

Stairlike fracture of the sternum

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A 30-year-old man, who had been involved in a traffic collision four hours previously, was transferred to our university hospital from a rural hospital. He was not wearing a seat belt while driving and had an isolated sternal fracture with severe displacement after hitting the steering wheel (Figure 1).

Examination using contrast-enhanced computed tomography showed no evidence of cardiac or vascular injury. The patient had normal serum troponin levels, and normal electrocardiogram and echocardiograph results. Because of his severe chest pain, he was admitted to hospital for pain control and monitoring. We offered sternal fixation; however, he declined surgery and was discharged on the third day.

Sternal fracture caused by traffic collisions may occur in isolation or with fractures of the ribs, clavicle or spine. It has an incidence of 0.64% to 4.8% in thoracic trauma.¹ In severe trauma, it may be associated with cardiac contusion, vascular injuries, lung contusion and hemopneumothorax. Although sternal fractures are usually treated with pain control alone, indications for surgical intervention include severe displacement, severe or persistent pain, nonunion, respiratory failure or dependency on mechanical ventilation and restricted movement of the trunk.¹

The prognosis for isolated sternal fractures is excellent. Death usually occurs in patients with polytrauma, with mortality from 25% to 45%.^{2,3} In the absence of other injuries or severe pain, patients with isolated sternal fractures do not need admission to hospital.

References

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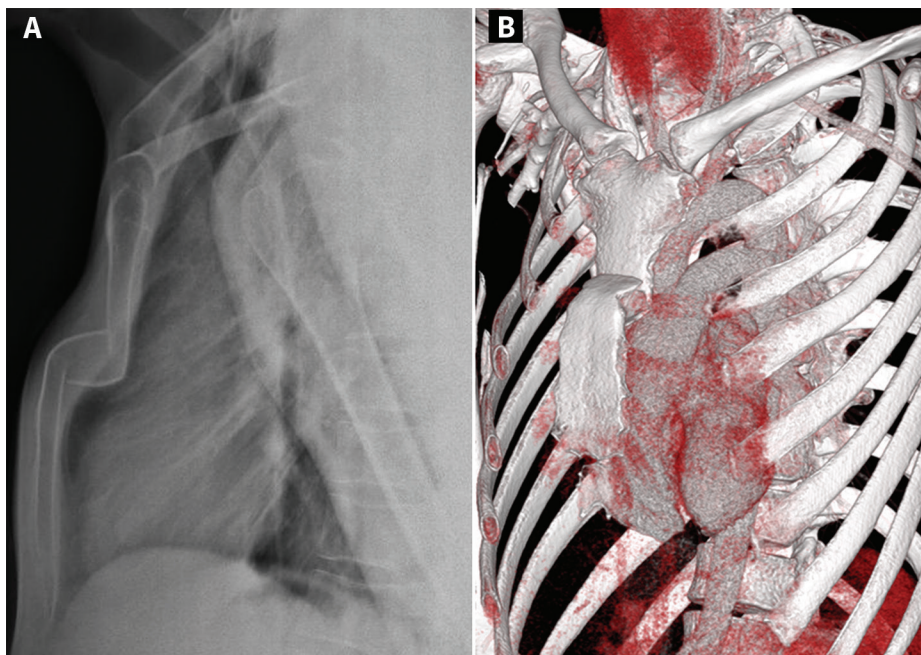


Figure 1: (A) Lateral chest radiography and (B) oblique volume-rendered three-dimensional computed tomography images showing fractures that caused a stairlike appearance of the sternum in a 30-year-old man with chest pain after a traffic collision that occurred four hours previously.

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