

A retained catheter fragment in radial artery caused by accidental catheter transection during arterial catheter removal

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To the Editor:

We report an iatrogenic complication of accidental transection of the arterial catheter and the subsequent surgical removal of its remnant.

A 69-year-old man underwent a laparoscopic appendectomy under general anesthesia. While removing the arterial catheter in the recovery room, the nurse used scissors to cut the plaster to separate the intravenous catheter and the arterial catheter. Upon withdrawal of the cannula while pressure was applied to the insertion site, it was noted that a long portion of the distal cannula was missing. We suspected that it might be lost in the vessel. We performed a C-arm and portable X-ray, but neither could locate the retained catheter. After consultation with the radiologist, 7.5 MHz high-frequency ultrasonography

(Prosound@7; Aloka, Japan) imaging was performed, which revealed a retained fragment located completely within the radial artery (Fig. 1a). We consulted the plastic surgeon, and he advised surgical removal the next day. The patient and his family were informed of the incident and consented to the procedure. The next day, three-dimensional (3D) computed tomography (CT) (Aquilion 64 TSX-101A/WCT-500-135; Toshiba, Japan) was performed and revealed no distal migration compared to the ultrasound imaging on the previous day (Fig. 1b). The patient underwent surgical exploration, and the retained catheter fragment was removed by microforceps. The patient recovered uneventfully with no residual sequelae.

Several suspected causes for breakdown of the catheter sheath have been reported. In the case reported by Lee et al. [1], during repeated arterial catheterization attempts, the reinserted needle could have damaged the catheter sheath. The sheath can be damaged accidentally by scissors used to cut the tape, by the stitch cutter that cuts the securing stitch, or by the surgical needle while sewing the catheter to the skin. Ho et al [2] postulated that the arterial cannula could have sheared off as a result of repeated movement of the wrist postoperatively during recovery from anesthesia and recommended that a splint to immobilize the wrist should be applied under such circumstances. In our case, there is high suspicion that the catheter was severed accidentally by scissors. To prevent catheter sheath damage when removing the catheter, extreme caution is advised while one person immobilizes the patient's hand and assists the other person. In addition, if possible, the use of sharp tools such as scissors should be avoided.

In conclusion, we must be careful when removing an arterial catheter to prevent catheter transection, and its integrity should be examined. Ultrasonography and 3D CT are useful tools to find an intraarterial catheter remnant.

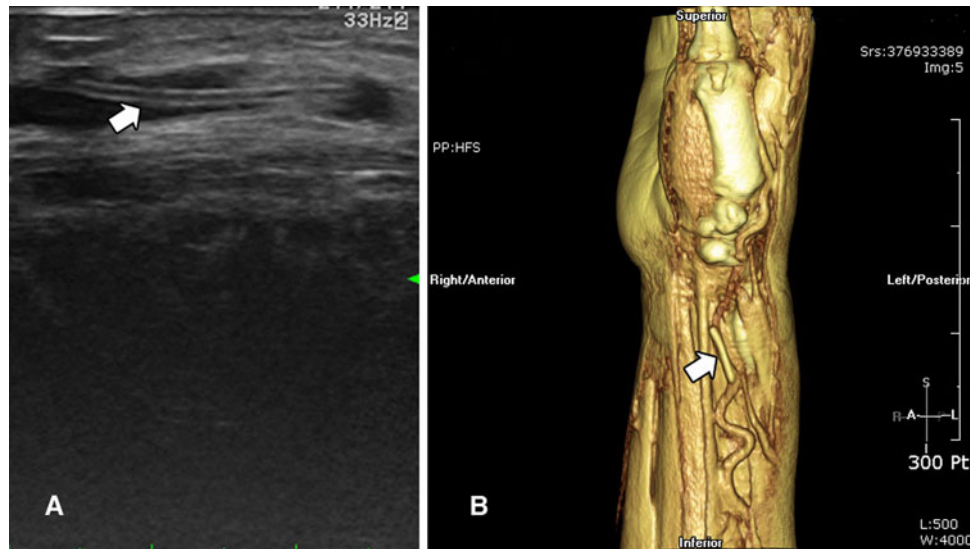
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Fig. 1 Ultrasound longitudinal scan image (a) and 3D CT scan image (b) of retained catheter remnant in radial artery. *Arrow* show remnant catheter fragment



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