

Images in paediatrics

A knotted problem

An 8-year-old boy with cystic fibrosis was planned for a course of home intravenous antibiotics. A peripherally inserted central catheter (PICC) was inserted from his left wrist on the third attempt. By the third day, he had developed a swollen red forearm. Clinically, a small non-tender nodule was palpable 1 cm proximal to a healthy insertion site. The line could not be removed with gentle traction. The line was assessed by x-ray, which showed knotting of the PICC line in the region of the palpable nodule (figure 1). Under general anaesthesia, venotomy was performed to remove the knotted long line (figure 2) and a portacath inserted. The knot was intraluminal.

Knotting in PICC lines is an important cause of difficult PICC line removal. Failure to recognise this and forceful removal can result in venous trauma, line fracture and embolisation.



Figure 1 X-ray of the left hand and forearm showing the knotted peripherally inserted central catheter line.

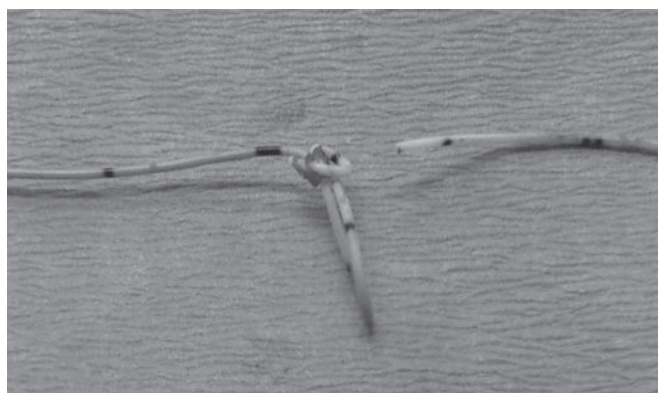


Figure 2 Peripherally inserted central catheter line removed in theatre with the knot; line was divided at venotomy to facilitate removal. The betadine stained (yellow) part was the external section.

Extraluminal knotting in PICC lines is frequently reported.^{1 2} In such cases, the inserting cannula probably becomes extraluminal during the procedure. Further line being fed down the cannula coils extraluminally and knots.² Our patient however, had an intraluminal knot, which is rarer. It is probable that the inserting cannula remained intraluminal, but resistance to proximal advancement of the catheter within the vein led to the local coiling of the line within the vein leading to knotting. Finally, it is important to check the position of the line with x-rays, especially in the event of difficulty during insertion. This will confirm correct insertion of line and diagnose any knotting immediately.

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