The presence of a sternal fracture is evidence of the application of significant forces. At the very least it predicts the need for aggressive pain control and pulmonary toilet. At the most it is associated with multiple life threatening injuries including blunt cardiac injury, pneumothorax, pulmonary contusions, and vascular injuries of the thorax.

Sternal fracture detection by clinical exam and plain films is severely limited. Even CT has shown to have significant limitations. On a recent study which included using modern multidetector CT the sensitivity when viewed from coronal or cross sectional images was barely more than half (sagittal reconstruction was excellent). Good studies of the use of ultrasound are lacking but small studies have demonstrated sensitivities from 80 to 100%. The hallmark is an anterior cortical defect and step-off, as seen in this image, with the added benefit of being able to see posterior step-off with associated hematoma.

In this patient the final attending read noted no fracture. On request for review it was overread as a sternal fracture with adjacent mediastinal hemorrhage. This highlights the utility for US when suspecting sternal fracture: to make an immediate disposition, to perform a workup prn for associated injuries, and to make a diagnosis that may be missed by other imaging modalities.

References:
