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Visual Case Discussion

Mandibular condylar fracture as a cause of otorrhagia

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1. Text

A 56-year old man with a history of alcohol abuse is brought in by ambulance after being found lying on a sidewalk, intoxicated. He is complaining of bilateral jaw pain; further history is limited by alcohol intoxication. On examination, his vital signs are normal and his airway is patent and protected. He has tenderness to palpation over both temporomandibular joints. There is no gross deformity of the jaw and he has normal opening and closing of his mouth, although with significant pain. There is dried blood in his left external auditory canal (EAC), but no evidence of hemotympanum, mastoid ecchymosis, or "raccoon eyes" [Fig. 1]. Neurologic exam is notable for somnolence, thought to be secondary to alcohol, and no focal findings. Serum ethanol level is 479 mg/dL (normal < 10 mg/dL). Non-contrast computed tomography scans of the head, cervical spine, and maxillofacial bones reveal acute fractures of both mandibular condylar heads and a laceration of the left EAC [Fig. 2].

In addition to basilar skull fractures, otorrhagia in trauma patients can be caused by mandibular trauma, especially mandibular condylar fractures. High-energy, direct trauma, most commonly secondary to motor vehicle collisions and falls, can cause posterior displacement and fracture of the mandibular condyle, resulting in laceration of the external auditory canal (EAC) or fracture of the tympanic plate, with subsequent bleeding into the EAC.[1] An estimated 10% of mandibular condylar fractures result in EAC injury.[1] Non-contrast computed tomography of the mandible is the preferred imaging modality to diagnose mandibular condylar injury.

Patients with EAC lacerations should be evaluated by otolaryngology and are usually treated with topical antibiotic and packing of the EAC to prevent canal stenosis and hearing loss. Historically, most mandibular condylar fractures were treated non-operatively.[2,3] With recent surgical advancements, however, many mandibular fractures, including bilateral mandibular condylar and displaced condylar fractures, are now treated with open surgery and rigid fixation.[2,3] Long-term complications of mandibular condylar fractures can include painful osteoarthritis, malocclusion, temporomandibular joint dysfunction, and facial asymmetry.[3]

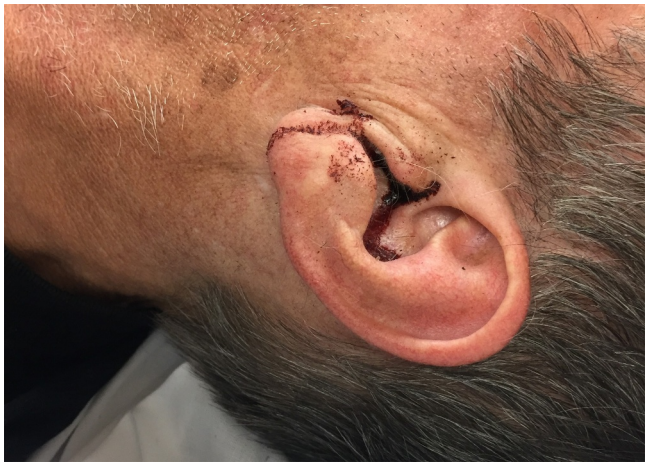

Fig. 1. A patient with dried blood in his left external auditory canal.

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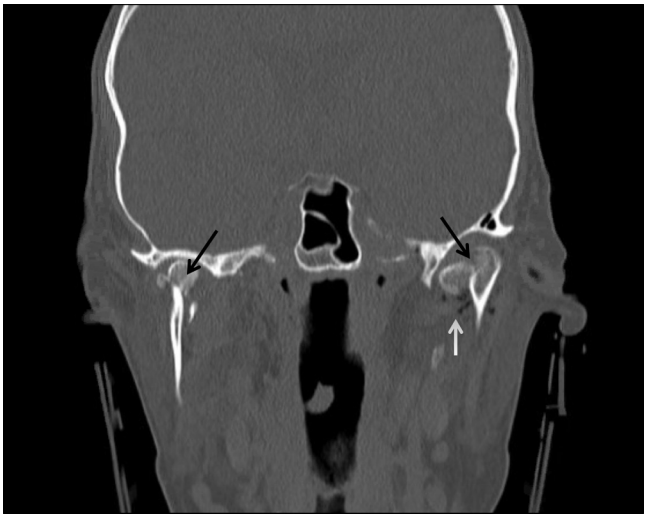

Fig. 2. Non-contrast computed tomography demonstrates bilateral mandibular condylar head fractures (black arrows), with soft tissue swelling and gas (white arrow) surrounding the left condyle and extending into the left masticator space.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2018.11.012.

References

1. Burchhardt DM, David J, Eckert R, et al. Trauma patterns, symptoms, and complications associated with external auditory canal fractures. *Laryngoscope.* 2015;125(7):1579–1582.
2. Sawazaki R, Lima Junior SM, Asprino L, et al. Incidence and patterns of mandibular condyle fractures. *J Oral Maxillofac Surg.* 2019;68(6):1252–1259.
3. Al-Moraissi EA, Ellis E. Surgical treatment of adult mandibular condylar fractures provides better outcomes than closed treatment: a systematic review and meta-analysis. *J Oral Maxillofac Surg.* 2015;73(3):482–493.

Questions

1. A fracture to which portion of the mandible is most commonly associated with external auditory canal laceration/fracture and otorrhagia?
   a. Mandibular condyle
   b. Ramus
   c. Mandibular body
   d. Coronoid process

2. A 20-year-old man has right temporomandibular joint and dried blood in his right external auditory canal (EAC) after falling off his skateboard. Computed tomography demonstrates a right mandibular condylar fracture. Which is correct?
   a. In patients with EAC lacerations/fractures, the canal is left open to allow swelling around the injury and prevent pressure necrosis of the canal.
   b. Patients with EAC injuries secondary to mandibular condylar fractures who have hearing loss at initial presentation are unlikely to regain hearing.
   c. Most mandibular condylar fractures heal without complication and do not require follow-up.
   d. In many patients with mandibular condylar fractures, open reduction and internal fixation is the preferred treatment.

Answers

1. Mandibular condyle. Explanation: Emergency providers should suspect an underlying mandibular condylar fracture in patients with facial trauma presenting with jaw pain and otorrhagia. An estimated 10% of mandibular condylar fractures result in injury to the external auditory canal (EAC). In comparison, only 3% of patients with fractures to the other segments of the mandible will have an injury to the EAC.

2. In many patients with mandibular condylar fractures, open reduction and internal fixation is the preferred treatment. Explanation: In a trauma patient with an EAC laceration secondary to a mandibular condylar fracture, antibiotic ointment is typically applied to the laceration and the canal is packed to prevent stenosis. Hearing loss is common at presentation, however, often resolves.[1] All patients with mandibular condylar fractures require follow-up with an otolaryngologist, given the risks of developing temporomandibular dysfunction and other long-term complications. Recent studies have demonstrated improved outcomes in patients with mandibular condylar fractures who undergo open reduction with internal fixation, compared to conservative management.