Conservative management of large intrapulmonary haemorrhage following penetrating chest trauma

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Abstract
Penetrating chest wounds can hide a range of life threatening injuries and often require emergency surgical management. It is important that the patient be assessed and managed according to clinical need and response to medical intervention. This is a case of a patient with a large intrapulmonary haematoma who was managed conservatively and made a good recovery without need for surgery.

Keywords
Intrapulmonary haematoma; penetrating chest trauma; conservative.

Case report
We present the case of a 23-year-old man brought to our Accident and Emergency Department with multiple stab wounds to the upper posterolateral thorax. On admission he was tachycardic at 110 bpm but maintaining his blood pressure at 120/90 mmHg. Pulse oximetry showed saturations of 99% on room air. Clinical examination of the thorax revealed reduced right sided breath sounds and the chest was dull to percussion right midzone. Assessment continued along advanced trauma life support (ATLS) guidelines and plain chest radiographs were taken which showed a large pulmonary haematoma in the right midzone (Fig. 1). The patient’s observations remained stable with no fall in blood pressure or oxygen saturation levels. Repeat chest radiographs taken at intervals of 15 min showed a moderate increase in the size of the haematoma and following these, a contrast enhanced computed tomography (CT) scan of the thorax was performed.

The CT scan revealed a 9 cm intrapulmonary haematoma in the right midzone with a ground glass appearance in the peripheries of the upper right lobe consistent with parenchymal haemorrhage (Fig. 2). The arterial phase of the scan showed active extravasation of contrast within the haematoma and there was evidence of chest wall surgical emphysema at the site of the stab wounds.

The patient was admitted to the High Dependency Unit of our hospital for observation, commenced on prophylactic antibiotics and a repeat chest radiograph taken 24 h post injury.
showed no further increase in the size of the haematoma (Fig. 3). As the patient’s condition continued to improve, he was discharged from hospital 48 h post admission. A repeat chest radiograph was taken a week following the injury (Fig. 4).

**Discussion**

Penetrating injury to the thorax may result in serious morbidity and mortality\[1,2\]. Often patients present in extremis following injury to thoracic viscera; however, when the patient’s clinical condition remains stable, a conservative approach can be adopted. In the case presented here, the haemorrhage into the lung parenchyma was self-limiting and had minimal effects on the patient’s lung function.

If patients with penetrating chest wounds continue to haemorrhage, options for controlling the bleeding include radiographic guided angioembolisation of the bleeding vessel via the bronchial arterial tree. This requires a skilled radiologist as although the bronchial arteries most commonly originate from the descending aorta between T5 and T6 vertebrae, aberrant anatomy has been reported in 15–35% of patients and paralysis following inadvertent embolisation of the spinal arteries has been described\[3\]. If embolisation is not an option or haemorrhage continues after
embolisation, then the patient requires urgent referral to a thoracic surgeon for thoracotomy and direct ligation of the bleeding vessel.

A review of the literature found there to be little data available on managing traumatic intrapulmonary haemorrhage conservatively - presumably as most patients with such injuries are unstable. A case series from Bulgaria[^4] looked at 18 patients over 14 years with intrapulmonary haematoma and of these, 15 were managed surgically and 3 conservatively.
There was no difference in outcome between the two groups. Serial CT examinations may also be used to monitor progress\textsuperscript{[5]}. A review of thoracic injuries in World War 2 reports on a series of 89 cases of intrapulmonary haemorrhage or haematoma managed conservatively, and reports that these lesions resolved spontaneously within 4–6 weeks. Furthermore, follow up radiographs at 5 months showed no evidence of any long term sequelae of the haematoma\textsuperscript{[6]}.

**Teaching point**

This case illustrates that intrapulmonary haematomas may be managed non-operatively with good outcomes. The point is also made that patient management should be dictated by clinical condition and not by radiographic means alone.

**References**

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