Perforation of left innominate vein during dialysis catheter placement

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DESCRIPTION

A 67-year-old man presented with non-functioning left brachiocephalic arteriovenous fistula (AVF). The patient was referred for left internal jugular vein (IJV) dialysis catheter placement while awaiting right AVF creation. Ultrasound-guided left IJV puncture was successfully obtained,¹ and a guide wire parked in the inferior vena cava through the access site. A 28 cm palindrome was placed, in what we thought was the superior vena cava, after tunnelling through the anterior chest wall. At the end of the procedure, no blood could be aspirated through either port of the palindrome. Contrast injected through the palindrome extravasated into the pleural cavity (figure 1). CT scan confirmed perforation of the mid innominate vein.

Venogram of the left innominate vein was obtained through an 8 Fr sheath, placed in the left cephalic vein to ascertain the site of perforation. After securing the site with an 8×4 mm balloon, the dialysis catheter was removed. A covered stent was then placed over the site of perforation through another 9 Fr sheath placed in the left groin. Completion venogram showed no active extravasation of contrast (figure 2). Another palindrome was placed with smooth flow of blood through both the ports at the end of the procedure.

Figure 2 Venogram post-stenting showing satisfactory position of stent with no active extravasation of contrast.

After an uneventful 24 h of observation in the wards, dialysis was started through the catheter and carried on successfully until the AVF creation.

Apart from perforation, other complications encountered during dialysis catheter placement are arterial puncture, haematoma, pneumothorax, malposition, central venous stenosis, thrombosis, infection and phrenic nerve injury.^{2 3}

Figure 1 Initial injection of contrast through the perm catheter showing extravasation of contrast into the pleural cavity, arrows in (A). Venogram obtained from a catheter through the left arm sheath showing the permcath perforating through the mid innominate vein, arrow in (B).

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Learning points

- ▶ Ultrasound-guided venous access decreases the chance of arterial perforation during venous access.
- ▶ The route taken by the dialysis catheter is a potential indicator of malposition and perforation during dialysis catheter placement. However, the most important indicator is no flow of blood from the ports of the catheter.
- ▶ Haemorrhage in perforations at the level of the base of the neck can be controlled by manual compression. When deep down, balloon-assisted haemostasis and stenting are possible options.

Competing interests None.

Patient consent Obtained.

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