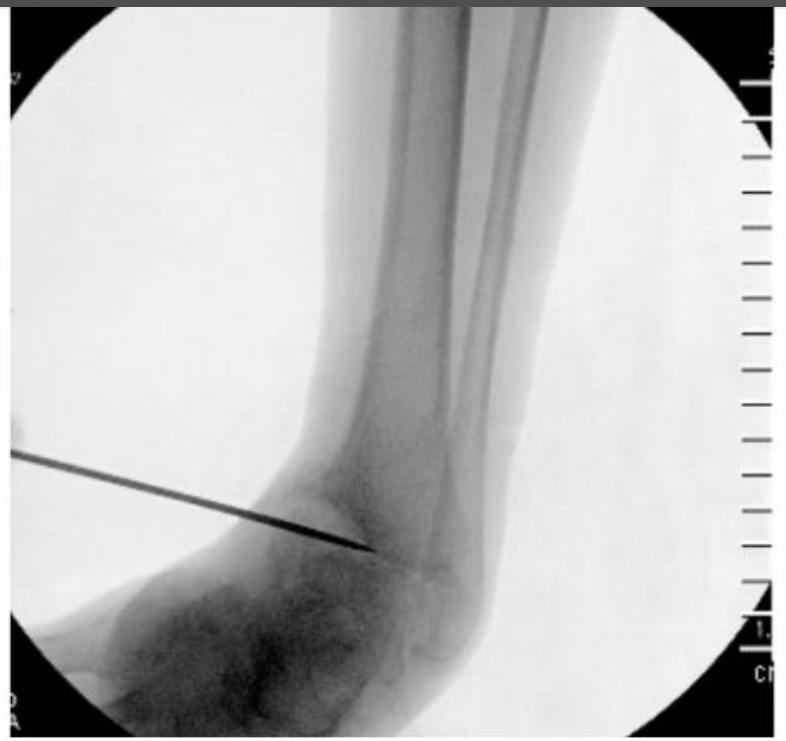
Minimally Invasive TTC Fusions: A 52 Patient Case Series with High Rate of Limb Salvage

Christopher Miller MD
Tom McDonald MD
Anthony Ndu MD
Brad Abicht DPM
Amiethab Aiyer MD

Goals/Aims

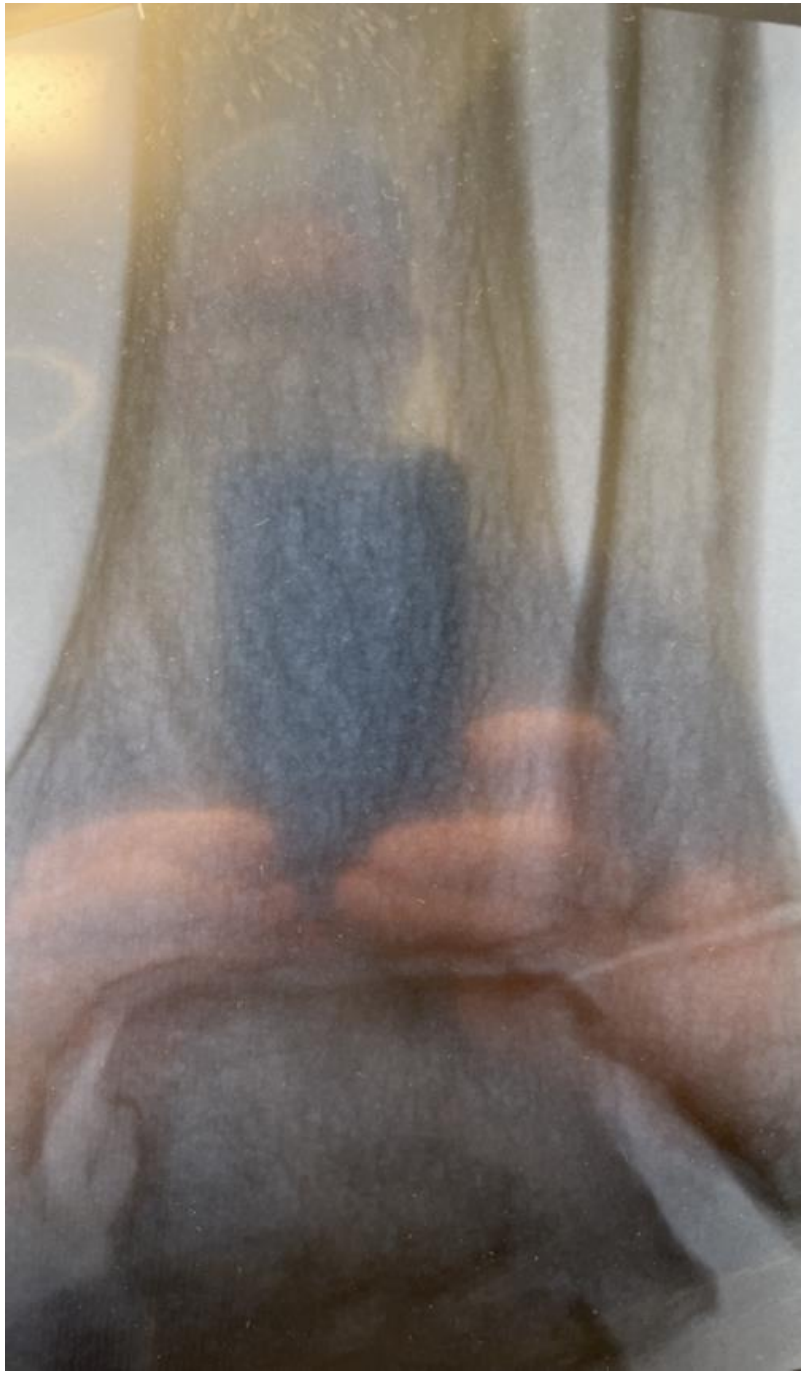
- Evaluate outcomes following MIS TTC fusion
- Fusion rate
- Complications

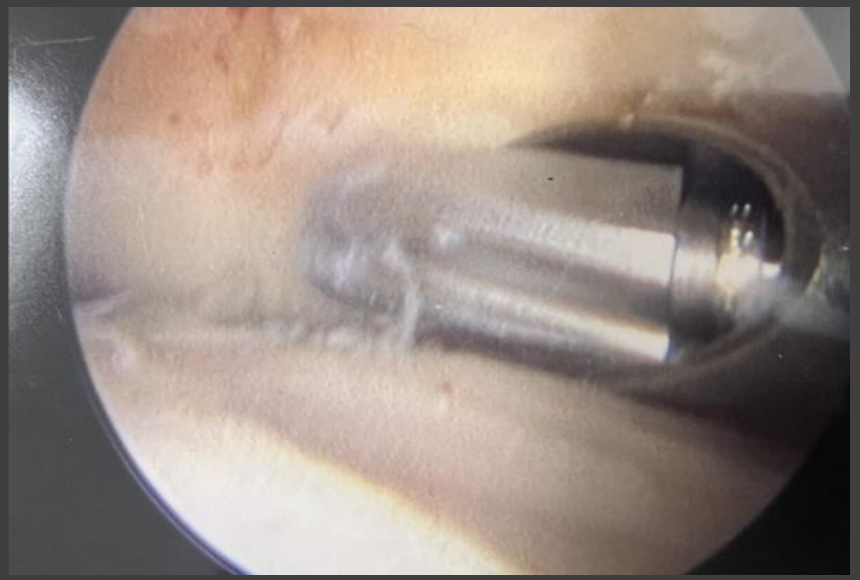
Surgical Technique

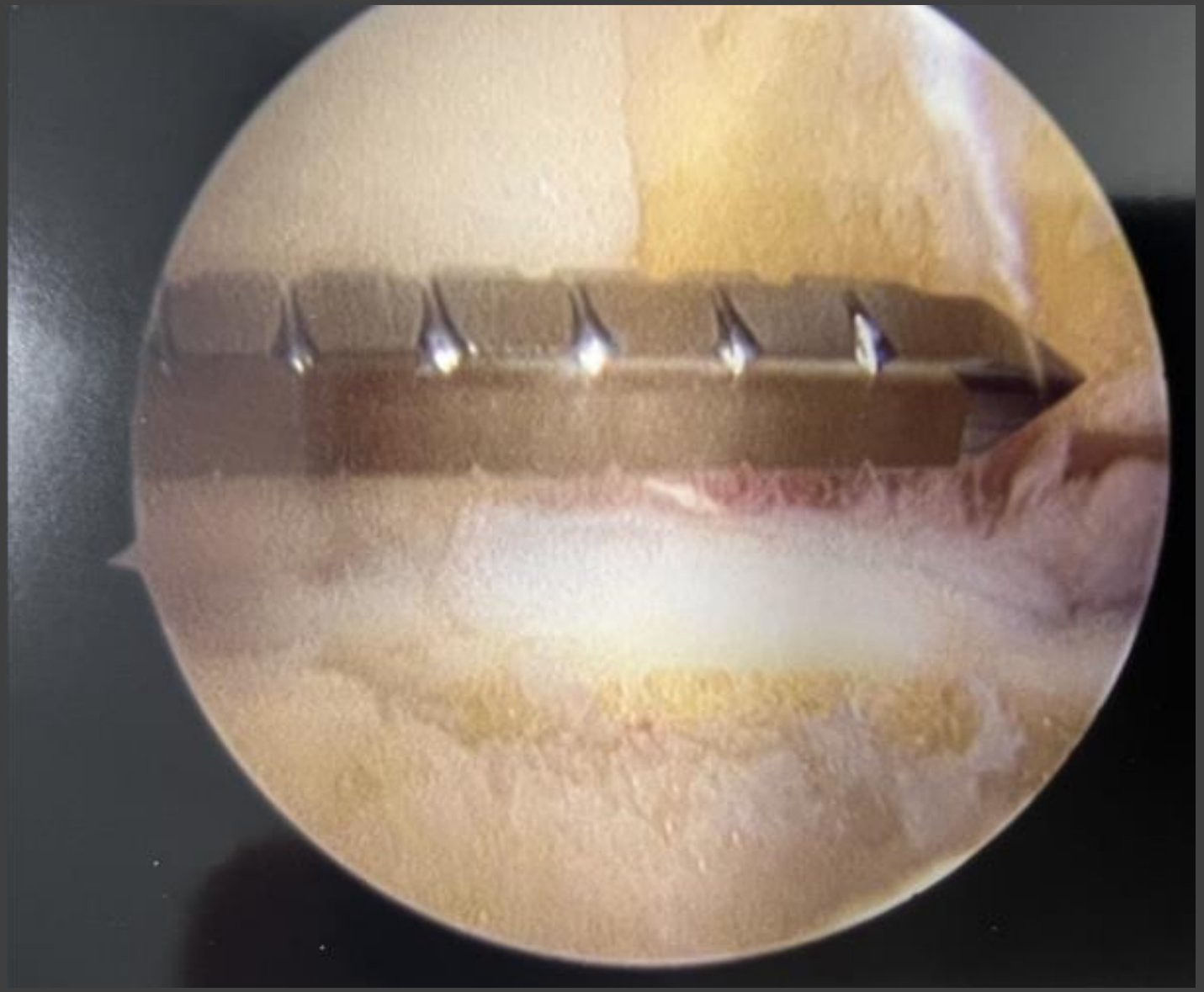


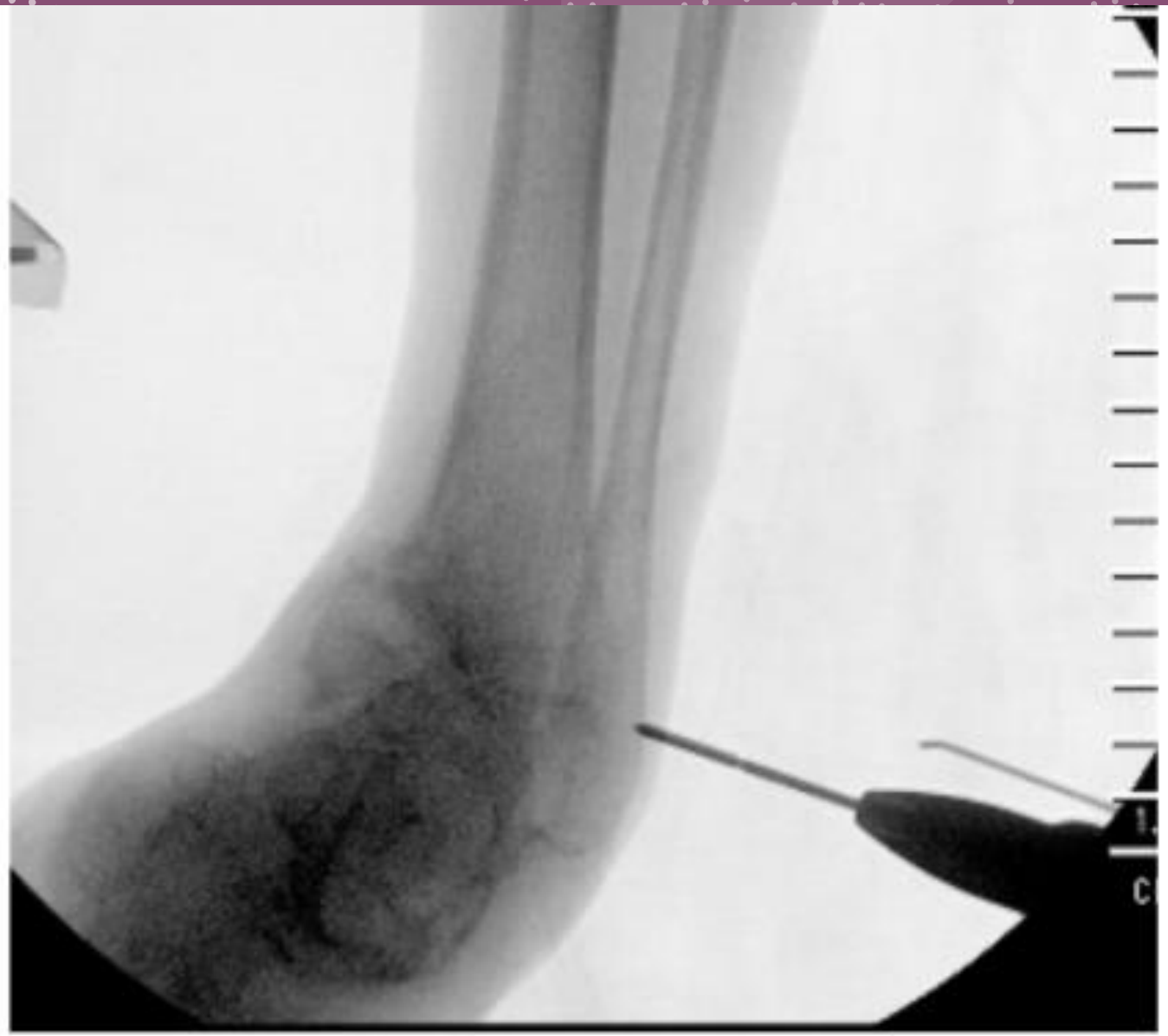
Standard Arthroscopy Portals Developed

Osteotomy of medial malleolus to permit deformity correction

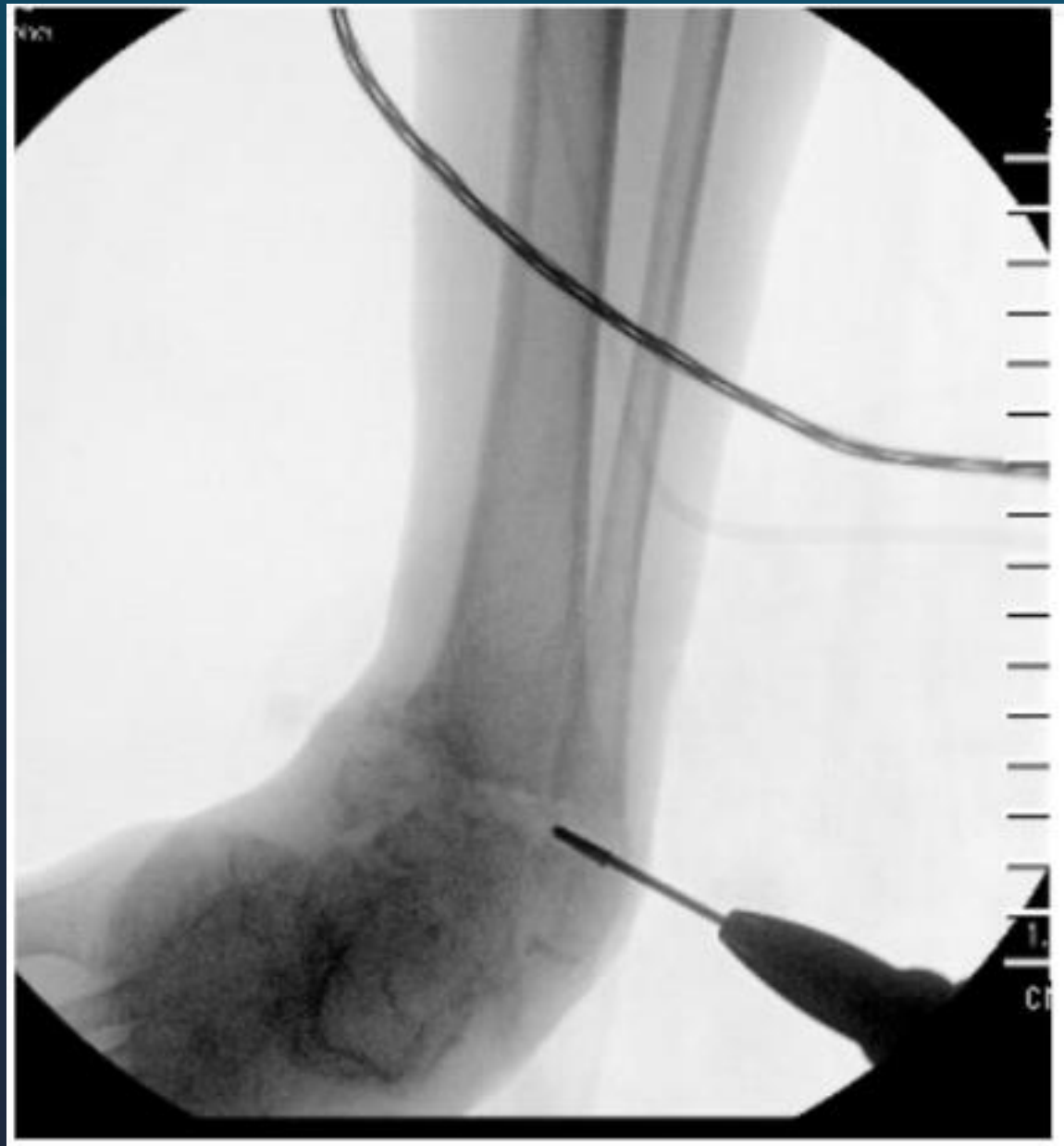








Osteotomy of fibula



Closing wedge joint resection for joint preparation and deformity correction

Flexion deformity corrected with anterior closing wedge

Results

- 52 patients with hindfoot arthritis:
  - Charcot ankle 11 (21%)
  - Neuropathic ankle fracture 15 (29%)
  - Acute trauma in medical frail patient 9 (17%)
  - Arthritis 13 (25%)
  - Other 4 (8%)

- 26 (50%) had severe peripheral neuropathy
- 40 (76%) patients had a combination of ESRD, poorly controlled diabetes, severe peripheral vascular disease, or extremely poor soft tissue coverage

•Limb salvage critical for long term health and function

•

Traditional Open approaches to TTC fusion

- Nonunion 20-50%
- Infection/wound healing: 15-40%

•

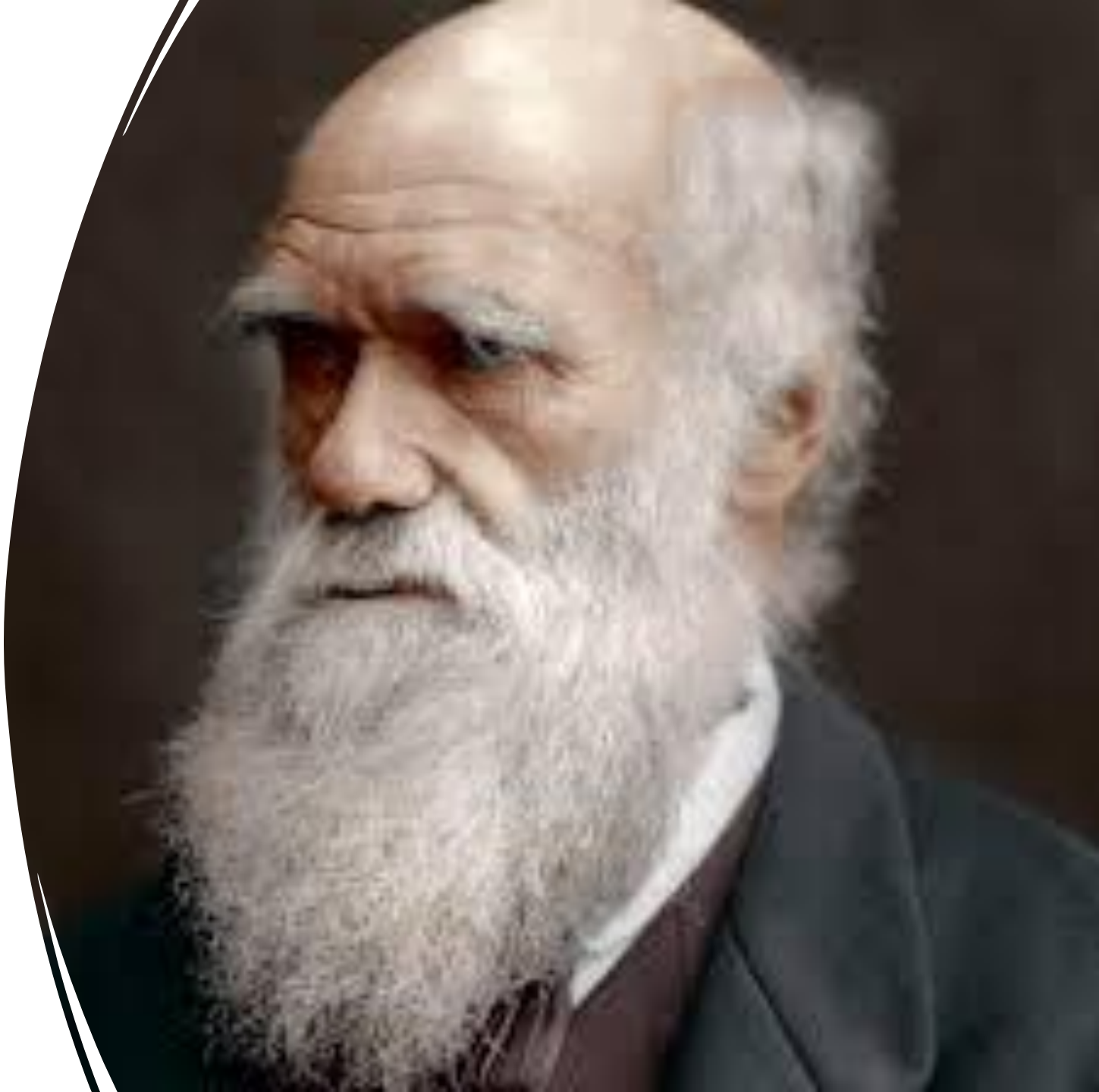
This series: improved fusion rates and decreased risk of infection

- Nonunion: 14%
- Infection/Wound healing: 4%



Modern Foot and Ankle Surgery reflects an Evolution in…

- Technology
- Thinking
- Away from “biomechanical strength to failure”
- Towards blending biologic preservation with Dynamic Rehab protocols



Is there a better way to do it?

- Is MIS better?
- Is it a valid concept?
- Does it have potential advantages?
- Reduce ROH rates?
- Lower Biological impact?
- Reduce Pain, Swelling, Stiffness?
- Potential Contraindications?

TEAM

Stronger Together!

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