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IMAGES IN EMERGENCY MEDICINE

Bilateral fractured clavicles with multiple rib fractures

Gururaj Puranik, Nick Gillham

A 45-year-old previously fit and healthy, female physiotherapist was walking her dog in fields. Cows in the field were frightened by her dog, resulting in her being trampled and crushed. She presented with severe pain in the chest along with pain in both shoulders. On examination she was severely short of breath. The only injury outside the chest was a minor scalp laceration. Radiographs of her chest revealed fractures of all 24 of her ribs and clavicles (fig 1) along with bilateral haemopneumothorax.

The patient was intubated and ventilated, and bilateral intercostal chest drains were inserted. Computed tomographic (CT) scan of her chest showed that she had fractured all 24 ribs and both clavicles. CT scan of the abdomen was within normal limits. She was admitted to the intensive therapy unit for ventilation. It became progressively difficult to ventilate the patient. Orthopaedic opinion was sought because it was felt that death was imminent. The patient underwent plate

osteosynthesis of both clavicles using AO 3.5 mm reconstruction plates. Immediately after fixation of the clavicles ventilation became easier. Her chest drains were removed after 7 days. She was ventilated for 24 days. She mobilised rapidly once she was off ventilation, and was discharged home 4 weeks after her injury. At the time of discharge she had almost full range of movements in both shoulders and fractures of clavicles were uniting. At long term review, 5 years post-injury, she has returned to normal work and leisure activities. Her clavicle plates remain in situ.

Thoracic injury is a major cause of morbidity and mortality. In a study by Benjamin *et al*¹ there was a statistically significant increase in mortality rate with each successive rib fracture. They also noted that patients with more rib fractures had a corresponding increase in mortality and pulmonary morbidity. Isolated bilateral clavicle fractures healed uneventfully with non-operative treatment in a case report by

Sutherland *et al*.² In a study by Schwarz *et al*³ indications for ORIF (osteosynthesis of irreducible fracture) were an open fracture, ipsilateral fractures of the arm or ribs, bilateral clavicle fractures and fractures that were irreducible by conservative means. The bilateral clavicle fractures in our case were internally fixed to provide stability to shoulder girdles which assisted her respiration. Fixation is also likely to have reduced analgesic requirements. Bilateral fractured clavicles with all, or almost all, 24 ribs fractured have not been reported in the English literature. There are similar cases in the world literature. In all cases the patients died. Apart from being rare, this case also reinforces the importance of a multidisciplinary approach in dealing with such serious injuries. In our opinion significant rib fractures, associated with clavicle fractures, should be considered for internal fixation. This is even more important when the injury is bilateral. The case is the first, to our knowledge, of a patient surviving this injury of fracture of all 24 ribs and bilateral clavicle fractures.

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Figure 1 Radiographs showing fractures of all 24 ribs and the clavicles, along with bilateral haemopneumothorax.