A technique to secure a knot in a confined space

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BACKGROUND

Securing a knot in confined or hard-to-reach spaces remains a challenge in surgery.^{1,2} This is further exacerbated in neonatal patients, particularly when the assistant is unable to visualise the process.³ A simple technique is described that is most useful during open insertion of long-term central venous catheters, and prevents internal jugular vein haemorrhage from the lower entry site.^{4,5}

TECHNIQUE

Pass the braided absorbable suture around the vein. Separate the two suture strands into two equal long strands; a long loop strand and a post strand. Make a single overhand throw with the post strand and maintain this throw, between the index finger and thumb. Pass the loop strand over both strands in front of the previous throw again. These throws remain loose and distant from each other (Fig 1). Gently stretch the vein cranially under moderate tension with atraumatic vascular forceps by the other hand. Gently pull the long strand (loop) to 'set up' the knot by taking the excess slack out of the loop. Next, pull the knot snugly over the vein into the desired position (Fig 2; Video 1). At this point, the vein can be released. This controls back-bleeding from the vein until at least two further two-handed throws are made.

Figure 1 Initial configuration of the knot

Figure 2 Configuration of the knot over the vessel

Video 1 Example of technique

DISCUSSION

This simple technique provides temporary knot security over the vein until the full knot is executed.^{1,2} The authors have been successfully using this technique to reduce the risk of intraoperative bleeding in open central venous catheter procedures and other confined spaces for over a decade.³⁻⁵

References

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