

Intraoperative loss of surgical needle with 8–0 nylon: radiographic findings

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DESCRIPTION

Losing surgical needles during surgery is rare and there are no clear guidelines for managing such a loss. Although it is considered ideal to search until a lost needle is found, the operation usually proceeds at the discretion of the operating surgeon. The small needles (≤ 5) mm sometimes used during brain surgery are very difficult to locate (eg, needles that are used for 8–0, 9–0 and 10–0 nylon) once lost. A study of radiographic findings of lost surgical needles of various sizes found that the smallest that was detectable by most observers was 17 mm.¹

Medina *et al* stated that it is important to implement preventive measures against losing needles and that appropriate and clear communication between team members is important.²

The protocol in our hospital is that surgical needles must be stabbed into a sponge before moving the needle and sponge from the surgical field to the instrument tray. However, compliance with this protocol did not prevent loss of a needle in the present case.

We, here, present loss of a 4 mm stainless steel surgical needle with 8–0 nylon in a 68-year-old woman during a trapping with high-flow bypass procedure for subarachnoid haemorrhage caused by internal carotid artery dissection. When a needle count revealed that a needle had been lost, the procedure was stopped while all the staff

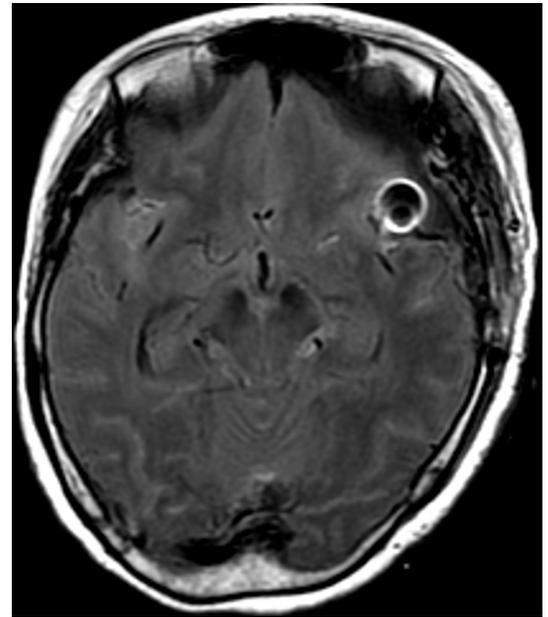


Figure 2 A metal artefact was seen on MRI.

searched the surroundings. Additionally, the video of the procedure was played to determine when the needle had been lost. Despite these measures, the lost needle was not located.

In retrospect, non-contrast CT performed immediately after surgery showed the needle; however, it was not detected at the time (figure 1). It was concluded that it was unlikely that it was still in the patient's head. MRI performed 1-day



Figure 1 A surgical needle (arrow) was seen on non-contrast CT.

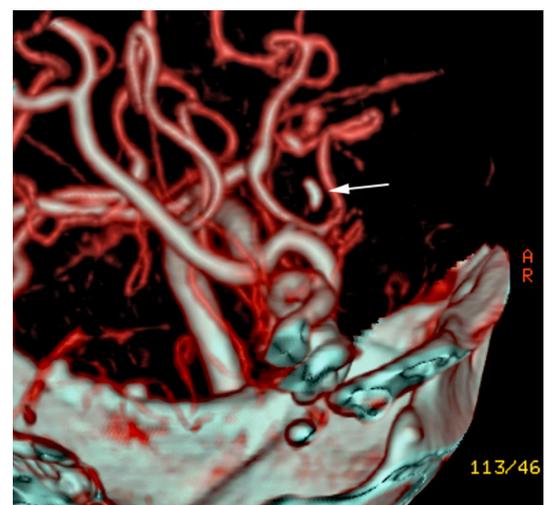


Figure 3 The contrast-enhanced CT image on volume rendering showed the positional relationship between the surgical needle (arrow) and the surrounding tissue.



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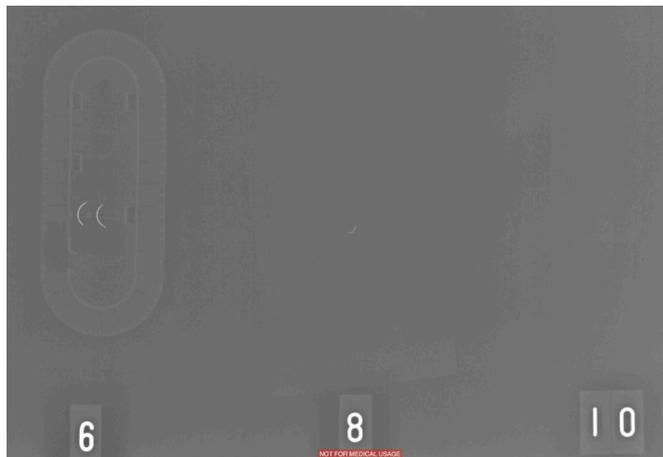


Figure 4 Surgical needles with 6–0, 8–0 and 10–0 nylon were taken on plain radiography.

postoperatively clearly showed a metal artefact ([figure 2](#)). In retrospect, taking a three-dimensional CT before performing an MRI would have been preferable. However, we considered it unlikely that the needle had moved as a result of the MRI examination. Furthermore, we were able to more accurately determine the location of the needle with contrast-enhanced CT ([figure 3](#)). After thoroughly explaining the situation to the patient and her family and obtaining consent, we reoperated and successfully removed the needle.

It is difficult to identify surgical needles with 10–0 nylon in a plain radiograph, whereas those with 6–0 nylon are clearly detectable ([figure 4](#)).

Sharma *et al* have reported that C-arm is more useful for detecting lost needles than a mobile X-ray machine.³

Unfortunately, the operation room in our hospital is not equipped with a C-arm or CT facility.

A three-dimensional CT is able to reveal surgical needles with 10–0 nylon and is therefore recommended for detecting surgical needles with 8–0 or 10–0 nylon that have not been found intra-operatively. Contrast-enhanced CT should be performed when planning their removal because it enables determination of the relationships between the needle and adjacent anatomical structures.

Learning points

- ▶ When surgical needles of <5 mm are lost during a surgical procedure, discovery of the lost needles could be very difficult.
- ▶ Establishment of a protocol for preventing loss of needles and a strategy for managing recovery of lost needles is important.
- ▶ Three-dimensional CT is useful for locating lost needles.

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