# DISORDERS OF THE PLEURA Pneumothorax

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Pneumothorax is the presence of air outside the lung, within the pleural space. It must be distinguished from bullae or air cysts within the lung. Bullae can be the cause of an air leak from the lung and can therefore coexist with pneumothorax. Spontaneous pneumothorax occurs when the visceral pleura ruptures without an external traumatic or iatrogenic cause. Cases are divided into primary spontaneous pneumo thorax (PSP) and secondary spontaneous pneumothorax (SSP). Pneumothorax can also occur following trauma or iatrogenic injury such as insertion of a central line. Tension pneumo thorax is when (independent of aetiology) there is a build-up of positiv e pressure within the hemithorax, to the extent that the lung is completely collapsed, the diaphragm is flattened, the mediastinum is distorted and, eventually , the venous return to the heart is compromised. Surgical emphysema is the pr esence of air in the tissues. It requires a breach of an air-containing viscus in communica tion with soft tissues, and the generation of positive pressure to push the air along tissue planes. The most serious cause is Sven Ivar Seldinger , 1921–1998, Swedish radiologist, introduced the Seldinger technique to obtain safe access to blood vessels and other hollow organs. also occur with asthma or barotrauma from positive-pressure ventilation. A poorly managed chest drain, with intermittent build-up of pressure, allows air to track into the chest wall thr ough the point where the drain breaches the parietal pleura. Primary spontaneous pneumothorax This is a common condition characteristically seen in young people from their mid-teens to late twenties. About 75% of cases are in young men, who tend to be tall and have a family history of the condition. It is due to leaks from small blebs, vesicles or bullae, which may become pedunculated, typically at the apex of the upper lobe or on the upper border of the lower or middle lobes. Secondary spontaneous pneumothorax This occurs when the visceral pleura leaks as part of an underlying lung disease; any disease that involves the pleura may cause pneumothorax, including tuberculosis, any cavitat - ing lung disease and necrosing tumours. As such it tends to occur in older patients, often with a history of underlying lung disease such as emphysema. The pneumothorax may be less well tolerated. The risk of recurr ent pneumothorax is increased after the first episode. The best estimates of recurrence rates are: /uni25CF of patients who experience a first event, only about one- third experience recurrence; /uni25CF of those who have a second episode, about one-half go on to experience a third episode; /uni25CF those who have had three episodes will probably go on to have repeated recurrences. Current recommendations from the BTS are that, in cases of persistent air leak following drain insertion or failure of the lung to re-expand, an early (3–5 days) thoracic surgical opinion should be sought. Summary box 60.1 Indications for surgical intervention for pneumothorax include: /uni25CF - /uni25CF /uni25CF /uni25CF - /uni25CF /uni25CF Current recommendations ( Figure 60.7 ) focus on the use of small bore (10–14 /uni00A0 Fr) chest drains, usually of a Seldinger - type, inserted ideally under ultrasound guidance. However, knowledge of the role of the ‘surgical’ chest drain and how to insert it safely is still required.

Normal Second ipsilateral pneumothorax First contralateral pneumothorax Bilateral spontaneous pneumothorax Pneumothorax fails to settle despite chest drainage Spontaneous haemothorax: professions at risk (e.g. pilots, divers) Pregnancy

Spontaneous pneumothorax If bilateral/haemodynamically unstable proceed to chest drain signi /f_i cant smoking history NO Primary Evidence of underlying pneumothorax lung disease on exam Aspirate Size >2 cm YES* 16–18 G cannula and/or Aspirate <2.5 L breathless NO Success (<2 cm and breathing improved) YES Consider discharge review in OPD in 2–4 weeks *In some patients with a large pneumothorax but minimal symptoms conservative mangement may be appropriate Figure 60.7 British Thoracic Society guidelines on the management of spontaneous pneumothorax (2010) (adapted from www.bts.org.uk). OPD, /uni00A0 outpatient department.

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