

Case Report

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Case Report: Post-Traumatic Pulmonary Pseudocysts

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Abstract

Traumatic pulmonary pseudocysts while rare and typically benign may develop immediately after blunt trauma. Recognizing this condition is important to prevent unnecessary investigations, to ensure adequate follow-up, to treat complications and to exclude other serious conditions

Keywords: Pseudocyst; Pneumothorax; Chest Xray

Case Study

A 26 year old male mechanic was admitted to the Emergency Department at Ipswich Hospital with right shoulder pain, haemoptysis and dyspnoea after crashing his motorbike into a tree at approximately 40 km/hr. He was wearing a helmet and protective clothing.

He is an active male who could not recall any surgical or medical history. Clinically a pneumothorax of the right lung lobe was diagnosed. Chest X-ray confirmed right lung collapse and revealed non-displaced fractures to posterior curvature of ribs 2 and 3 and the right clavicle. A chest drain was inserted. CT chest confirmed the above and drew attention to multiple large radio-lucent cystic lesions on the posterior aspect of the right lower lung lobe (Figure 1). These could be visualised on subsequent AP Xray once the pneumothorax had been treated and the chest drain removed (Figure 2). There were no pre-injury images available for comparison. Sputum cultures were negative and haematology was unremarkable. Follow up chest CT three months later found the cystic changes to no longer be evident and apart from a small fluid collection along the right oblique fissure, the lungs were otherwise normal.

Discussion

Post-traumatic pulmonary pseudocyst is an uncommon pulmonary lesion of the lung that may be a sequel to blunt chest trauma [1]. The margins of lesions are formed from inter-lobar interstitial connective tissue with no epithelial lining or bronchial wall elements [2,3] and were first described in 1940. The lesions result from blunt trauma causing local lacerations of lung parenchyma. Retraction of elastic tissue allows air entry. It has been reported that traumatic pulmonary pseudocysts are more often seen in children and young adults because of greater compliance of the chest wall permitting larger transmission of force to the parenchyma [4]. Impact velocity and degree of chest wall displacement is thought to alter the type of lesion with high velocity impact causing peripheral lesions while low velocity impact produces central parenchymal and bronchial disruption [5]

A series of chest X-rays taken over several days can be used to differentiate traumatic pulmonary pseudocysts from other kinds of cystic or cavitary lesions [6]. The lesions are reported to resolve spontaneously over a period of one to six months [7]. Other differential diagnoses include non-trauma related aetiologies such as: blebs, bullae, congenital cysts, coccidiomycosis, tuberculosis, hydatid disease, cavitating bronchial carcinoma, pulmonary sequestration, lung abscess and pneumonia. Absence of clinical signs such as cough, fever, expectoration, haemoptysis and breathlessness may be useful to exclude

infective processes, however in cases such as this with concurrent pneumothorax clinical signs may not be conclusive. Negative sputum culture and ZN staining, negative Mantoux test, negative microbiology on broncho-alveolar lavage and cytology from bronchoscopy may be relevant adjunct investigations. The CT appearance of single or multiple thin-walled cystic lesions with air space consolidation of the surrounding lung parenchyma after trauma is diagnostic [8]. Lesions are benign and conservative management is sufficient unless complications arise. Conservative management is recommended as long as evidence of a decrease in size of the lesion occurs within six weeks after trauma in adults and 3-4 months in children. The use of antibiotics is controversial. Evidence of prophylactic value is lacking [9]. Occasionally pseudocysts may rupture and cause a secondary

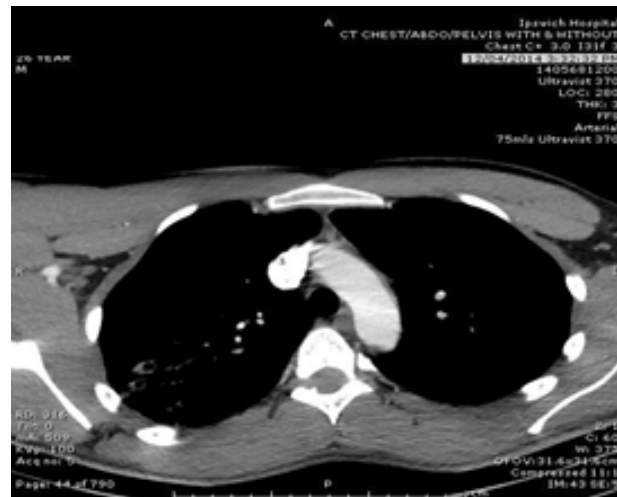


Figure 1: CT Chest.

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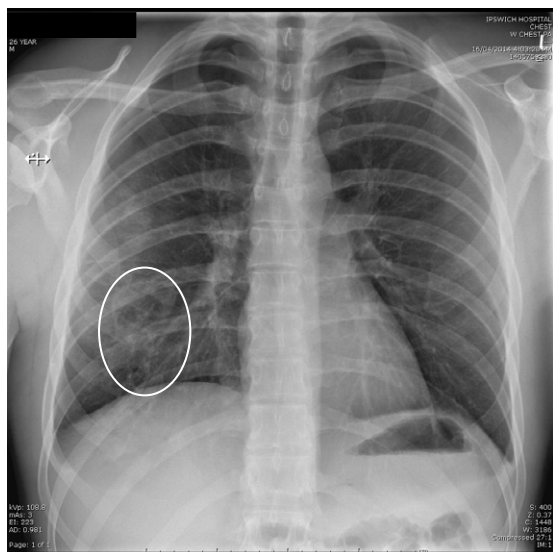


Figure 2: Chest X-ray.

pneumothorax requiring thoracostomy. The indications for diagnostic and therapeutic bronchoscopy are endobronchial bleeding, thick sputum, large air leak, mediastinal emphysema and lobar collapse [10]. The approach to an infected pseudocyst is similar to that for a lung abscess. If an infected pseudocyst is larger than 2 cm, or there are signs of sepsis after 72 hours of antibiotics, the pseudocyst may be drained percutaneously.

Conclusion

Traumatic pulmonary pseudocysts while rarely reported in the

literature are noted by medical imaging staff more often than the literature suggests, particularly after blunt trauma in younger patients. They are generally self-limiting and benign, diagnosed by exclusion of other conditions which may present with similar radiological appearances. Although rare, recognizing this condition will prevent unnecessary investigations and ensure adequate follow-up to exclude and treat potential complications.

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