MALPOSITION OF CENTRAL VENOUS CATHETER IN THE LEFT INTERNAL JUGULAR VEIN

- A Case Report-

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Abstract

Malposition of central venous catheter is a complication of central venous catheterization. A case of left internal jugular catheterization via left external jugular vein is reported. Details of the procedure are described and the literature is reviewed for similar malpositions.

Key Words

Central venous catheterization; Internal jugular vein; External jugular vein, Malposition.

Case Report:

A 14-yr-old girl with a 3-month history of seizure was admitted to intensive care unit for management of intractable seizure. On the forth day of her admission, a decision was made to start parenteral feeding. A 16 gauge single lumen 20 cm catheter-venoseld-was placed into the left

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external jugular vein. The entry point was midway from a line drawn between the suprasternal notch and the mastoid process. The patients ipsilateral arm was placed at the side and an assistant applied mild traction on the shoulder to straighten the course of the external jugular vein while the guide wire was advanced. By using guidewire the No. 16 catheter was inserted into the external jugular vein. The anteroposterior chest X-ray showed the tip of the catheter, in the left internal jugular vein (Fig. 1).

**Fig. 1**
Malposition of central venous catheter in the left internal jugular vein

**Discussion**

Exact placement is an essential prerequisite for long-term use of a central venous catheter. Catheter malposition is a known complication of central venous catheterization. Reported data show an extremely wide range of catheter misplacements: from less than 1% to more than 60%. Malatinsky et al reported 5.3% occurrence of faulty positioning and coiling, while external jugular incidence was 30%. Paw stated that
catheterization via the left internal jugular vein results in more malposition and vascular perforation than catheter placed from the right internal jugular vein. According to Muhm et al\textsuperscript{4} study the frequency of malpositioning was related to the anatomic approach and the catheter type used, but not to the physicians experience. Their reported respective incidences were 4.12\% for the left internal jugular access, but were lower for the right internal jugular (1.1\%); Misplacement was more frequent with soft silicone catheters (2.53\%) than with semi-rigid catheters (0.79\%).

External jugular vein traverses the deep fascia of subclavian triangle and ends in the subclavian vein, lateral or anterior to scalenus anterior (Fig.2). It has valves at its entrance in to the subclavian vein and about 4 cm above the clavicle\textsuperscript{5}.

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{fig2}
\caption{Communication between internal jugular vein and external jugular vein via brachiocephalic vein}
\end{figure}
According to the described anatomy, the probability of left internal jugular catheterization via left external jugular vein is very low. There is no any reported case in the literature about such a misplacement. Our reported case has two factors that may be implicated in malpositioning. First, the size of chosen catheter is relatively large and not appropriate for the patients age. Second, the curved tip of guidewire led to its bending and entrance in to the internal jugular vein.

References