solution of potassium permanganate (drying agent) then covering with a topical steroid cream, for example Betnovate RD (betamethasone) cream often brings about rapid resolution of the condition.

Patients should be advised that hyperpigmentation may persist for several months but is best left untreated. Affected skin may remain

photosensitive for several months and sunscreens may be needed.

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EMERGENCY CASEBOOKS

Shock and ipsilateral pulmonary oedema after tube thoracostomy for spontaneous pneumothorax

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A 17 year old male smoker, previously well, was referred to hospital for management of a spontaneous right pneumothorax. After one week of right pleuritic chest pain he had developed mild dyspnoea and his chest film demonstrated a complete right pneumothorax with mediastinal shift (fig 1). Physical examination revealed normal vital signs other than tachypnoea of 20 breaths per minute, and signs consistent with the radiological findings. An intercostal chest tube was inserted and placed on low suction, with prompt resolution of the pneumothorax. However, over the next four hours clinical deterioration occurred,

Figure 1 Complete right pneumothorax on presentation.

with tachycardia, hypotension, respiratory distress, and hypoxaemia (oxygen saturation of 90% on 50% inspired oxygen). The patient was agitated, pale and clammy with inspiratory crackles noted in the right lung. The packed cell volume was raised at 0.63. A repeat chest film (fig 2) showed right mid and lower zone alveolar opacification. A diagnosis of ipsilateral re-expansion pulmonary oedema (RPO) was made. After transfer to the intensive care unit, the patient was treated with supplemental oxygen and continuous positive airway pressure via a full facemask, intravenous fluids, and morphine. Within 24 hours there was normalisation of his chest film, gas exchange, and packed cell volume (0.38). Two days after discharge from the intensive care unit, however, there was a recurrent pneumothorax requiring thoracoscopic pleurodesis and stapling of an apical bleb. The patient was discharged well on the third postoperative day.

RPO after aspiration of a pneumothorax was first reported in 1959.¹ The incidence is between 0.9% and 14%² with many cases being asymptomatic with rapid resolution of radiographic infiltrates. Associated hypotension and shock is less common and is likely to be a major contributor to the fatalities recorded in association with the syndrome.³ The incidence is increased in patients under 40 years of age and is related to the duration of lung collapse, its severity, and the rate of re-expansion.² However, RPO and shock can occur regardless of the duration of lung collapse and in the absence of suction. The onset is usually within hours and almost always involves the ipsilateral lung.³ The mechanisms involved include increased vascular permeability and protein leak-

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age secondary to hypoxic tissue injury⁴ and mediator release as a result of neutrophil activation.⁵ Prior oxygenation has been shown to prevent RPO in animals.³ Circulatory collapse is a result of fluid shifts within the tho-

Figure 2 Right mid and lower zone opacification after lung re-expansion.

rax and pooling of fluid in the affected lung causing hypovolaemia. Packed cell volume rises,³ as in the case reported here, and responds to prompt fluid resuscitation. Re-collapse of the affected lung may in theory reverse the cardiorespiratory compromise but there are no reports of its application. The use of diuretics is contraindicated in the presence of hypovolaemia.

Treatment of a large pneumothorax that has been present for some days should aim for slow re-expansion, either by intermittent aspiration or intercostal chest tube drainage with intermittent clamping, together with close monitoring of vital signs. Dehydration and hypoxaemia should be corrected early. Suction should be avoided as an initial treatment.

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Trauma to a horseshoe kidney

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Patients with traumatic injury to a previously unsuspected horseshoe kidney are a rare presentation to the accident and emergency (A&E) department. Early recognition is important but can be difficult.

A 25 year old male was kicked in the lower abdomen while playing football. On arrival in the A&E department he complained of increasing lower and left sided abdominal pain. Examination showed him to be pale and diaphoretic with a pulse of 60/min and blood pressure measured at 100/60 mm Hg. His abdomen revealed diffuse guarding and rebound suggesting peritonism. He was managed along Advanced Trauma Life Support principles and an urgent ultrasound scan was arranged. This was reported as showing no free fluid, an absent left kidney, and a further small kidney attached to the lower pole of the right kidney. A diagnosis of crossed fused ectopia was made (fig 1).

On admission to a general surgical ward he was noted to be cardiovascularly stable with no signs of peritonism. Four hours later the patient passed 400 ml of fresh blood per urethra. An urgent intravenous urogram was arranged and this revealed a horseshoe kidney with fusion

Figure 1 Abdominal ultrasound scan showing a small kidney attached to the lower pole of the right kidney.

across the midline which was extravasating from the left lower pole (fig 2). It was decided to manage him conservatively. However, 16 hours later the patient became hypotensive, tachycardic, and his haemoglobin concentration dropped from 131 g/l to 86 g/l. After resuscitation he underwent an urgent laparotomy which showed a large retroperitoneal haematoma with complete division of the left moiety. The rupture was repaired and a small area of the left

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