Inserting and managing a chest drain

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An intercostal tube connected to an underwater seal is central to the management of chest disease; however, the management of the pleura and of chest drains can be troublesome, even in experienced hands. The safest site for insertion of a drain (Figure 60.8 the triangle that lies: /uni25CF anterior to the mid-axillary line; /uni25CF above the level of the nipple; /uni25CF below and lateral to the pectoralis major muscle. This will ideally find the fifth space. The technique includes the following. /uni25CF Meticulous attention to sterility throughout. /uni25CF Adequate local anaesthesia to include the pleura. /uni25CF Sharp dissection to cut only the skin. /uni25CF Blunt dissection with artery forceps down through the muscle layers; these should only be the serratus anterior and the intercostals. /uni25CF An oblique tract, so that the skin incision and the hole in the parietal pleura do not overlie each other and the drain is in a short tunnel, which reduces the chance of entraining air. /uni25CF A drain for pneumothorax and haemothorax should aim towards the apex of the lung. A drain for pleural e ff usion or empyema should be nearer the base. The drain should pass over the upper edge of the rib to avoid the neurovas - cular bundle that lies beneath the rib.) is in /uni25CF The retaining stitch should be secure but should not oblit - erate the drain. /uni25CF A vertical mattress suture is inserted for later wound clo - sure. This is vital for pneumothorax management but should be omitted if the drain is for empyema (provided there is adherence of the pleura) because that tract should lie open. /uni25CF Connect the drain to an underwater seal device which functions as a one-way valve. /uni25CF After completion, check that the drain has achieved its objective by taking a chest radiograph. It is preferable not to apply suction to the drain or clamp it. The danger is that the clamp may be applied for trans - port and forgotten. Dangers of disconnection and siphoning are small or best averted in other ways apart from clamping.

Age >50 and YES Secondary pneumothorax or x-ray? YES

> 2 cm or breathless NO Aspirate YES Size 16–18 G cannula 1–2 cm NO Aspirate <2.5 L NO Success YES NO (size now <1 cm) Admit Chest drain High- /f_l ow oxygen size 8–14 Fr (unless suspected oxygen sensitive) Admit Observe for 24 hours

(a)) (c) (d) (b A bubbling drain should (almost) never be clamped. Remove the drain when it no longer has a function. Summary box 60.2 Suction on a pleural tube /uni25CF /uni25CF /uni25CF

Triangle of ‘safety’ Mid-axillary line Figure 60.8 Insertion of chest drain: (a) triangle of safety; (b) pleura; (d) suture placement; (e) gauging the distance of insertion; central trochar and positioning of drain; (h) underwater seal chest drain bottle. Be aware! Inserting the drain, and not the suction, is the life- saving manoeuvre If the lung is reluctant to expand, the suction deviates the mediastinum If the lung is fragile, it may worsen an air leak

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