

Retrograde Looping of Peripherally Inserted Central Venous Catheter

Shailendra Kumar¹, Sweta Singh², Seema Mishra³ and Surya K. Dube⁴

¹Department of Anesthesiology, All India Institute of Medical Sciences, New Delhi, India

²Department of Oral and Maxillofacial surgery, CDER, All India Institute of Medical Sciences, New Delhi, India

³Department of Anesthesiology, Dr B. R. Ambedkar Institute Rotary Cancer Hospital;

⁴Department of Neuroanaesthesiology & Critical Care, All India Institute of Medical Sciences, New Delhi, India

Case Study

An 80 kg 29-yr-old ASA class I male patient was diagnosed to have carcinoma of right buccal mucosa and was posted for whole length excision of the lesion and pectoralis major myocutaneous (PMMC) flap reconstruction. His systemic examination and routine investigations were within normal limits. He had a short neck with restricted mouth opening. In the operation room all routine monitors were attached and an 18G IV cannula could be secured only after 6 attempts. After induction of GA we cannulated the left basilic vein with a 16G peripherally inserted central-venous catheter (PICC) (Cavafix® B. Braun, Melsungen AG) keeping arm at 45° abduction, turning the head to left side and applying pressure over left supraclavicular fossa. Due to the nature of surgery we did not cannulate the right side central veins. After confirming back flow of blood through the PICC, it was fixed at 45cm.

Intra-operatively, all the vital parameters of the patient were normal except a high central venous pressure (CVP). Since the patient had no preoperative cardiovascular abnormality and intraoperative IV fluid was administered judiciously, we suspected possible PICC malposition. We tried to correct the PICC position intraoperatively by inserting a guide wire and with saline flush but failed.



Figure 1: Chest X ray showing retrograde coiling of PICC.

*Corresponding author

Surya Kumar Dube, Department of Neuroanaesthesiology & Critical Care, All India Institute of Medical Sciences, New Delhi, India; Tel: (0091) 9013172155; E-mail: surya.dube@yahoo.co.in

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Intra-operatively as it was difficult to obtain another central venous access and all the other vital parameters were normal we left the PICC in-situ. Postoperative chest x-ray (CXR) of the patient showed a retrograde coiling of the PICC in the axillary vein (AV) (Figure 1).

We removed the PICC and placed a new PICC through right basilic vein, correct position of which was confirmed with CXR.

The correct position of the PICC is at the superior vena cava (SVC) and right atrial junction [1]. The reported sites of malposition of PICC are ipsilateral internal jugular vein (IJV) followed by AV [2]. Maneuvers like placing the arm 45° to the body, turning the head towards the site of cannulation and ipsilateral supraclavicular fossa pressure application [3,4] are performed to prevent PICC malposition. But, as evident in our case these maneuvers cannot prevent the malposition of the PICC to AV. Use of ultrasound (USG) has been suggested for correct placement of PICC [5]. But, a recent study has demonstrated that blind PICC insertion is equally good. The authors have suggested that, blind PICC cannulation obviates the need for USG and the use of USG should be reserved in cases where initial cannulation attempts have failed/appropriate calibre vein is not identified/in patients presenting with anasarca [6].

Several maneuvers like flushing with saline, body positioning and repeat advancement has been described to reposition a malpositioned PICC [2,3]. As every malpositioned PICC should be repositioned, we tried to reposition the PICC intraoperatively but could not succeed after several attempts using different techniques [2]. The failure to correct the malposition in our case can probably be due to the higher degree of looping of the PICC. With this report we want to emphasize upon the fact that looping of PICC in AV can occur even after applying the traditionally described methods. Failure to correct the malposition of PICC should alert the clinician to a probability of higher degree of loop

formation and whenever situation permits one should remove the malpositioned PICC in those cases.

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