

# Fracture Blisters

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## Introduction

Fracture blisters are tense vesicles or bullae that develop on edematous skin following some acute long bone fractures. Fracture blisters are infrequently seen, as the reported incidence is 2.9% to 6.6%.<sup>1</sup> This rare complication, may not regularly be encountered by Physicians in the hospital. Fracture blisters typically occur within 24-48 hours following high energy trauma injuries & may last up to several weeks. Ultimately, this condition can lead to prolonged hospital stay due to an increased risk of infection and delay in surgical intervention.<sup>2</sup> Early recognition of this dermatologic complication may be helpful in reducing hospital stays.

## Case Report

**History:** A 68-year-old female presented to the Emergency Department (ED) via. emergency medical service after slipping and falling of a ladder that was 4 foot tall. She denied any other injuries such as head trauma or loss of consciousness.

**Past Medical History:** Hepatic Cirrhosis

**Examination: Vitals-** Blood Pressure: 132/62 ,Pulse: 59, RR: 16, SpO2: 95%

**Radiographic imaging:** A) Tibia & Fibula Xray: 1. Acute comminuted displaced intertrochanteric fracture of the proximal tibia. (The proximal fibula was not well seen) 3. Overlying soft tissue swelling. 4. Knee joint effusion.

B) CT scan of lower extremity with contrast: 1. Comminuted, displaced, depressed fracture of the proximal tibia involving both the medial and lateral tibial plateau (Schatzker type 5) 2. Mildly displaced fibular head/neck fracture. 3. Posterior subluxation of the tibia and relation to the distal femur. 4. Lipohearthrosis.

**Physical examination:** (24-48 hours after admission) Large, various sized clear fluid and blood filled blisters were seen on anterior medial proximal tibia over the lateral compartment extending down towards the mid tibia. (Figure D/E) Dorsalis pedis pulses palpable bilateral.

**Management:** Orthopedic surgery performed Closed reduction, right tibial plateau fracture with external fixation placement with four 4 hydroxyapatite coated Schanz screws. (Figure C) Patient was on prophylactic Cefazolin. She remained afebrile, with no signs of active infection or decreased perfusion. Blisters healed spontaneously. (Figure E)

## Imaging & Pathology



A. Tibia/Fibula Xray  
 B. CT scan of lower extremity  
 C. Post Procedure  
 D. Post-op day 3  
 E. Post- op day 9

## Discussion

It seems the pathogenesis of bullae in this setting is multifactorial, causing separation of the epidermis from the dermis or can be related to the disruption of underlying vessels allowing fluid leakage into these bullae.<sup>1</sup> Two types of bullae, hemorrhagic and serous appear to vary in the level of epidermal separation after injury.

The hemorrhagic blister appears to represent a slightly deeper injury than the clear fluid blister and have a higher risk of poor healing<sup>3</sup>.

Highest incidence are observed in areas with superficial bony prominences and minimal soft tissue however in this patient it was not the case.

Although, this condition will usually spontaneously heals on its own, there is always a risk of more severe complications such as sepsis, deep venous thrombosis, vascular injury or compartment syndrome in these patients. Understanding the pathogenesis and being able to identify this skin condition may be helpful for clinical practice.

## References

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