

Case Report

Fractured Intravenous Cannula Mimicking Thrombophlebitis

Dr. Sankalp*¹, Dr Sudesh Kumar¹ and Dr Mohammad Javed Banday¹

¹Dr Ram Manohar Hospital- PGIMER, New Delhi, India

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Abstract: We report a case of a fractured peripheral intravenous cannula (PIVC) segment masquerading as persistent EJV thrombophlebitis in a 45-year-old female.

Keywords: Cannula Mimicking, EJV, Female.

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INTRODUCTION:

Among all the complications associated with use of peripheral intravenous cannula, a retained fragment after cannula removal with possibility of proximal embolism is perhaps most serious. Awareness of this complication would lead to its expeditious management and reduced morbidity.

CASE REPORT:

Mrs R, a known diabetic, hypertensive with past history of stroke had had multiple hospitalisations.

Last episode was for delirium a month back. She presented to us now with persistent cord like swelling over her left neck. The cord like swelling stood out on turning neck to right (Figure 1). Her daughter gave history of cannulation of left sided neck vein with peripheral cannula during last hospitalisation. The family was told that it was thrombophlebitis and would resolve spontaneously. Duplex investigation was sought in view of lack of classical signs of thrombophlebitis which revealed a length of intravenous cannula within left EJV.

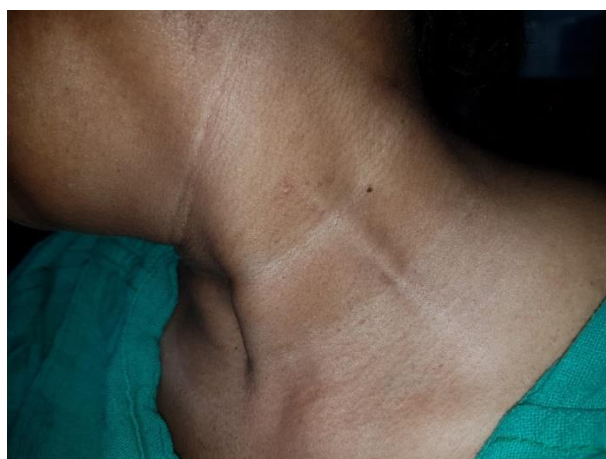


Figure 1. Prominent left EJV on turning head to right side

After counselling, left EJV was explored under local anaesthesia and the broken length of cannula retrieved (Figure 2, 3). EJV was ligated. Patient made an uneventful recovery.



Figure 2. Intraoperative photograph showing PIVC segment (insitu) removal from left EJV



Figure 3. Retrieved PIVC segment

DISCUSSION:

In 1658, Christopher Wren, an English medical student and an architect, used quill and pig's bladder to set up a transfusion system, to instil a mixture of wine, ale, opium and liver of antimony into a dog's veins (Rivera, A. M. *et al.*, 2005). His colleague, Richard Lower subsequently designed metal instruments that proved sturdier and demonstrated blood transfusion from one dog to another (Felts, J. H. 2000). The development of Rochester plastic needle by Dr David Massa at Mayo Clinic (Dugger, B. 1997) and invention of polymers like Teflon led to the peripheral intravenous catheters (PIVC) in their current shape and form.

Fracture of PIVC has been attributed to various factors like puncture of cannula with its needle while repeated multiple attempts at cannulation or fatigue of material due to manipulation (Turner, D. D., & Sommers, S. C. 1954; & Arun, O. *et al.*, 2014). The PIVC available currently are usually made of PTFE and polyurethane. These materials are inert yet pose a significant chance of thrombophlebitis with prolonged presence in vein (Gupta, A. *et al.*, 2007; & Payne-James, J. J. *et al.*, 1991). Prolonged cannulation is also associated with infections. Lastly, and most serious of all, the catheter segment may embolize to heart with myriad set of complications (Turner, D. D., & Sommers, S. C. 1954).

The fractured catheter is usually peripheral in location. Its proximal migration is often impeded by

presence of venous valves and early recognition of the accident. This allows early surgical retrieval, usually under local or regional anaesthesia. Percutaneous retrieval may be considered if the catheter has migrated centrally, provided facilities are available.

In our case, the reason of fracture of PIVC is unclear. Its proximal migration was probably impeded by the presence of valves in EJV. However, the possibility of embolization to heart could not be discounted, making intervention necessary.

Through our case report, we wish to highlight two things. Firstly, lack of recognition of a broken catheter constitutes an act of negligence easily avoided. Royal College of Nursing recommend that all vascular access devices should be inspected on removal to confirm their integrity (Standards for infusion therapy. 2016). Secondly, unusual site of cannulation combined with recent history of hospitalisation led to diagnostic delay. Awareness of such presentations may help prevent recurrence and also lead to early identification and treatment thereof.

CONCLUSION:

Visual examination of all peripheral intravenous cannulae on removal should be performed as a matter of routine for early recognition of a fractured, retained segment. Retained PIVC should be removed as early as possible.

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Author Contributions (Roles):

Dr Sankal: Conceived the paper, collected data, wrote the paper

Dr Sudesh Kumar: Collected data

Dr Mohammad Javed Banday: Collected data

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