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Bedside reduction of closed ankle dislocation under ketamine sedation

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Visual case discussion

Patient is a 10-year-old female without significant PMH who presented to the ED for evaluation of right ankle pain that began when she was jumping on a trampoline and struck another child on the lateral aspect of her right foot directing force medially. Following the accident, the patient was unable to bear weight on the right foot. On exam, there was gross deformity of the right ankle with the foot held inverted. Passive and active ROM were limited. The DP and PT pulses were 2+. Sensation was intact and there was no effusion. Skin tenting was present over the distal fibula. Bedside reduction was performed under ketamine sedation. Following reduction, x-rays were obtained that demonstrated a distal fibular fracture. A stirrup splint was placed, and the patient discharged with outpatient orthopedic follow-up (Figs. 1–3).

Questions

1 Question 1. Ketamine sedation for bedside procedures in the emergency department requires placement of an LMA or endotracheal tube device.
   A True/False
2 Question 2: As a dislocated ankle is an orthopedic emergency, an orthopedic consult is always required prior to attempting reduction.
   A True/False
3 Question 3: Ankle dislocations are rarely associated with concomitant fractures.[2]
   A True/False
4 Question 4: Following reduction, the child endorses numbness on the lateral side of her foot. You also note foot drop. Which nerve suffered injury?
   A Peroneal/fibular nerve
   B Sural nerve
   C Median plantar nerve
   D Dorsal digital nerve

Answers

1 Answer: False. Ketamine can be given at a dosage of 1–2 mg/kg IV without any significant impact on respiratory drive. The most common adverse effect related to airway management is laryngospasm which typically lasts only seconds and can be managed by an effective jaw-thrust maneuver and positive pressure delivered via a BVM. However, in the extremely rare event that these maneuvers do not restore adequate ventilation and oxygenation, it is critical to have definitive airway equipment available and ready to use.[1]
2 Answer: False. As long as the patient is neurovascularly intact in the foot, there is no tenting of the skin, and no signs of compartment syndrome, it is within the scope of emergency practice and a critical action to expeditiously reduce a grossly dislocated ankle to reduce the risk of complications including conversion to a compound fracture.[2]
3 Answer: False. As in the case above, where the patient experienced a distal fibular fracture, ankle dislocations are commonly associated with, tibia, fibula, and ankle fractures and must be assessed for via plain film following reduction.

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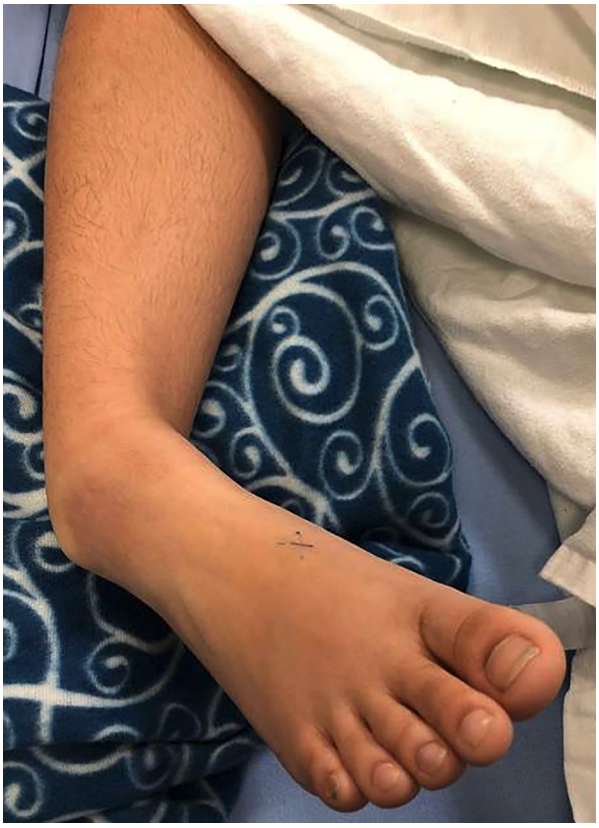

Fig. 1. Pre-reduction right ankle.

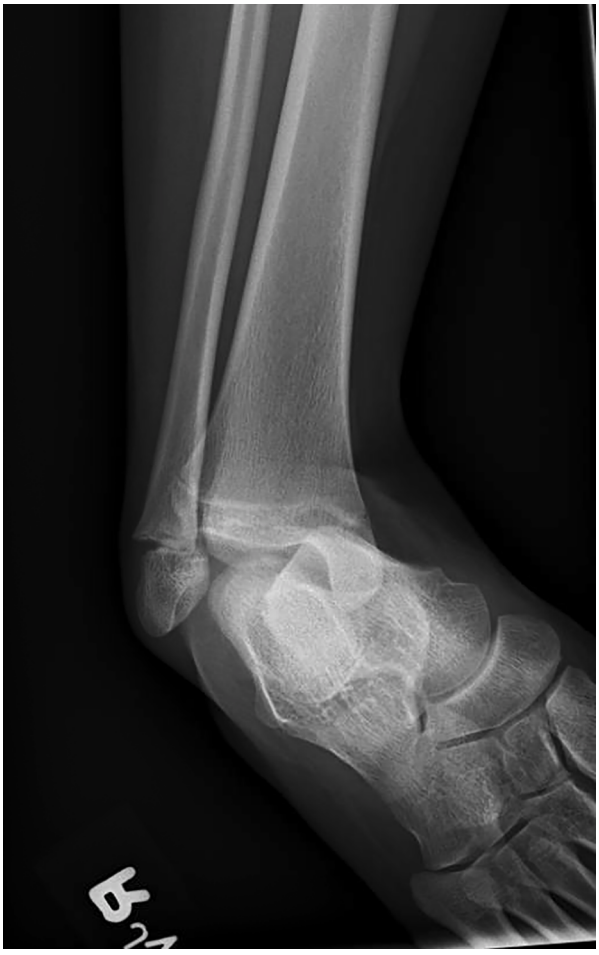

Fig. 2. Pre-reduction AP XR right ankle.

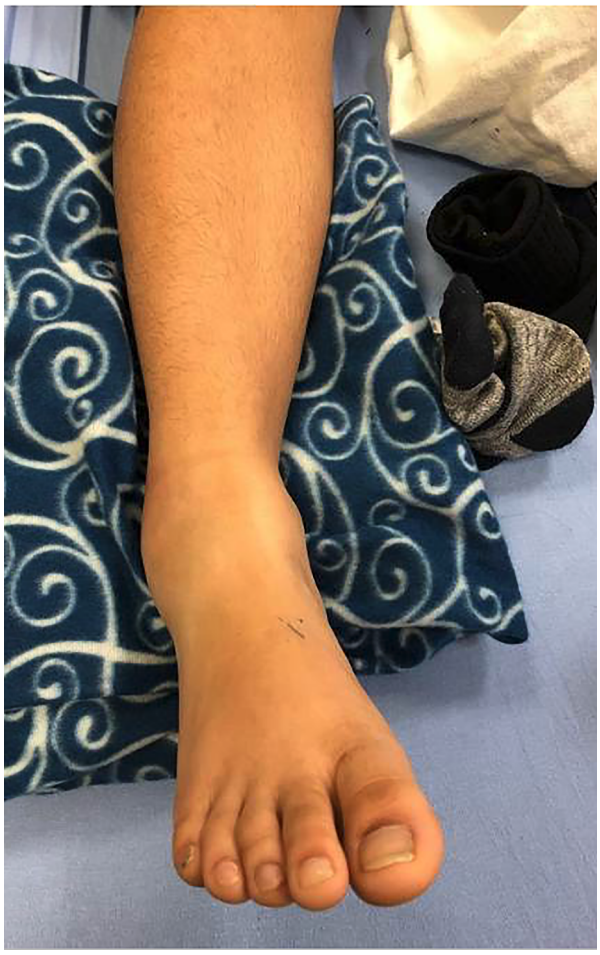

Fig. 3. Post-reduction right ankle.

4 Answer: A. Peroneal/fibular nerve. The peroneal/fibular nerve courses along the lateral aspect of the lower extremity along the fibula. It is responsible for sensation along the lateral aspect of the lower extremity and foot. Injury to the nerve can result in numbness as well as foot drop.[3]

Declaration of Competing Interest

None.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100661.

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