

## EMERGENCY CASEBOOKS

## Bilateral spontaneous pneumothorax—the case for prompt chest radiography

S C Wilkie, L J Hislop, S Miller



Figure 1 Chest radiograph showing bilateral pneumothoraces. The white arrows indicate the lung edges.

Department of  
Accident and  
Emergency Medicine,  
Royal Alexandra  
Hospital, Paisley  
PA2 9PN  
S C Wilkie  
L J Hislop

Department of  
Anaesthetics and  
Intensive Care, Royal  
Alexandra Hospital  
S Miller

Correspondence to:  
Dr Hislop, Consultant in  
Accident and Emergency  
Medicine  
(stewart\_wilkie@hotmail.com)

Simultaneous bilateral spontaneous pneumothorax is a rare condition occurring in up to 1.9% of cases of spontaneous pneumothorax.<sup>1</sup> Risk factors include male sex, smoking, height and underlying lung conditions. An increase in the incidence is seen in AIDS patients with underlying pneumocystis carinii infection.<sup>2</sup> In contrast with a large unilateral pneumothorax, simultaneous bilateral spontaneous pneumothorax presents difficulties in diagnosis from clinical signs alone and definitive diagnosis requires chest radiography.

A 39 year old man self presented to the accident and emergency department with acute dyspnoea. On arrival at the department he was in severe respiratory distress and unable to give any history. Initial examination found him to be extremely agitated, cyanosed and tachypnoeic. Although he was maintaining his own airway and his trachea was central, air entry was poor into both sides of his chest. Both hemithoraces were resonant to percussion and scattered crackles were audible on auscultation throughout both lung fields. Arterial oxygen saturation was only 60% despite administration of 15 litres oxygen via a non-rebreathing mask with a reservoir bag. Cardiac output at this time was not impaired. Intravenous access was secured and a chest radiograph obtained. Arterial blood gases revealed a type 2 respiratory failure with pH 6.99,  $P_{O_2}$  6.49 kPa,  $P_{CO_2}$  9.80 kPa, and base excess was  $-14.7$ . The patient was intubated and ventilated and his saturation improved. At

this point the chest radiograph was returned to show a bilateral pneumothorax with complete collapse of the right lung and 50% collapse of the left lung (fig 1).

Needle thoracocentesis confirmed that the right side was under tension and bilateral chest drains were promptly inserted. His respiratory parameters improved dramatically and he was transferred to the intensive care unit. The left pneumothorax resolved, however there was a persistent air leak on the right and he was transferred to the local cardiothoracic unit where video assisted thoracostomy, pleurectomy and apical resection for bullous disease was performed with good result. Although he was a male smoker he had no other identifiable risk factors or other underlying pulmonary disease and no evidence of AIDS.

This case demonstrates the importance of urgent chest radiography in the emergency room for all patients in respiratory distress.

**Contributors**

SCW produced the manuscript and acts as guarantor. The paper was jointly written by SCW, LJH and SM. SCW and LJH edited the paper.

Funding: none.

Conflicts of interest: none.

- 1 Athanassiadi K, Kalavrouziotis G, Loutsidis A, *et al*. Treatment of spontaneous pneumothorax: ten-year experience. *World J Surg* 1998;22:803–6.
- 2 McClellan MD, Miller SB, Parsons PE, *et al*. Pneumothorax associated with *Pneumocystis carinii* pneumonia in AIDS: incidence and clinical characteristics. *Chest* 1991; 100:1224–8.

## A misdiagnosed fracture of the calcaneum

S Cutts, M S Morris

A 57 year old retired male truck driver and known sufferer from myaesthesia gravis presented to the accident and emergency department with severe pain in his left ankle. The pain had begun suddenly while standing on tiptoe. His myaesthesia gravis had been treated with oral prednisolone and azathioprine for three years. Physical examination revealed a palpable gap over the posterior ankle. As Symmonds test was negative, a clinical diagnosis of partial rupture of the Achilles tendon was made and the limb was placed in an equinus plaster of Paris.

Seven days later in clinic, it was noted that the presumed defect in the Achilles tendon was

unusually low and appeared to be demarcated by bone both above and below. Plain radiographs confirmed an avulsion fracture of the calcaneum (fig 1). This was successfully treated by open reduction with internal fixation. Subsequently, dual x ray absorptiometry showed that the patient's bone was well into the osteopenic range.

Ruptured Achilles tendon is a common presentation in the casualty department and is usually diagnosed on clinical grounds alone. One of the most striking features is the presence of a palpable gap on the affected side. In this case, the gap caused by an unusual fracture was mistaken for a gap in the tendon. Only

Warwick General  
Hospital, Lakin Road,  
Warwick CV34 5BW

Correspondence to:  
Dr Cutts  
(stevencfrcs@hotmail.com)



Figure 1 Horizontal fracture of the calcaneum seven days after presentation.

when more senior staff examined the patient was the discrepancy noted. Radiographs then revealed the fracture.

Avulsion fractures of the calcaneum can be attributable to direct trauma<sup>1,2</sup> but have also been regarded as neuropathic fractures<sup>3</sup> with diabetes being the usual pathology. However, this injury is most common seen in elderly and osteoporotic women. While it is unreasonable to suggest that all Achilles tendon ruptures should be radiographed, Banerjee *et al*<sup>4</sup> have pointed out that apparent rupture of the Achilles tendon in the elderly should be regarded as an indication for radiography. We would suggest that these criteria should be expanded. If the patient is at increased risk of fracture for

reasons other than advancing age (in our case long term corticosteroids for myaesthesia gravis) then an avulsion fracture should be considered. If the gap is close to the calcaneum and Symmonds test is negative then radiographs are indicated.

- 1 Cooper DE, Heckman, JD. The heel of achilles: calcaneal avulsion fracture from a gunshot wound. *Foot Ankle* 1989;9:204-6.
- 2 Lyngstadaas S. Treatment of avulsion fracture of the tuber calcanei. *Acta Chir Scand* 1971;137:579-81.
- 3 Biehl WC III, Morgan JM, Wagner FW JR, *et al.* Neuropathic calcaneal tuberosity avulsion fractures. *Clin Orthop* 1993;296: 8-13.
- 4 Michael S, Banerjee A. Apparent tendo achilles rupture in the elderly: is routine radiography necessary? *Arch Emerg Med* 1993;10:336-8.

## Pancreatic trauma in a child

J A Gilchrist, P S Broadley, R N Shawis

A 7 year old boy presented to the accident and emergency (A&E) department with an abdominal injury after a fall onto a bedpost while playing. He initially felt "dizzy" and went to bed but was brought to A&E six hours after the fall complaining of abdominal pain. On initial assessment he was pale and clammy with a capillary refill time of four seconds. Heart rate was 110/min but blood pressure was normal. Abdominal examination revealed upper abdominal tenderness with slight discoloration in the left upper quadrant. After fluid resuscitation and analgesia an ultrasound examination suggested free blood in the peritoneal cavity. Serum amylase on admission was 71 IU/l. A subsequent urgent computed tomogram showed complete transection through the body of the pancreas (fig 1).

Treatment was conservative with analgesia and total parenteral nutrition. Nasojejunal feeding was gradually introduced. Twenty seven days after admission the patient required percutaneous drainage of a pancreatic pseudocyst. Recovery thereafter was uneventful and he was discharged home on a normal diet 50 days after admission. He remains well nine months later.

Pancreatic injury occurs in up to 10% of paediatric blunt abdominal trauma. Handlebar injuries are a common mechanism and result in a pattern of isolated pancreatic injury, often complicated by pseudocyst development.<sup>1</sup> Delayed diagnosis is the greatest determinant of morbidity and a high index of suspicion is required for optimal outcome. Complete transection is relatively rare and although the diagnostic accuracy of computed tomography has been questioned in recent years, computed tomography still gives the best opportunity for immediate diagnosis.<sup>2</sup> Serum amylase is not a reliable marker of pancreatic injury as it is



Figure 1 Computed tomography of abdomen with intravenous and oral contrast showing a transection through the body of the pancreas.

often normal in the first few hours after injury, becoming raised in 80% of cases. Non-operative management of pancreatic contusion and transection diagnosed radiologically is effective and safe. Pseudocysts may also be treated conservatively, but if large or symptomatic may need percutaneous drainage.<sup>3</sup>

- 1 Arkovitz MS, Johnson N, Garcia VF. Pancreatic trauma in children: mechanisms of injury. *J Trauma* 1997;42:49-53.
- 2 Dodds WJ, Taylor AJ, Erickson SJ, *et al.* Traumatic fracture of the pancreas: CT characteristics. *J Comput Assist Tomogr* 1990;14:375-8.
- 3 Shilyansky J, Sena LM, Kreller M, *et al.* Nonoperative management of pancreatic injuries in children. *J Pediatr Surg* 1998;33:343-9.

Department of  
Accident and  
Emergency Medicine,  
Sheffield Children's  
Hospital NHS Trust,  
Western Bank,  
Sheffield S10 2TH, UK  
J A Gilchrist

Department of  
Radiology, Sheffield  
Children's Hospital  
NHS Trust  
P S Broadley

Department of  
Paediatric Surgery,  
Sheffield Children's  
Hospital NHS Trust  
R N Shawis

Correspondence to:  
Dr Gilchrist  
(Jude3@eggconnect.net)