Case Report

Journal of Emergency Medicine Case Reports

Isolated Hyoid Fracture Associated with Blunt Trauma

Osman Sezer Çınaroğlu[1], Mehmet Göktuğ Efgan[1], Ozan Altıntaş[1], Umut Payza[1]
[1]Department of Emergency Medicine, Izmir Katip Celebi University, Ataturk Training and Research Hospital, Izmir, Turkey.

Abstract

Trauma-related hyoid fractures are rare entities. These fractures represent only 0.002% of head and neck region fractures. Victims of hanging and strangling constitute the great majority of cases. Fractures associated with trauma are extremely rare. These fractures are difficult to diagnose and can easily be overlooked during physical examination. However, they are also important traumas since airway safety is endangered in these rare cases. We describe a case of a young male presenting with isolated neck injury associated with hitting an electric cable while riding a motorbike. Tenderness was present in the anterior neck region at physical examination, but movement was not restricted and no respiratory difficulty was determined. Isolated hyoid fracture was detected at tomography of the neck performed in the emergency department. Hyoid bone fractures should not be forgotten in patients with pain and tenderness in the anterior neck region following blunt trauma to the neck.

Keywords: Isolated blunt trauma, cervical computed tomography, hyoid bone fracture

Introduction

Hyoid bone fractures may appear during strangulations, hangings, and intubation. The majority may accompany multiple fractures and polytraumas such traffic accidents and falls from heights (1). However, isolated hyoid fractures are very rare. Airway safety is threatened in traumas specific to the neck region. Loss of time in or uncertainty of diagnosis increase mortality. Physical examination must therefore be carefully evaluated in patients with histories of blunt head and neck trauma (3). Very few cases of hyoid bone fracture caused by blunt neck fracture have been reported to date (1)

We present a case of a young man with an isolated fracture of the hyoid bone associated with blunt neck trauma caused by a traffic accident.

Case Report

A 26-year-old motorcyclist presented to our emergency department with pain in the anterior neck region associated with his neck hitting an electric cable on the road during a nocturnal journey. The patient reported falling from the motorbike and feeling pain in the anterior part of the neck, but no other injury. He also stated that he was wearing protective equipment such as a crash helmet. At presentation to our emergency department his blood pressure was 130/85 mm Hg, heart rate 78/min, respiration rate 11/min, body temperature 36.5° C, and oxygen saturation 97%. Neck movements were not restricted at physical examination, but the left horn region of the cricoid bone in the anterior midline of the neck was tender when palpated. His Glasgow Coma Scale score was 15/15. His pupils were isochoric, and no pathology was encountered at neurological examination. No bone tenderness was present at repeated cervico-spinal examinations. No redness or localized mass/swelling were observed in the anterior neck region. No traces of trauma related to the accident were observed other than minimal abrasions on the inner surface of the arm, the hands, and knees.

No pathological findings were encountered on posterior-anterior and lateral cervical radiographs taken during presentation. There was no fracture line on the lateral cervical radiograph, and soft tissues were normal in appearance. Cervical computed tomography (CT) scanning was performed due to localized tenderness persisting in the

Corresponding Author: Osman Sezer Çınaroğlu
e-mail: drsezer@hotmail.com
Received: 10.10.2022 • **Accepted:** 01.11.2022
DOI: 10.33706/jemcr.1186753

Cite this article as: Cinaroglu OS, Efgan MG, Altintas O, Payza U. Isolated hyoid fracture associated with blunt trauma. Journal of emergency medicine case reports. 2023;14(1): 13-15

DOI: 10.33706/jemcr.1186753
Journal of Emergency Medicine Case Reports. 2023;14(1): 13-15

anterior part of the neck. The CT report described a fracture of the greater left horn of the hyoid bone and bilateral anterior half irregularity and edema at the level of the vocal cords (Figure 1,2). An ear, nose, and throat physician was consulted. Bedside indirect transoral laryngoscopy was performed, and no edema or perforation were observed in the airway. Symmetrical movement was present in the bilateral vocal cords, and minimal edema was observed. Lung x-ray performed at the same time was unremarkable. The patient's COVID-19 PCR test analyzed during presentation to the emergency department was delta variant-positive. Due to the neck trauma and COVID-19 positivity, the patient was admitted to the COVID-19 isolation ward. No COVID-19-related symptoms were present. Following 24-h emergency department follow-up, the patient was discharged with restricted neck movements due to hyoid bone fracture and advice concerning a fluid or soft diet for a few days and subsequent check-up. He was placed under home quarantine due to COVID-19.

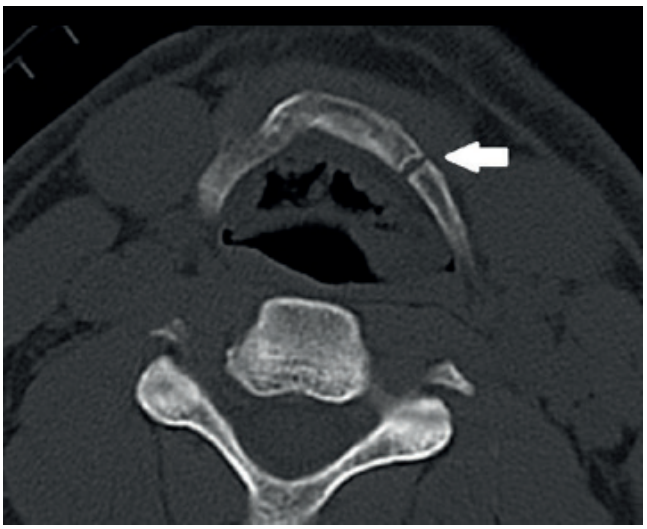

Figure 1. Cervical CT axial section; fracture at the juncture of the hyoid bone left corpus major horn

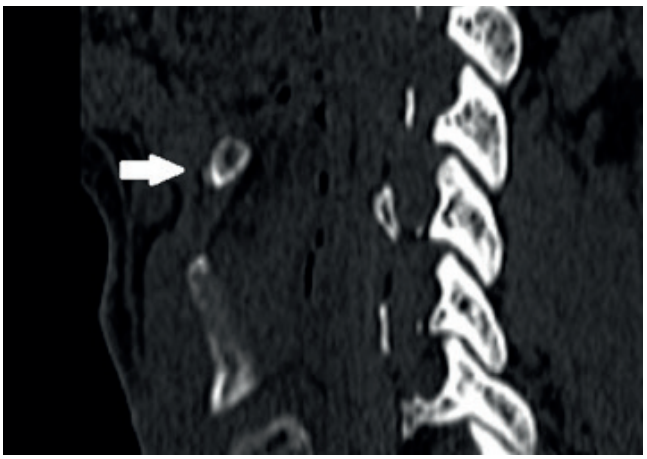

Figure 2. Cervical CT sagittal section; fracture at the juncture of the hyoid bone left corpus major horn

Discussion

Examination of the literature shows that approximately 40 cases of hyoid fracture have been reported in the last century, including in the pediatric age group. The great majority of these cases were hyoid fractures accompanying maxillofacial area polytraumas. Isolated hyoid fractures, however, are extremely unusual. Blunt neck trauma is generally caused by hanging, sport, or attack (3). The hyoid bone consists of a main body, and two greater and two lesser horns. It lies at the level of the third and fourth vertebrae in the anterior part of the neck. The bone is a suspended styloid protrusion immediately below the chin, just above the thyroid cartilage, anterior to the cervical spine, supporting the movement of the tongue. These structures protect the hyoid bone against direct blows and injuries. Since the bone lacks a fixed structure, it is not easily affected by traumas, and fractures are therefore rare. In the present case, localized contact in the neck region, even though he was wearing protective equipment against motor vehicle accidents, exposed the patient to severe force due to the speed of the vehicle.

Pain may be the only symptom in hyoid fractures. However, these fractures should be suspected when pain is accompanied by odynophagia, dysphagia, and dyspnea. Short-term observation and conservative treatment are sufficient in the majority of cases. However, albeit theoretically and rarely, the need for endotracheal intubation, tracheostomy, or laryngeal-pharyngeal perforation has also been reported (3).

Diagnosis relies on suspicion in patients with clinical signs. Pain with movement or palpation, swallowing difficulty, and pain with coughing may be observed. Respiratory difficulty is a sign of severe trauma-related injury and edema. Radiological imaging is used to confirm diagnosis. Fractures are difficult to visualize on cervical radiographs due to the surrounding osseous structures and the superimposition thereof. Evaluation using cervical CT is therefore recommended when a fracture is suspected. CT permits the evaluation of soft tissues, the cervical spine, and vascular structures. Direct laryngoscopy is also recommended to determine potential airway damage in patients with such injuries. Conservative treatment is generally sufficient, and surgical intervention is rarely required.

Fracture in the left greater horn of the hyoid bone and bilateral irregularity and edema at the level of the vocal cords were detected in this case. Direct laryngoscopy revealed symmetrical motility in the vocal cords, and no injury or edema posing a threat to the airway were observed. The patient was discharged with conservative treatment following emergency department follow-up and observation.

Conclusion

Hyoid fractures are rare entities, and insufficient cases have been reported in the literature. Care is required in terms of hyoid fracture in case of traumas threatening the face and neck. Outcomes threating the airway may be encountered due to hyoid fractures, particularly in case of simple-looking blunt neck traumas. Symptoms that may develop following blunt trauma should be carefully evaluated, and the possibility of hypoid fracture should not be forgotten.

References

1. Erdogan B, Erdogan MO, Colak S, Kibici O, Bozan K, Alper B. An isolated hyoid bone fracture caused by blunt trauma to the neck. J Pak Med Assoc. 2015;65(11):1233- 1234
2. Porr J, Laframboise M, Kazemi M. Traumatic hyoid bone fracture - a case report and review of the literature. J Can Chiropr Assoc. 2012;56(4):269-274
3. Yauh-Mirng Jehnga, Francis Tzen-TakLee, Yung-Chia Pai, Wai-Mau Choi. Hyoid bone fracture caused by blunt neck trauma. Journal of Acute Medicine. 2012;2(3):83- 84