



Case Description

- A 17 y/o HS quarterback suffered trauma to his right lower extremity when he was tackled and his right leg landed on an opposing player's facemask
- He jogged off the field with an antalgic gait
- He quickly developed severe pain, swelling and erythema of his right anterolateral leg with paresthesias
- He was promptly taken to the ED by EMS

Physical Exam

- RLE: swelling, erythema and tenderness of anterolateral aspect of RLE. Firm and tender anterior and lateral compartments. ROM about the ankle limited due to pain with significant pain on passive ankle plantar flexion. MST 4/5 in ankle dorsiflexion/big toe extension, 5/5 in all other movements about the ankle and foot. DP/TP pulses 2+, cap refill < 2 seconds. Gross sensation intact throughout all dermatomes with diminished 2 point discrimination in web space between 1st/2nd toes on the right compared to the left.

Differential Diagnosis

- Acute Compartment Syndrome (ACS)
- Tib/fib Fracture
- Contusion
- Entrapment Neuropathy
- Tibialis Anterior Rupture
- Neuropraxia of Peroneal Nerve

Tests & Results

- CMP wnl , CBC showed WBC of 14.1
- CK elevated at 342 > 339 > 353.
- X-ray of the tibia and fibula showed no osseous abnormality.
- Stryker needle measurements showed compartment pressures of 30 and 32 in the anterior and lateral compartments respectively.

Final Diagnosis

- **Acute Compartment Syndrome (ACS)**



Course of Treatment

- The patient was diagnosed with ACS and transferred from the local ED to a tertiary care facility. He was taken to the OR for urgent right anterior and lateral compartment fasciotomy and wound vac application, which occurred within 3 hours of leaving the field. He was taken back to the OR 2 days later for washout and wound closure.

Outcome and Discussion

- The patient's postop course was uncomplicated. He underwent 6 weeks of formal PT and transitioned to working with his school athletic trainer for an additional 8 weeks. He was cleared to return to full activity at 14 weeks postop and did participate in track and field in the spring without problems.
- This case features an uncommon presentation of ACS, a rare condition with an annual incidence of 3.1 per 100,000. It most commonly arises from high impact trauma and is associated with fractures 83% of the time. In the absence of significant trauma, ACS is more easily missed. Fasciotomy within 4 hours nearly guarantees full return to function, while delay beyond 8 hours portends much higher morbidity.
- For the sideline family doctor, this case highlights the importance of maintaining a high index of suspicion for the diagnosis of ACS in the setting of a seemingly innocuous injury and the value of an effective EAP and efficient communication between the physician, athletic trainers and EMS personnel to ensure prompt treatment.

References :

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- 2.Balogh ZJ, Butcrome NE. Compartment syndromes from head to toe. *Crit. Care Med.* 2010; 38: 445-51.
- 3.Elliott KG, Johnstone AJ. Diagnosing acute compartment syndrome. *J Bone Joint Surg Br* 2003; 85:625.
- 4.Uptodate: <https://www.uptodate.com/contents/acute-compartment-syndrome-of-the-extremities> - accessed 11/9/2020