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Letters to the Editor

Preventing the Guidewire Escape

To the Editor:

We read with interest the article by Gulel et al. who presented a case of a missed guidewire complicated by pulmonary and systemic embolism from thrombi that formed on the wire surface.[1] We have previously reported on missing the guidewire during central venous catheterization and described several precautions and technical modifications to prevent the guidewire escape.[2] We believe that this complication is underreported as evident from the small number of published cases compared to the incidence in our practice. From our experience, there are 2 major sources for this complication. One is related to the operator's attentiveness and the second is due to technical factors including wire breakage, kinking, knotting, or insertion in the wrong tract.

The physician's experience, active supervision, and a quiet environment to minimize distraction are key prerequisites to avoid this complication. The operator must maintain an adequate guidewire length outside the patient sufficiently exceeding the length of the catheter and dilator. The guidewire's tip must be held at all times. After insertion and dilation, a hemostat can be clamped to its end to prevent its escape. The operator must confirm the guidewire presence in the set after procedure completion. A postinsertion x-ray should be read by the radiologist and the operator, as often a second reader might not notice or the catheter might obscure the vision of the guidewire. This is especially important when catheters are placed intraoperatively because a routine postoperative x-ray is not usually focused on central venous catheterization alone.

We also suggested several technical modifications in the guidewire. The guidewire's end (not entering the patient) can be manufactured in a way in which it is coiled several times instead of being straight; this will decrease chances of its accidental slippage through the needle, dilator, or catheter. This coiled end should be kept malleable enough to allow sliding of the needle, catheter, and dilator over it. Increasing the guidewire length (to 60 cm instead of 50 cm) and placing 2 landmarks over the wire at 18 cm and 20 cm (for right- and left-sided approaches, respectively) and avoiding advancing the guidewire beyond them, will ensure that a longer portion stays outside of the patient's body. We recommend that these modifications be tested and made commercially available if found successful. The importance of this complication and the relative ease of its prevention warrant additional awareness of its causes and tools for prevention.

Hesham R. Omar, MD
hesham_omar2003@yahoo.com

Devanand Mangar, MD
Enrico M. Camporesi, MD

Disclosures

The authors have no conflicts of interest to disclose.

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