

# CASE REPORT. FEMORAL VEIN CATHETER LEADS TO SEPTIC SHOCK AND DEATH: COULD ECOGRAPHY BE USEFUL TO PREVENT MISPLACEMENT?

Dott. MARCO MEGGIOLARO (1), Dott. GIULIO FAGGI (1), Dott. ROBERTO VEZZARO (2), Dott. ANDI SUKTHI (3), Dott. ALESSIO SCATTO (1), Dott. LUCA AIELLO (4)

(1) UOC Anestesia e Rianimazione - AO Padova, Via N. Giustiniani, 2, Padova, Italia.

(2) UOC Radiologia - AO Padova, Via N. Giustiniani, 2, Padova, Italia.

(3) UOC Pneumologia - AO Universitaria Padova, Via N. Giustiniani, 2, Padova, Italia.

(4) UOC Anestesia e Rianimazione Ospedale Morgagni-Pierantoni Forlì - AUSL Romagna, Forlì, Italia.

Argomento: Caso clinico

## INTRODUCTION

Central venous catheter (CVC) is commonly used to gain vascular access for varied clinical indications. Although considered a relatively safe procedure, it is associated with multiple complications. Malpositioning is one of the most common, and mainly occurs when the tip runs into a collateral vein. Most frequent femoral complications are infections, hematoma, dissection, aneurysms, arteriovenous fistulas, nerve injuries. Hereby, we report a malpositioning of femoral CVC that leads to septic shock and death.

## CASE REPORT

A 84 years old male was admitted to ward for inhalation pneumonia and heart failure. The need for intravenous drugs administration leads to the decision to place a CVC. For the presence of bulky neck and supraclavicular lipomas, we used the left femoral vein. With Seldinger technique, ultrasound guided double lumen catheter was easily placed, apparently without complications. The catheter was then used for infusion for 20 days: in this period, the patient experienced occasional abdominal tension localized to the left quadrant.

In the twentieth day, the patient presented hyperpyrexia and acute abdomen. Contrast computed tomography demonstrated the CVC in the left iliolumbar vein with retroperitoneal phlegmon. The patient was then transferred to operating room to perform exploratory laparotomy and evacuative toilette. Postoperatively admitted to ICU, the patient developed unresponsive septic shock and died after seven days.

## DISCUSSION

Radiological control of the correct position of femoral CVC is not a standard practice. Femoral CVC malpositioning risk factors are the angle between the main vein and collaterals (cut-off 90°) and the calibre of collaterals, increased in case of heart failure. An "U" shape tip guidewire is used to avoid collateral vessels. Direct ultrasound visualization of the guide in the inferior vena cava could be useful. This technique is limited by the length of the guide and by the quality of the echographic window itself.

Fig 1. Plain abdominal film: left femoral CVC (white arrows) with left course to xifopubic axis. This is a not common position. CVC may mispositioned in iliolumbar vein or in an anatomic variants such as a left common iliac vein ascendent to renal vein or a left inferior vena cava or an inferior vena cava transposed.



Fig 2. Contrast CT: axial images with non anatomical variants of IVC, aorta or left iliac vein. The tip of CVC is close to left transverse process of a lumbar vertebra, in left iliolumbar vein

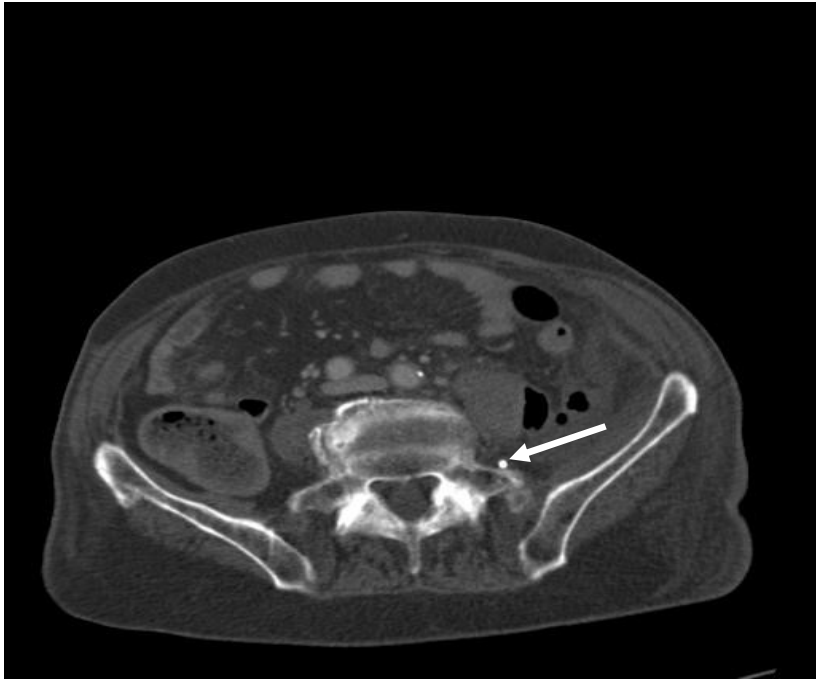


Fig.3 Coronal MPR images with venous axis: CVC in external left iliac vein, not in common left iliac vein or IVC (tip of CVC is not visualized); non anatomical venous variants.



Fig.4 Coronal MPR images with entire course of CVC: proximal catheter is inside left external iliac vein, distal part of catheter is not in common left iliac vein, but run back, close to transverse process of a lumbar vertebra, in left iliolumbar vein.

