A simple technique to avoid suturing in the drain during total knee arthroplasty

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Background
Closure of the arthrotomy following total knee arthroplasty is not without risk. Most orthopaedic surgeons are aware of cases when a drain has been caught by a suture during closure so that it cannot be removed, resulting in return to theatre, an intra-articular foreign body or infection.

Technique
Before closing the arthrotomy, pass the drain through the soft tissues lateral to the proximal end of the wound, leaving the distal end long (Fig 1). Close the arthrotomy from proximal to distal, leaving the distal end protruding (Fig 2). As you reach the end of the wound where the drain exits the arthrotomy, withdraw the drain to length. As the drain withdraws easily, you can be sure that it has not been sutured into the wound. If it cannot be removed at this stage, the arthrotomy is easily explored.

Discussion
This simple technique reduces the chances and problems associated with a drain that cannot be removed after total knee arthroplasty. Although we acknowledge that this technique may not be novel, we would like to draw attention to its usefulness and feel it can be widely used in other procedures that have difficult closures.

Use of Johan forceps as endoloop pushers for laparoscopic appendicectomy

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Background
Laparoscopic appendicectomy is one of the most common surgical procedures and is often performed out of hours. Securing the base of the appendix may be achieved either by stapling or by use of a pre-formed endoloop. Stapling is an expensive option and mandates the use of a 12mm trocar. Pre-formed single-use endoloops with single-use (often integral) knot pushers may not always be accessible. We present an inexpensive alternative to the pre-formed endoloop and a technique to safely push the knot using universally available 5mm laparoscopic forceps.

Technique
An endoloop is created extracorporeally using a Roeder knot in a standard fashion. The standing end is kept long and passed through

Figure 1 Clinical photograph showing the drain passing through the soft tissues lateral to the proximal end of the wound, leaving the distal end long

Figure 2 Clinical photograph demonstrating the long distal drain still protruding after closure of the arthrotomy

Figure 1 Long end of endoloop passed through the upper jaw of Johan forceps
the fenestration of the mobile jaw of a Johan forceps (Fig 1). The jaws of the forceps are then loosely approximated behind the knot to act as the knot pusher (Fig 2) and this ensures smooth delivery of the ligature (Fig 3). Care is needed to ensure the jaws are not closed too tightly as the serrations may shred the suture material. We have found the optimal suture to be a size 1 Vicryl® suture (Ethicon Inc, Somerville, NJ, US), which balances knot security with thread robustness and strength. Monofilaments are an alternative.

The advantage of passing the standing end through the fenestration as shown is that the knot is always easily retrieved should the forceps and standing end become misaligned during the pushing process. The technique is equally applicable to loops created extracorporeally and used in a lasso fashion for pedicle ligation (Fig 4) and for sutures passed intracorporeally but tied extracorporeally. In the latter case, greater care is required to define the standing end during the knot tying process.

DISCUSSION
The self-created endoloops are reliable, safe and cost effective. The base of the appendix can be secured safely without the need for expensive commercial endoloops or a knot pusher, thereby significantly reducing costs. This technique is also adaptable for the creation of extracorporeal knots for ligation in continuity as might be desired for tying off an appendicular artery. Our technique has the added benefits of secure knot placement at the correct anatomical site with the help of a Johan forceps, which has not been described previously.

References
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A simple way to allow continuous ventilation during tracheostomy
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During open tracheostomy, formation of the tracheal window may puncture the endotracheal tube cuff inadvertently. This causes loss of