



International Journal of Case Reports (ISSN:2572-8776)



Venous Blood Gases for Femoral Line Placement Confirmation Are We Secured

Mohamed Ibrahim Shoaib, Zeyad Faour Alrais, Khalid Omar Hassan, Ahmed Hossam Awad

Department of Intensive Care Medicine, Rashid Hospital, Dubai Health Authority, Dubai, United Arab Emirates.

ABSTRACT

A large number of central venous catheters (CVC) are placed each year in the emergency room, operation theatre and critical care units. Although rarely associated with life threatening complications, femoral CVC is known to have the highest incidence of mechanical complications. The femoral veins are frequently preferred when other access sites are exhausted or there is increased risk for complications such as with emergency access, coagulopathy, and in the uncooperative patient. Femoral line placement confirmation is not routine practice. We present our case 59 years old male, Known case of Diabetes, liver cirrhosis and portal hypertension presented to Accident and Emergency with repeated hematemesis and melena 3 times. On arrival to hospital patient was drowsy and hallucinating. Two large bore venous cannula were inserted and due to his hemodynamic instability requiring vasopressor support, Femoral venous catheter was inserted because of his deranged coagulation profile, with good blood flow and backflow, venous blood gases (VBG) for placement confirmation was done. Patient was admitted for urgent upper GI endoscopy which revealed esophageal varix where bands were applied and with suspicious of Gut perforation. Urgent Computed Tomography (CT) of the abdomen was done. accidental radiological finding that the femoral line appeared to be curled posteriorly on itself. Patient was admitted to ICU where the malpositioned femoral line was removed and new central line was inserted confirmed position by the ultrasound and x-ray. Our conclusion from this case that even with functioning femoral lines confirmation by VBG alone is not enough and we recommend use of ultrasound not even during insertion but after placement for confirmation.

Keywords:

Central venous catheters, Femoral line placement, Line malposition.

*Correspondence to Author:

Dr. Mohamed Shoaib, Specialist Registrar, Medical Intensive Care Unit, Rashid Hospital, Postal Code 4545, Dubai, United Arab Emirates. Phone No.: +971569381998

How to cite this article:

Mohamed Ibrahim Shoaib, Zeyad Faour Alrais, Khalid Omar Hassan, Ahmed Hossam Awad. Venous Blood Gases for Femoral Line Placement Confirmation Are We Secured. International Journal of Case Reports, 2017 1:11

eSciencePublisher

eSciPub LLC, Houston, TX USA.

Website: <http://escipub.com/>

Introduction

Central catheters provide dependable intravenous access and enable hemodynamic monitoring and blood sampling. Although femoral vein cannulation is often considered less desirable due to higher complication rates, the femoral veins remain a reliable central venous access site, particularly under urgent or emergent circumstances, coagulopathy, and in the uncooperative patient.

Case Report

A 59 years old male, known case of Diabetes, liver cirrhosis and portal hypertension presented to Accident and Emergency with repeated hematemesis and melena 3 times.

On arrival to hospital patient was drowsy and hallucinating. Two large bore venous cannula were inserted and due to his hemodynamic

instability requiring vasopressor support, Femoral venous catheter was inserted as we were having deranged coagulation profile, with good blood flow and back flow, venous blood gases (VBG) for placement confirmation was done indicating venous placement of the line.

Patient was admitted for urgent upper GI endoscopy which revealed esophageal varix where bands were applied and with suspicious of Gut perforation.

Urgent Computed Tomography (CT) of the abdomen was done. Accidental radiological finding that the femoral line appeared to be curled posteriorly on itself.

Patient was admitted to ICU where the malpositioned femoral line was removed and new central line was inserted confirmed position by the ultrasound and x-ray.



Figure 1 CVC image



Figure 2 double image femoral CVC



Figure 3 CVC at insertion site

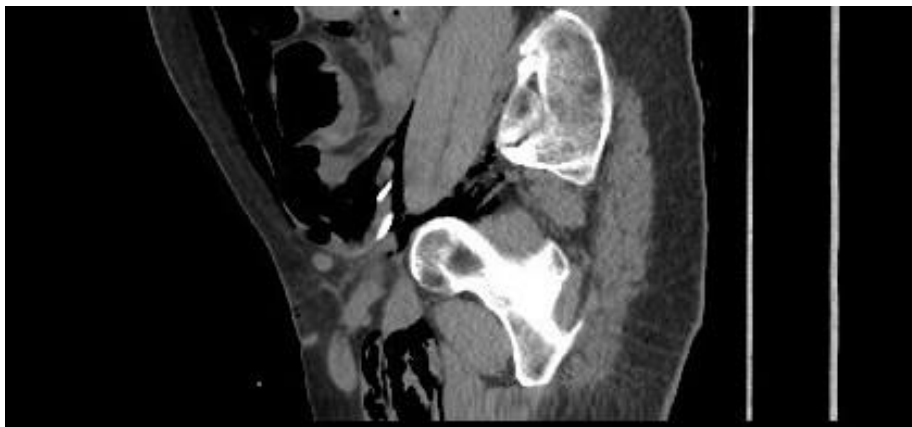


Figure 4 CVC show two images of the catheter

Discussion

A large number of central venous catheters (CVC) are placed each year in the emergency room, operation theatre and critical care unit ⁽¹⁾. Central venous catheters are placed for volume resuscitation, hemodynamic monitoring, and administration of vasoactive drugs ⁽²⁾. Although rarely associated with life threatening complications, femoral CVC is known to have the highest incidence of mechanical complications ⁽³⁾. The femoral veins are frequently preferred when other access sites are exhausted or there is increased risk for complications such as with emergency access, coagulopathy, and in the uncooperative patient ^(4,5).

It is important that clinicians are aware of wrong positioning of CVC even in the presence of good backflow of blood through all the lumens ^(6, 7).

In Our case we present the femoral line being curled on itself posteriorly in spite good back flow in all lumens. Hung et al, reported a case of misplacement of femoral venous catheter into the femoral artery leading to acute arterial occlusion ⁽⁸⁾.

Accidental identification of the curled femoral line in our case was diagnosed by computed tomography of the abdomen that was ordered to rule out suspicion of perforated gut.

Lum et al, reported also a case of misplaced femoral line guide wire which was diagnosed accidentally during chest tomography for suspicion of pulmonary embolism ⁽⁹⁾.

We need to be vigilant about the absence of backflow of blood, slowing of gravity infusion, presence of focal neurological deficits or abdominal swelling which indicates the malposition of the CVC clinically ^(10,11). and it is important to look for radiological signs such as the catheter path overlying the vertebral column and the presence of catheter tip beyond the bifurcation of the IVC and common iliac vein ^(12,13).

Our recommendations from the case is to routinely practice to use ultrasound and X ray for confirmation of position of femoral line after insertion and the proper placement of the catheter should be determined before it is used for medical treatment ⁽⁸⁾.

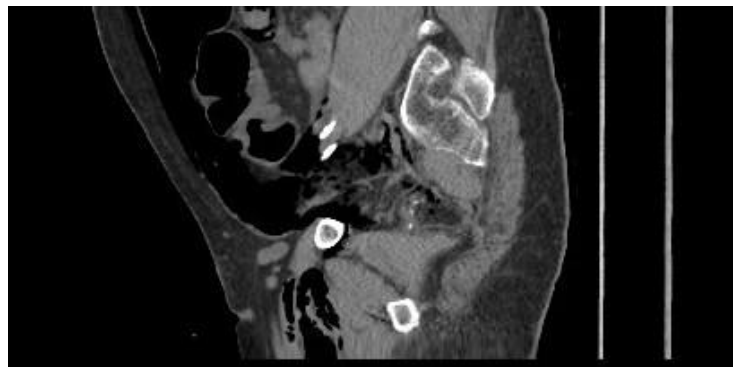


Figure 5 the catheter double image still viewed along the catheter path

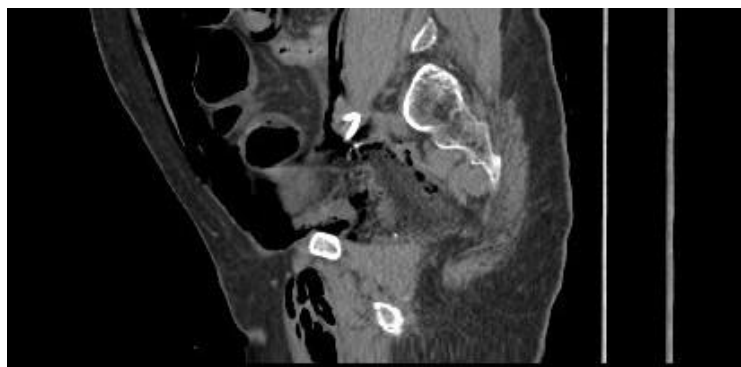


Figure 6 the CVC image show the site of curled on itself

Conclusion

This case illustrated that malposition of the femoral line can occur even with good blood flow and back flow and it is recommended to confirm the proper placement and position by ultrasound and x ray before it is used for medical treatment to avoid complications .

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Acknowledgement

I want to thank all my co-authors for hard work and help.

References

1. Marino PL, Sutin KM. Establishing venous access. In: Marino PL, editor. The ICU book. Vol 1.3. New York: RR Donnelley 2007;6:108-28.
2. O'Grady NP, Alexander M, Dellinger EP, Gerberding JL, Heard SO, Maki DG, et al. Centers for Disease Control and Prevention. Guidelines for the prevention of intravascular catheter-related infections. MMWR Recomm Rep. 2002;51(RR-10):1-29.
3. Ruesch S, Walder B, Tramer MR. Complications of central venous catheters: internal jugular versus subclavian access: a systematic review. Crit Care Med.2002;30(2):454-460.
4. Polderman KH, Girbes, ARJ. Central venous catheter use. Part I: Mechanical complications. Intensive Care Med 2002;28:1-17.
5. McGee DC, Gould MK. Preventing complications of central venous catheterization. N Engl J Med 2003;348:1123-33 .
6. Merrer J, De Jonghe B, Golliot F, et al. Complications of femoral and subclavian venous catheterization in critically ill patients: a randomized controlled trial. JAMA 2001;286(6):700.
7. Marik PE, Flemmer M, Harrison W. The risk of catheter-related bloodstream infection with femoral venous catheters as compared to subclavian and internal jugular venous catheters: a systematic review of the literature and meta-analysis. Crit Care Med. 2012;40(8):2479.
8. Hung LH, Kuo YC, Li MT, et al. Arterial Misplacement of a Femoral Central Venous Catheter Complicated with Acute Arterial Occlusion. J Chin Med Assoc 2005;68(3):138–141.
9. Lum TE, Fairbanks RJ, Pennington EC, Zwemer FL. Profiles in patient safety: misplaced femoral line guidewire and multiple failures to detect the foreign body on chest radiography. Acad Emerg Med. 2005;12:658-662.
10. Satoko T, Toshiya A, Yoichi H. Complication of femoral vein CV port catheter malposition. Kitasato Med J 2013; 43: 74-78.
11. Aarts F, Kuijsten H, Rutten A. Unusual central venous catheter complication without clinical symptoms. Neth J Crit Care 2011;15 (4):218-9.
12. National Institute for Clinical Excellence. Guidance on the use of ultrasound locating devices for placing central venous catheters. London: NICE, 2002, [NICE Technology Appraisal No 49].
13. John et al. Accidental intra peritoneal malpositioning of femoral central venous catheter: Learning from mistakes. Sri Lankan Journal of Anaesthesiology: 24(1):38-40(2016).

