

Clinical-Medical Image

Inadvertent Arterial Placement of Companion Central Venous Line Placement: Seldinger's Technique Revisited

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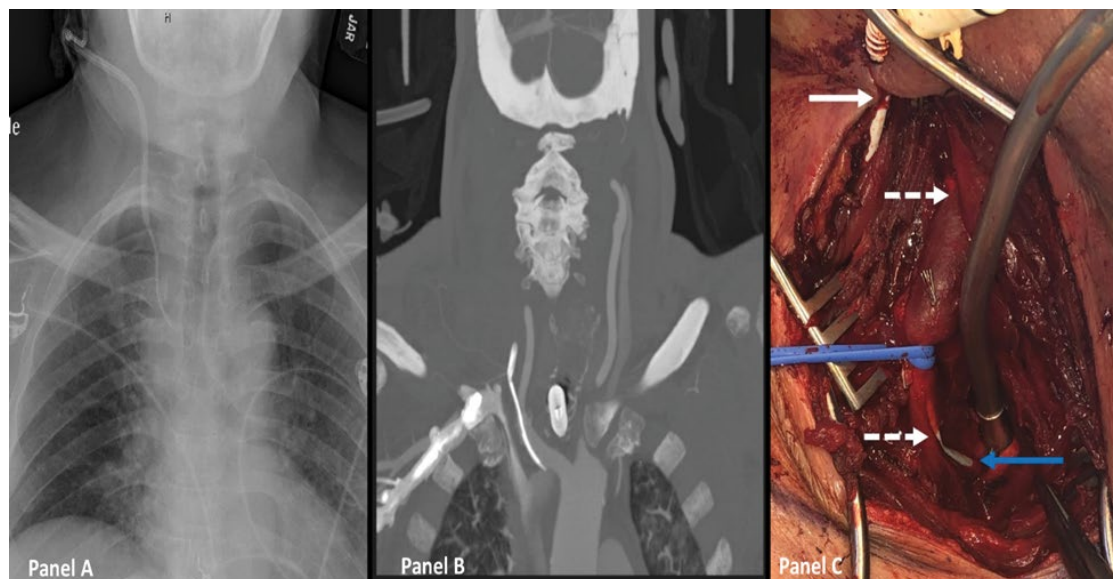


Figure 1: Radiological imaging and intraoperative image of a patient who underwent an inadvertent arterial annulation during companion CVC placement.

Clinical Image

Addition of a companion triple lumen Central Venous Catheter (CVC) through the Percutaneous Sheath Introducer (PSI) allows the availability of multiple ports for drug infusion. Here we present radiological imaging and intraoperative image of a patient who underwent an inadvertent arterial annulation during companion CVC placement. The large bore PSI was placed in the right internal jugular vein under routine ultrasound guidance. The companion CVC was then passed through the hub of the PSI hemostatic valve/sheath assembly per package insert instructions. Standard radiographic confirmation was obtained with a portable chest X-ray (Image Panel A). Subsequent use of the catheter raised concern for catheter malposition into the arterial system due to high line pressures. CT confirmation demonstrated the PSI was in the correct position but the tip of the CVC traversed the internal jugular vein into an adjacent branch of the brachiocephalic artery (Image Panel B). Similar findings were seen during the subsequent vascular surgical repair (Image Panel C, White arrows show the passage of the PSI in the internal Jugular vein and blue arrow shows the companion catheter extending out of the back wall of the jugular vein and entering into the origin of the Brachiocephalic artery). As illustrated in this case reliance on X-ray alone for positional confirmation may be suboptimal. A high index of suspicion combined with transducing the pressure from these catheter ports and obtaining blood gas sample can help in differentiating between venous and arterial placement. A subsequent CT scan can help confirm the suspicion of arterial annulation. Leaving the arterial catheter in place with prompt surgical repair carries less morbidity and mortality than catheter removal with pressure. Additionally, we recommend that advancement of TLC through a PSI should be performed over a guide wire using Seldinger's technique (Figure 1).

Keywords: Preoperative; Chlorhexidine; Mouthwash; Postoperative pneumonia; Cardiac surgery

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