Broken guidewire during central venous catheterisation

We report the unusual complication of complete breakage of a guidewire during attempted central venous catheterisation.

A 78-year-old female patient was admitted to the intensive care unit after an episode of haematemesis. She had alcoholic liver disease and sepsis. The patient was haemodynamically unstable and therefore was intubated and mechanically ventilated and inotropic support was administered.

On admission, she had a right-sided internal jugular vein (IJV) catheter *in situ*. On the second day, the catheter had migrated, as the suture holding it became loose. It was decided to insert a new catheter into the left IJV. Due to the degree of inotropic support, it was decided to continue to infuse through the right IJV line during resiting.

With aseptic precautions and ultrasound guidance, the left IJV was punctured at the first attempt. A Seldinger-type Arrow-Howes™ quad-lumen central venous catheterisation set with blue Flexitip was used. The catheter was 16 cm long and had a spring guidewire, 0.32 inch in diameter and 60 cm in length, with a J-tip.

There was no resistance while inserting the guidewire and dilatation was performed smoothly. The catheter was railroaded over the guidewire without any difficulty. However, during removal of the guidewire, resistance was encountered, requiring additional force, resulting in the guide wire being elongated and misshapen on withdrawal (**Figure 1**). However, blood could be aspirated from all the ports of the catheter.

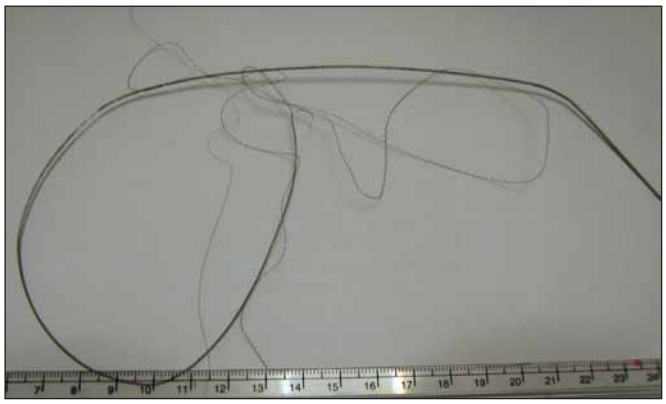

Figure 1 Damaged guidewire without catheter.

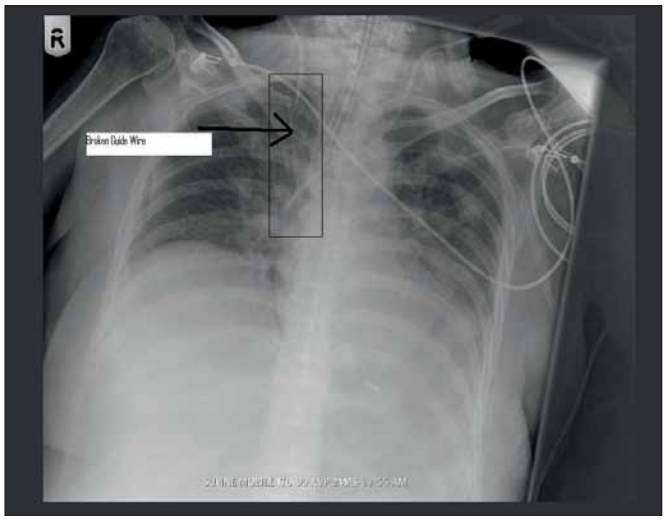

Figure 2 A section of broken guide wire (black arrow).

It was suspected that part of the guidewire may have been left in the patient and an X-ray was requested (**Figure 2**). A section of guidewire was identified in the right side of the chest. The catheter appeared to be in the correct position.

A CT scan was performed on the radiologist's advice which showed part of the guidewire in the right atrium. The patient was transferred to another hospital, where an interventional radiologist removed the guidewire.

Central venous cannulation is a common invasive procedure with known risks and complications, which may be related to needle placement, the guidewire, the dilator or the catheter itself. There are reports of mishap with guidewires like entrapment,[3] breakage[4,8] and guidewire loss.[6] In our case, we hypothesise that the strands of the guidewire might have been damaged, either by the blade during incision, by the needle or during dilatation. There is also a possibility that the guidewire may have been stuck and broken because of the application of excessive force during removal.

Care should be taken during insertion of any guidewire to minimise complications. If resistance is encountered during insertion or removal, additional force should not be applied. If additional force is needed, it may be preferable to pull the guidewire and the catheter together to prevent any further complications. If not, further imaging should be requested to ascertain the problem and guide further management.

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Conflict of interest

None reported.

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