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Isolated fracture of hyoid bone as a result of bicycle injury

Case Report

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Abstract: Authors present a rare case of isolated hyoid bone fractures as a result of a traffic accident. Ten hours before the exam, the patient injured his neck by hitting it against a metal pole which he did not notice while riding a bicycle. Immediately afterwards he felt the pain, and came for an examination due to pain with swallowing. ENT examination discovered no signs of trauma in the oral cavity, oropharynx, hypopharynx, larynx and visible part of trachea. Computed tomography discovered an isolated fracture of hyoid bone. After 24 hour observation, patient was discharged for home care, and was shown a swallowing technique which significantly reduces swallowing pain. At control ENT examination 10 days later patient had no complaints. Control CT examination was not performed, as patient refused it.

Keywords: *Hyoid bone • Fracture • Computed tomography • Traffic accident*

1. Introduction

Neck injuries are common during different everyday activities, and isolated injuries of the hyoid bone are most often caused by strangulation, hanging, congestion, blunt injury, missiles or traffic accidents [1]. These injuries occur more often at young, and more often in men compared to women [2].

Diagnosis of hyoid bone fractures is difficult, especially if it is asymptomatic. However, computed tomography is superior to plain radiography [3]. It gives useful information about larynx and perilaryngeal space, hyoid bone, other neck structures, as well as cervical spine, which can be injured in external blunt neck trauma. Neck emphysema, blood collections or neck blood vessels occlusion can also be diagnosed by CT [4-6].

2. Case report

Male patient, aged 23, was referred to Emergency Center by ER specialist due to suspected laryngeal fracture. Ten hours before the exam patient injured his neck by hitting it against metal pole which he did not notice while riding a bicycle. Immediately afterwards he felt the pain, and came for an examination because of painful swallowing. ENT examination discovered no signs of trauma in oral cavity, oropharynx, hypopharynx, larynx and visible part of trachea. Neck was painful on palpation from laryngeal prominence to suprahyoid region. There was no visible skin trauma or haematomas in the neck region. CT examination (Siemens Somatom Sensation Cardiac 64, slice thickness 3 mm with 1 mm reconstruction, and post processing using InSpace software) detected no injuries of larynx, cervical spine, or other neck structures. A fracture of hyoid bone on the right, in the region of suture between horn and body, without

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dislocation of fragments, was seen. In the same region, unclearly demarcated area of hypodensity, of approximate size of 26 x17 mm was seen, indicating soft tissue edema or haematoma (Figure 1, Figure 2).

After 24 hour observation, patient was discharged for home care, and was shown a swallowing technique which significantly reduces swallowing pain. At control ENT examination 10 days later patient had no complaints. Control CT examination was not performed, as patient refused it.

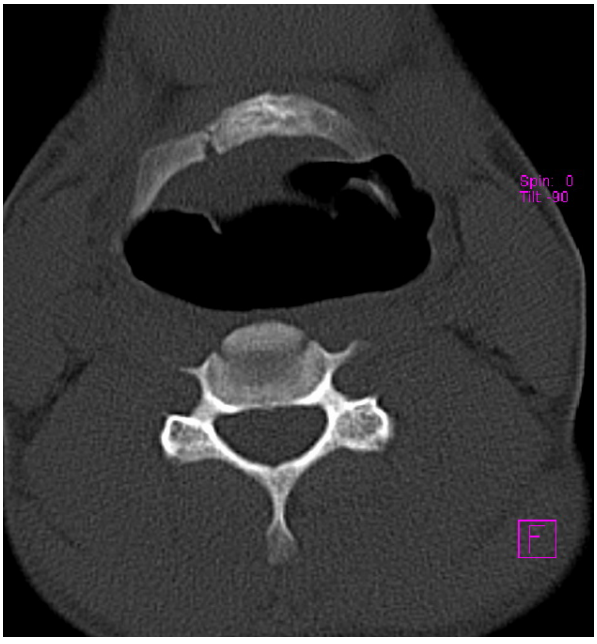

Figure 1.

Figure 2.

3. Discussion

External blunt neck injuries cause injuries of laryngeal skeleton, laryngeal muscles, impaired vocal cord motility, luxation or subluxation of arytenoids, laryngeal mucus, laryngeal nerves, neck blood vessels, hyoid bone, cervical vertebras, trachea, even separation of the trachea from the cricoid ring and breathing impairment. These injuries can even have a lethal result [5-9].

The hyoid bone is U shaped, and is located in the ventral portion of neck, at the level of the fourth cervical vertebra. It is a small bone situated between the base of tongue and thyroid cartilage. It has a great significance in forensic pathology, as its fracture indicates strangulation (more commonly manual than by binding), and less commonly at strangulation [10]. Dalati [2] has reviewed the references regarding isolated fractures of the hyoid bone and concluded that this fracture is very rare, as between 1954 and 2003, only 31 cases were published.

Chowdhury et al. [11] presented a case of isolated injury obtained during sport activity by ice hockey puck. Kuo et al.1presented a case of isolated hyoid bone fracture caused by helmet strap during the crash of two motorcycles. As a unique case, White [12] presented the fracture of hyoid bone caused by self-induced vomiting in severe alcohol intoxication.

Fracture of hyoid bone can be associated with injuries of other organs. Tohill et al. [13] presented a case of severe injuries of mandible, larynx and hyoid bone, while a case of associated injuries of mandible and hyoid bone was published by Levine et al. [3]. Moreover, hyoid bone fractures can remain undetected if not considered or if hyoid bone is not visualized on CT. Spielmann et al. [14] presented two cases of hyoid bone fracture undetected on CT examination, which were later diagnosed during endoscopy. Asymptomatic injury of hyoid bone poses a special diagnostic problem [3].

4. Conclusion

Hyoid bone fractures are rare, but ER and ENT specialist should consider them in cases of traffic accidents. Pain is not the only, but is very important symptom when suspecting hyoid bone fracture. Computed tomography is essential step in diagnostic algorithm immediately after the injury, as well as in follow up of patients with hyoid bone fracture.

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