



Complications of the Heimlich Maneuver: Isolated Sternum Fracture

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ABSTRACT

Introduction: Heimlich maneuver is one of the first-aid maneuvers administered when the upper airway obstruction symptoms develop.

Case Report: A 33-year-old female patient presented with sternum fracture due to the Heimlich maneuver.

Conclusion: Sternal fracture can be developed after the Heimlich maneuver. In addition, the importance of bedside ultrasonography in the detection of fractures in the emergency department was highlighted.

Keywords: Heimlich maneuver, sternal fractures, ultrasound

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Introduction

The Heimlich maneuver is one of the life-saving first-aid maneuvers when applied correctly. The Heimlich maneuver is a method used for the treatment of the compression occurring as a result of upper airway obstruction due to foreign bodies (1, 2). Various complications, which can be fatal, such as esophageal laceration, gastric rupture, diaphragmatic rupture, and liver and spleen rupture, have been reported because of the Heimlich maneuver. We considered this case for publishing because there are no sternum fracture cases due to the Heimlich maneuver in the literature.

Case Report

A 33-year-old female patient had suddenly complained of shortness of breath and respiratory distress. It was stated that her husband applied pressure on the chest and back, and a sound was heard during this process. Approximately 2 h later, she began complaining of chest pain, and the intensity of chest pain increased. The patient's vital signs were stable when admitted to the emergency department. The patient's height was 1.60 cm and weight was 61 kg, and no additional systemic disease was present. On physical examination, tenderness with palpation and crepitus was detected at the midline of the sternum. Bedside ultrasonography (bUSG) revealed sternum fracture in the marked area (Figure 1). No significant changes were detected on serial electrocardiograms and follow-up enzyme results. She was discharged with medical treatment and recommendations.

Discussion

Esophageal laceration, gastric rupture, and rib fractures are among the most common complications after the Heimlich maneuver. Despite many reported complications such as rotator cuff tears, retinal detachment, pneumomediastinum, diaphragmatic rupture, liver and spleen rupture, jejunal rupture, pancreatitis and pancreatic transection, mesenteric laceration, aortic dissection and aortic valve rupture, aortic-caval fistula, abdominal aortic dissection and rupture, abdominal aortic thrombosis, and internal carotid dissection (2, 3), it is still performed in the literature (4). No sternal fractures due to the Heimlich maneuver were seen in the literature.

Sternal fractures are rare compared with other bone fractures. Sternal fractures are generally seen after blunt chest traumas, and traffic accidents are the most common causes (5). When sternal fractures and concomitant complications are analyzed together, 44% were seen to be isolated sternal fractures (6). In cases with concomitant sternal fracture, electrocardiography and enzyme follow-ups are advisable (7), and there is no change in our patient follow-up. If there are no abnormalities in electrocar-

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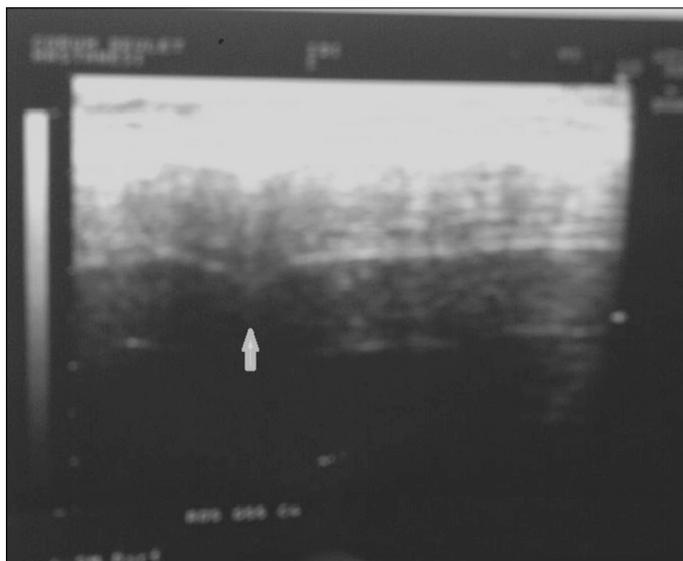


Figure 1. Bedside sternal ultrasonography showing fracture

diography and cardiac enzymes in isolated sternal fractures, patients can be treated as outpatients (8).

Lateral chest X-ray (Röntgen, Wilhelm Röntgen, Germany) can detect the sternal fracture, but tomography (developed by Sir Godfrey Hounsfield) can be used if lateral chest X-ray is inadequate for diagnosis. bUSG can be a useful diagnostic tool for sternal fracture and has proven to be more effective than conventional radiography (9). bUSG (Ultrasonography, company Kocums, Malmö, Sweden) is used in many fields in the emergency department, such as trauma, abdominal aortic aneurysm, examinations of thoracic, cardiac, pregnancy, gallbladder, biliary, urinary system, soft tissue and muscle, and bone structures. Ultrasonography is now a cheap and fast bedside diagnostic tool. In our case, the diagnosis of sternal fracture has been demonstrated by bUSG.

Conclusion

Sternal fracture can develop after the Heimlich maneuver. bUSG was preferred over direct radiography and computed tomography to de-

tect fractures in the emergency department. Also, the importance of informing the public about the life-saving first-aid maneuvers such as the Heimlich maneuver arises.

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Peer-review: Externally peer-reviewed.

Conflict of Interest: No conflict of interest was declared by the authors.

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