A RARE CASE OF A MALPOSITIONED CENTRAL VENOUS CATHETER

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ABSTRACT: A Malpositioned Central Venous Catheter is a common but serious complication of central line placement[1-2] .However malpositioning into the contralateral subclavian is extremely unusual. The authors describe a case in which a catheter is inserted via a right sided infraclavicular approach and malpositions itself into the contralateral subclavian vein.

KEYWORDS: Central venous catheter, Subclavian, internal jugular, malpositioning

INTRODUCTION: Malposition of central venous catheter is well known technical complications. Its incidence during Subclavian vein puncture is reported to vary from 1.8% [3] to 9.3%[4] Most commonly,the right subclavian venous catheter gets malpositioned to ipsilateral internal jugular vein[3]. Malpositioning into the contralateral sublavian vein is highly unusual.

IMAGE REPORT: A 55 year old female with diagnosed to have a squamous cell carcinoma of the left cheek ,was posted for a left sided hemi-mandibulectomy and radical neck dissection .A right side subclavian central venous catheter (7 Fr ,16cm,double lumen polyurethane with Blue FlexTip, Arrow, PA, USA) was placed through an infraclavicular route through a standard Seldinger technique and fixed at 14cm to the skin .Adequate blood flow on aspiration and free flow of injected saline confirmed the intravenous positioning. General anaesthesia was induced and the intraoperative course was uneventful. Post operatively a portable check X ray revealed the malpositioning into the the left subclavian vein

(Fig 1).The catheter was removed and a left sided subclavian catheter inserted and position confirmed with a check X ray.

DISCUSSION: Central venous catheterization (CVC) is commonly performed procedure in emergency situations, major operations, intensive care monitoring. The immediate, procedural complication of this procedure include pneumothorax, inadvertent arterial puncture, hematoma, air embolism, perforation of vessel wall, arrhythmias, brachial plexus injury & catheter malposition[5]. The most commonly occurring malposition is into the ipsilateral internal jugular vein (60-70%)[6]. Other common sites include the azygous, left superior intercostal vein and thymic vein[7]. The contralateral subclavian vein is the most unusual site for migration of the CVC.

In our case, the guidewire inserted in right subclavian vein passed through right brachiocephalic vein ,and instead of proceeding towards superior vena cava (SVC), entered into left brachiocephalic to finally position itself into left subclavian vein.

Some authors use formulas based on height to limit the depth of insertion but it has been noted that in such cases the chances of malposition are as high as 48% requiring repositioning[8].The same study also noted that ECG monitoring when performing the procedure can place the CVC tip in correct position in 92% of cases while monitoring change in configuration of 'p' wave[8]. Some authors have stated that 18 cm is the maximum length to which a guidewire of a central line should be inserted[9] while others have stated the maximum depth to which a central catheter can be inserted is 16.5cm[10]. The advantage of real time ultrasound guided CVC insertion is that it provides visualization of vein and its anatomical variation, improves success rate and decreases the number of venipuncture attempts & complications. It however it does not guide subsequent positioning of catheter tip[11]. Some authors, however did not find any significant difference in the rate of complications or failures of subclavian venous catheterization performed by less experienced operators[12].

In conclusion, although newer techniques like ultrasound guided placement and endocavitary ECG to guide placement into the superior vena cava ,are available today ,there is no replacing the time tested , 'confirmatory check X ray' which still remains the easiest method to confirm catheter position . Fluoroscopy too provides a real time alternative to confirming the position of catheters but is not available in Indian most hospital setups for such 'trivial' purposes.

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Figure 1: Mal-positioned right subclavian central line into left subclavian vein.