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An Unexpected Case of Lodged Guidewire During Central Venous Catheter Insertion

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Introduction

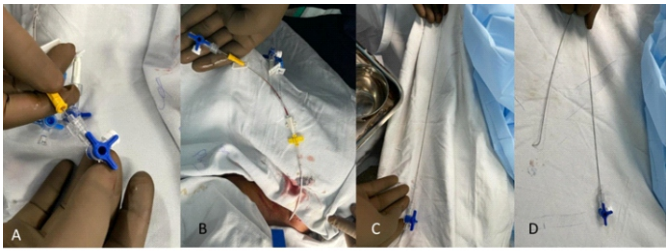
Central venous catheter (CVC) placement is an invasive procedure commonly performed in both paediatric and adult patients [1]. However, improper insertion technique can lead to unanticipated complications, having an incidence of 12-15% [2] and guide-wire-related complications being one of them [3]. Here we have described the unanticipated lodgement of the guidewire in a 3-way stopcock during CVC placement.

Case presentation

We planned for right internal jugular vein CVC insertion under ultrasound guidance using seldinger technique after the induction of general anaesthesia. We secured all three ports of the central venous catheter with three-way stopcocks flushed with normal saline, with the distal most port three-way being open. After the insertion of the introducer needle, the guide wire was inserted and its position was confirmed with ultrasound. During the removal of the guide wire, it got lodged into the distal most port three-way stopcock, moving neither in the forward nor backward direction. Ultimately we detached the three-way stopcock from the distal most port and simultaneously removed the guidewire along with it as a single unit as shown in figures A to D.

Discussion

CVC complications depend upon the anatomical site, whether blind or ultrasound-assisted and the operator's experience. It can be mechanical, infectious or thrombotic. Mechanical complications usually occur at the time of insertion and are mainly operator-dependent [4]. However, infectious or thrombotic complications usually occur later on. The main complications are failure to place the catheter, catheter malposition, arterial puncture, subcutaneous hematoma, hemothorax and cardiac arrest [5]. An unsuccessful insertion attempt is an important predictor of complications [6]. The incidence of mechanical complications has been significantly decreased from 4% to 7% by the real-time use of ultrasound [7]. Guidewire-related complications are one of the immediate complications occurring at the time of CVC placement. Recognition and management of guidewire-associated complications are crucial as they can quickly lead to life-threatening situations. Earlier cases have been reported about guidewire entrapment or lost guidewires [8, 9]. This case also describes one of the guidewire-associated complications, not been reported so far. A stuck guidewire has to be removed very gently as undue force may break the guidewire, further requiring surgical intervention or fluoroscopic guided removal [5]. Here we removed the lodged guidewire with 3 way stop cock as a single unit. So three-way stopcock should not be attached to the CVC distal most port through which the guide wire comes out during CVC insertion.



Series of images showing sequence of central venous catheterisation. Figure A to C showing lodged guidewire in the 3 way stopcock, moving neither in forward nor backward direction during guidewire removal. Ultimately 3 way stopcock was detached from the distal most port and simultaneously removed along with the guidewire as a single unit. Figure D showing lodged 3 way along with the guidewire after its removal.

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Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the Journal. The patient understands that his/her name and initials will not be published, and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

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References

1. Safety Committee of Japanese Society of Anesthesiologists. Practical guide for safe central venous catheterization and management 2017. Journal of Anesthesia 2020; 34:167–86.
2. Zhao S, Wang Z, Zhao Y. Loss of guidewire and its sequelae after central venous catheterization: A case report. Medicine 2019; 98:16513.
3. Khasawneh FA, Smalligan RD. Guidewire-Related Complications during Central Venous Catheter Placement: A Case Report and Review of the Literature. Case Rep Crit Care. 2011; 2011:287261.
4. McGee DC, Gould MK. Preventing complications of central venous catheterization. N Engl J Med 2003; 348:1123.
5. Kornbau C, Lee KC, Hughes GD, Firstenberg MS. Central line complications. Int J Crit Illn Inj Sci. 2015; 5:170-8.
6. Kusminsky RE. Complications of central venous catheterization. J Am Coll Surg. 2007; 204:681–96.
7. Bhutta ST, Culp WC. Evaluation and management of central venous access complications. Tech Vasc Interv Radiol. 2011; 14:217–24.
8. Jalwal GK, Rajagopalan V, Bindra A, Goyal K, Rath GP, Kumar A, et al. Percutaneous retrieval of malpositioned, kinked and unraveled guide wire under fluoroscopic guidance during central venous cannulation. J Anaesthesiol Clin Pharmacol. 2014; 30:582.
9. Vannucci A, Jeffcoat A, Ifune C, Salinas C, Duncan JR, Wall M. Special article: Retained guidewires after intraoperative placement of central venous catheters. Anesth Analg. 2013; 117:102–8

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