Misplacement of tunneled central venous catheter into azygos vein

Central venous catheter (CVC) is commonly used to provide access for hemodialysis (HD) when arteriovenous access is not available. The misplacement of CVC into azygos vein (AV) is a rare but a potential serious complication” Li et al (2019).

Abstract:

BACKGROUND: Central venous catheter (CVC) is commonly used to provide access for hemodialysis (HD) when arteriovenous access is not available. The misplacement of CVC into azygos vein (AV) is a rare but a potential serious complication. Previous reports communicated the opinion that left-sided catheterization predisposed to AV misplacement, but these reports concentrated on peripherally inserted CVCs, placed for indications rather than HD. Unintended AV misplacement of HD catheters (HDCs) has not been well studied. We seek to investigate factors associated with inadvertent AV mis cannulation during HDC placement.

METHODS: We are to present a case of unintentional misplacement of a tunneled HD catheter (tHDC) into the azygos arch from right internal jugular vein (RIJV) despite real-time fluoroscopy guidance. Additionally, we have undertaken a systematic literature search in Pubmed to study the anatomical and other factors related to unintended AV misposition in HD setting.

RESULTS: From 2005 to August 31, 2018, a total of 11 articles containing 16 cases of...
misplacement of HDCs into AV were identified. Of the 17 cases of unintentional AV misposition including ours, the majority of the misguided HDCs (94.1%, 16/17) were tHDCs and only 1 case was related to a temporary (non-tunneled) catheter. Most catheter misplacements (88.2%, 15/17) were performed without real-time radiological guidance. The reported incidence of inadvertent AV cannulation from different institutions varied between 0.6% and 3.8%. Among the 16 misplaced tHDCs, the rates of AV misposition that arose from RIJV and left internal jugular vein (LIJV) insertion are even at 50%.

CONCLUSIONS: Based upon anatomical and case studies, we have found that AV may join posterior aspect of superior vena cava at different directions and levels. Hence, this might explain why AV misplacement might occur whether an HDC is inserted from the LIJV or RIJV approach. By raising the awareness of this potential complication and how we may minimize it, we hope to reduce the future complication of AV misposition.

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