Pleural catheter placement

For ventriculopleural shunts, syringopleural shunts...

In addition to the open technique, a trocar method (using the same trocar used for peritoneal catheters, ▶ for introducing the pleural catheter has been described.

✖ Use under advisement in age ≤ 7 years due to reduced surface area for resorption of CSF which may result in high pleural fluid levels.

A 3 cm horizontal incision is made just below the level of the breast either in the midclavicular line or in the anterior axillary line. Divide the subcutaneous tissue, deep fascia, and pectoralis muscle. The external and internal intercostal muscles are divided along the superior margin of the inferior of the two ribs exposed (to avoid the neurovascular bundle running along the inferior margin of each rib). A self-retaining retractor between the ribs aids the exposure. The parietal pleura is visualized with the visceral pleura sliding underneath with each respiration. The pleura is not opened until the catheter is brought out subcutaneously at this incision. Have the anesthesiologist hold respirations, and nick the parietal pleura (or use a blunt-tip hemostat to pop through) to admit the catheter. Allow the lung to drop away and insert 20–40 cm of tubing into the pleural cavity. If the pleural opening is lax around the catheter, it can be snugged with a 4–0 absorbable suture. Have the anesthesiologist provide a Valsalva maneuver before cinching down the pleural suture, and again before closing the deep muscle layer. A chest tube is usually not required. A maneuver that may sometimes be helpful is to place a red-rubber catheter next to the shunt tube at the same time (to permit the escape of air from the pleural space). Begin closing, but prior to placing the last deep suture, have the anesthesiologist perform a Valsalva maneuver and allow air to escape through the red-rubber catheter (you can place the end in saline to see the bubbles). Once the bubbles stop, pull the red-rubber catheter and close the last stitch. If the bubbles don’t stop, there is an air leak in the visceral pleura and a pigtail catheter or a chest tube connected to a Pleur-evac® should be used.