Abstract:

Some patients with intestinal failure, who are dependent on total parenteral nutrition for long periods, suffer from a lack of suitable conventional venous access points, including axillary, external jugular, internal jugular, subclavian, saphenous, and the brachio-cephalic and femoral veins, due to their occlusion. Furthermore, extensive central venous stenosis and/or thrombosis of the superior and inferior vena cava may preclude further catheterization, so uncommon routes must be used, which can be challenging. In such patients, the azygos vein via the intercostal vein is a viable candidate. Thoracotomy-assisted, thoracoscopy-assisted, and cut-down procedures are currently suggested such access. We found that ultrasound-guided percutaneous puncture method was a safe and minimally invasive approach and successfully placed two central venous lines in preparation for small bowel transplantation via two different intercostal veins (ninth and tenth). Although the lung was actually located just below the target veins, an ultrasound provided augmented and clear vision, which contributed to the safe performance of the procedure without the need for invasive surgical intervention, such as thoracotomy, thoracoscopy, or rib resection using the cut-down technique. Furthermore, constant positive-pressure ventilation during vein puncture under general anesthesia also helps avoid venous collapse. Despite carrying a slight risk of light injury to the lung, artery, and nerve along with the vein compared to other procedures, we believe that ultrasound-guided puncture under general anesthesia is feasible as a minimally invasive method.

Reference: