

Polytrauma Case Presentation with a Focus on Tibia Pilon Fractures and Soft Tissue Management

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7/26/2019

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Introduction

- **Name:** Jessyka Desrosiers
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- **Undergraduate:** Biomedical Engineering, Florida International University
- **Medical School:** MS2, Morehouse School of Medicine
- **Current Interests:** Joints and Trauma



CASE OVERVIEW

32 y.o female ejected in MVA

- Dislocation of R glenohumeral joint
- Multiple tibial fractures
- sacroiliac joint and obturator ring fractures
- R rib fracture w/ pneumothorax
- Hepatic lobe laceration

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CASE OVERVIEW



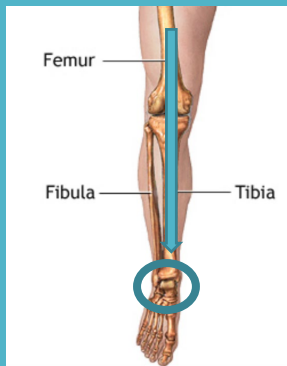
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PILON FRACTURES

Background

- Mechanism of injury: Axial load (high energy) or rotational (low energy) and major soft tissue damage
- Frequency : <10% of lower limb injuries; increasing with survival rate in MVA; Related Conditions : 75% associated with fibula fractures
- Poor clinical outcomes → males, co-morbidities, lower levels of income etc...)

Anatomy

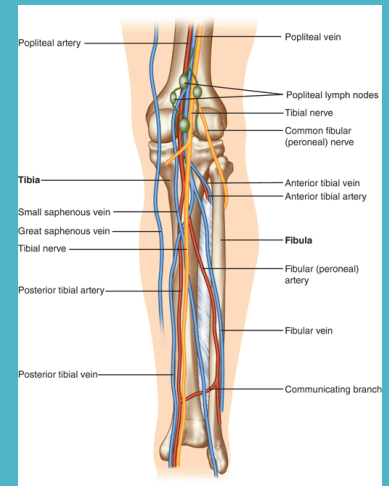
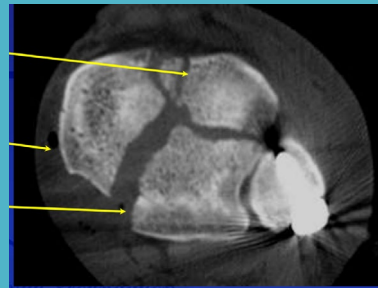


Anterolateral (Chaput)

Medial Malleolar

Posterolateral (Volkman)

Fragments



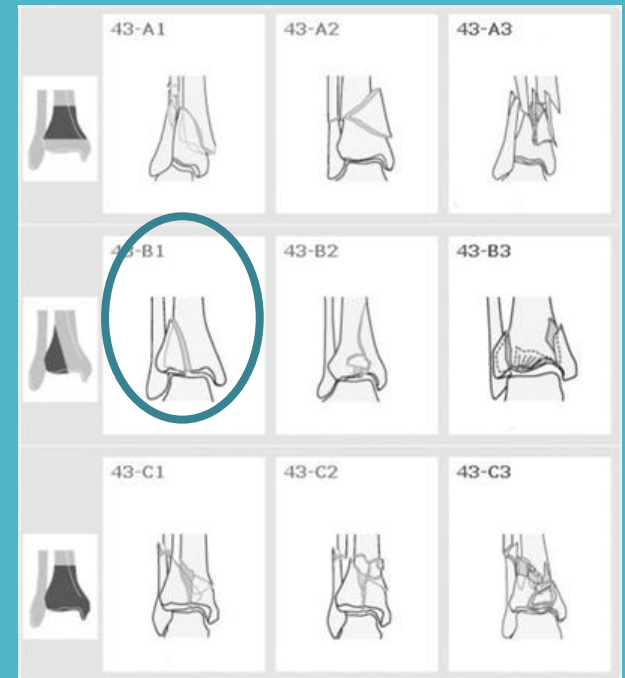
PILON FRACTURES

Imaging

- Xray
- CT
- 3D Reconstruction

Classification

- Tscerne → Grades O1-O4 and C0-C3
- AO/OTA → 43-A, B and C
- Ruedi and Allgower → Type I, II and III



PILON FRACTURES

Treatment/Management

Surgical Option

1. Fibular length restoration
2. Reduction of the articular surface of the distal tibia
3. Filling of metaphyseal bone defects with cancellous autograph
4. Stabilization of the distal tibia

Non-Surgical Option

1. Long leg cast → 6 weeks
2. ROM exercises

PILON FRACTURES

Treatment/Management Fixation

Joint Spanning External Fixation

- Can be used as definitive treatment
- Removed at 10th -21st day mark followed by ORIF and/or IM Nail
- Ilizarov → C2 or C3 fractures



PILON FRACTURES

Treatment/Management Fixation

Ilizarov variants

**PanAfrican
Medical
Journal**

Open Access

Case series

Treatment of high-energy pilon fractures using the ILIZAROV treatment

Walid Osman¹, Zeineb Alaya^{2,4}, Hamdi Kaziz¹, Lassad Hassini¹, Meriem Braiki¹, Nader Naouar¹, Mohamed Laaziz
Ben Ayeche¹



Contents lists available at ScienceDirect

The Foot

journal homepage: www.elsevier.com/locate/foot



The management of tibial pilon fractures with the Ilizarov fixator: The role of ankle arthroscopy



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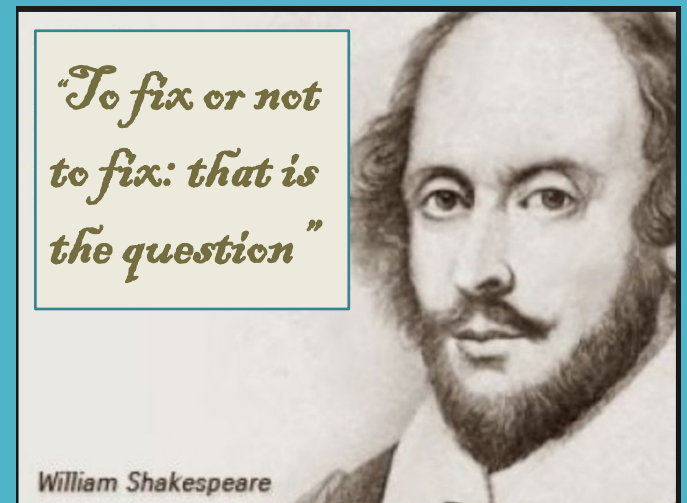
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PILON FRACTURES

Fibular Length Restoration

- Reduction can be more accurate
- Important for syndesmotic injury
- When ?
- Lowers the rate of malunion when fixed with plating
- No restoration → improvement of metaphyseal contact for the tibia



PILON FRACTURES

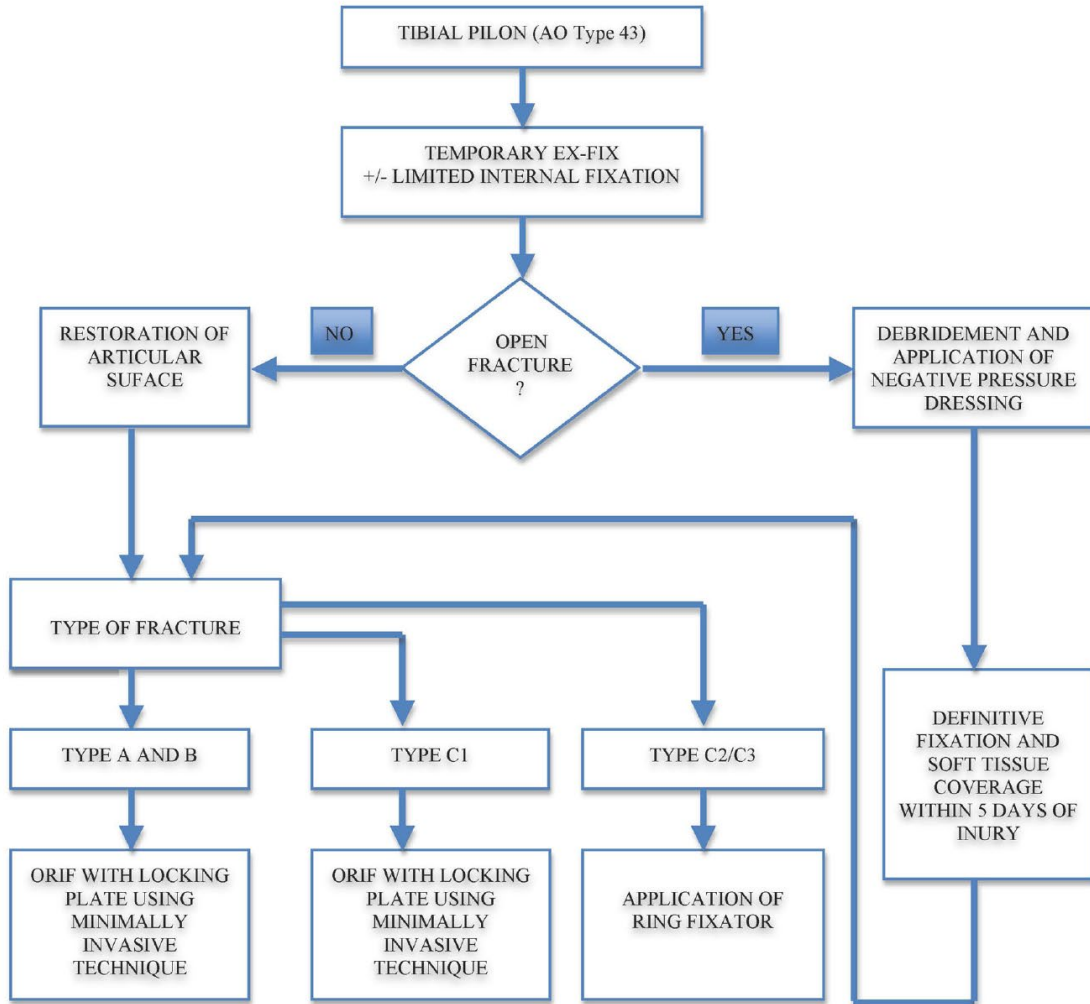
Complications

- Wound breakdown
- Non-union
- Posttraumatic arthritis
- Chondrolysis
- Malunion
- Stiffness
- Pin site infections

Outcomes

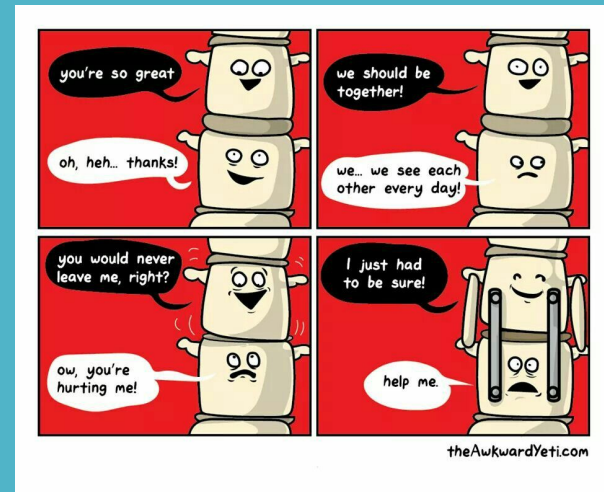
- Lower SF-36 scores compared to pelvic fracture, HIV and coronary disease at 2 year follow up
- Full recovery → <38%

PILON FRACTURES



My Experience !

Zirconium !!!



Thank you !

Diane Payne, MD

Edward Jackson III, MD

Scott Boden, MD

Yolanda Wimberly, MD

Thomas Moore, Jr., MD

Residents: Gregory Kurkis, R. Matthew Wham IV, Matthew Lunati,
Matthew Broggi, Ming Phen, Jacob Wilson and Andrew Schwartz

J.L. Reed, Anna Bridges and Sonya Seymour

References

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