

Peripheral venous access in the obese patient

Sir,

Intravenous (IV) cannulation, a common procedure in anaesthetic practice, can at times be difficult and frustrating. We report a 46-year-old male, 109 kg, who was scheduled for repair of incisional hernia (related to previous right nephrolithotomy via a subcostal incision) in whom establishing peripheral IV access proved difficult. The patient had undergone several previous surgeries for genitourinary and kidney-related complaints. No peripheral veins were visible or palpable in the extremities. Venous cut-downs had been done in both lower limbs during previous surgeries. The right cephalic vein was visible in the delto-pectoral groove and was successfully cannulated. After establishing standard monitoring, anaesthesia was induced with fentanyl and thiopentone. Tracheal intubation was facilitated with rocuronium. The patient was positioned in left lateral position for surgery. This resulted in positional slowing of the crystalloid infusion rate. The operation table was tilted $\approx 20^\circ$ head-down (to make neck veins prominent), and the right external jugular vein was cannulated. The surgery lasted 3 h and the recovery and post-operative course were uneventful.

Predictive factors for difficult venous access include obesity, chronic illness, hypovolaemia, history of IV drug abuse, vasculopathy,^[1-3] oedema, chemotherapy, diabetes and multiple prior hospitalizations.^[4] Obtaining IV access can be tedious and time-consuming procedure in the obese. The veins on the dorsum of the hand and the deep brachial vein may be neither visible nor palpable in the obese patient. However, veins on the volar aspect of the wrist may be used for venous cannulation. The external jugular vein is another option but may be difficult to find in the short, thick neck of the obese patient. Placing the obese patient in Trendelenburg position (to make the vein prominent) may not be tolerated because of respiratory embarrassment.

The cephalic vein crosses the surface of the anatomical snuff box, superficial to the radial styloid. This vein is referred to as the 'houseman's friend' because of its consistent location at this site and its straight course



Figure 1: The cephalic vein (in the deltopectoral groove) and the external jugular vein cannulated (18 gauge cannula) in an obese patient

that allows placement of a large bore IV cannula.^[5] It communicates with the basilic vein via the median cubital vein at the elbow. Superiorly, the cephalic vein passes between the deltoid and the pectoralis major muscles before it empties into the axillary vein. The cephalic vein is often visible through the skin in the deltopectoral groove and is a potential site for venous access in the obese [Figure 1]. This vein is worth looking for in an obese patient with a difficult peripheral venous access. Loukas *et al.*,^[6] in a cadaveric study, found that the cephalic vein was found emerging superficially in the lateral portion of the deltopectoral triangle in 80% of specimens. In the remaining 20% cases, the cephalic vein was located deep to the deltopectoral fascia and fat. The length of the cephalic vein within the deltopectoral triangle ranged from 3.5 to 8.2 cm (mean 4.8 ± 0.7 cm). The morphometric analysis revealed a mean cephalic vein diameter of 0.8 ± 0.1 cm (range 0.1–1.2 cm).^[6] Ultrasound-guided peripheral venous access is also a valuable aid in patients with a known difficult venous access. Nevertheless, knowledge of the potential sites for IV access can improve the success rate for IV line placement in the obese.

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Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/0019-5049.167482

How to cite this article: Prakash S, Arora G, Shobha Rani HG. Peripheral venous access in the obese patient. *Indian J Anaesth* 2015;59:692-3.