

## Case Report: Sternal Fracture - A Rare Associated Finding In Thoracic Vertebral Chance Fracture

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### INTRODUCTION

Sternal fractures are usually associated with deceleration injuries and blunt anterior chest trauma. Diagnosis is based on mechanism of injury. Direct trauma is the most common cause of injury (eg, motor vehicle accidents, sports, and falls). 3-6.8% cases involve motor vehicle accident <sup>1</sup>

### MATERIALS AND METHODS

This a case of a 27 years old Malay gentleman who was involved in an MVA. He sustained multiple fractures involving his right clavicle , right ribs and multiple thoracic vertebra fracture. Besides, he also sustained multiple lung injuries. Patient came with poor respiratory effort .Neurological examination also shows that he had complete loss sensory and motor function from T3 level. Chest xray unable to appreciate sternal fracture. Eventually he was intubated and he was admitted to Intensive Care Unit . He was later later proceed with CT scan. From the CT scan it was noted that he had comminuted sternal fracture with manubrio-sternal subluxation apart from multiple lung and rib unjuries. Bedside ECHO also was done and no demonstrated cardiac injury. Patient was treated in ICU for bad lung injury.To ease his Rehabilitation we had proceed with posterior instrumentation and fusion.The sternal fracture and manubrio sternal subluxation were treated conservatively .

### RESULT

His neurological status improving after the spine operation .From our short follow up, now he is able to walk with walking frame currently. Furthermore , his bladder and bowel function are returned to normal. No chest pain and he had show no breathing difficulties.

### DISCUSSION

Motor vehicle accident account for 60-90% of

sternal fractures.<sup>2</sup>Most of these are in older vehicles in with no airbags.The mortality rate from isolated sternal fracture is extremely low. Mortality associated with isolated sternal fracture is 0.7%. Death and morbidity are related to associated injuries such as aortic disruption, cardiac contusion, pulmonary contusion, abdominal injury or head injury Lateral chest radiograph is gold standard for making the diagnosis. CT is the most common imaging study to make the diagnosis. Of 292 patients with sternal fracture in one study, 94% of fractures were visible only on chest CT. Cardiac contusion was identified in 7 of the patients.

Different ways to stabilize a sternal fracture are described in literature. Anterior sternal plating provides the best stability and is therefore increasingly used in most cases. However , many surgeons are reluctant to perform sternal osteosynthesis due to possible complications such as difficulties in preoperative planning, severe injuries to mediastinal organs, or failure of the performed method .

### CONCLUSION

Sternal fracture in thoracic vertebra fracture is rare.Sternal fracture may associated with multiple other injury involving rib cages , lung or heart injury. Sternal injury with associated lung or heart injury can be fatal.Lateral chest xray is important but if fracture is not able appreciated by xray ,CT scan is a useful modality. Difficulties in preoperative planning, severe injuries to mediastinal organs are challenges in sternal internal fixation.

### REFERENCE

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