Complication of central venous access via right femoral vein in a patient with renal transplant

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Learning Objectives

- Primary risks of central line access
- Common post-surgical vascular anatomy changes in renal transplant patients
- Management of inadvertent central line catheter placement

Case description

A 55-year-old female was brought from home to emergency department by ambulance for a two-day history of fevers, progressive lethargy, and new-onset altered mental status.

Past Medical History:
ESRD secondary to hypertensive nephropathy, status post living relative kidney transplant approximately 15 years ago.

Initial Presentation:
Systolic BP at presentation 60 mmHg, heart rate 85 beats per minute, pH 7.46, venous pCO2 24, serum bicarbonate 17.8, serum lactate 4.40, urinalysis positive for leukocyte esterase, nitrates, and blood.

ED Course:
- The patient's blood pressure was inadequately responsive to fluid resuscitation, so the ED planned to initiate pressers and IV antibiotics for septic shock
- A right internal jugular catheter was placed, but confirmatory x-ray demonstrated that it was entering the thoracic vein and it was removed.
- A right femoral trialysis line was placed and norepinephrine and vasopressin were started with improvement in patient's blood pressure

Case Description, continued

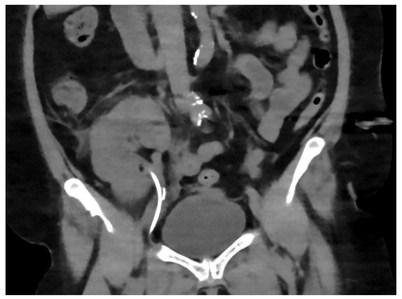

Figure 1. CT Abdomen Pelvis without Contrast demonstrating catheter entering the grafted renal vein

Figure 2. The tip of the catheter abutting renal parenchyma

Imaging and Initial Management:
A CT Abdomen Pelvis without Contrast was obtained, and the catheter was identified entering the grafted kidney. The catheter was removed, and Doppler ultrasound did not demonstrate any abnormal flow through the renal vasculature. Serial hemoglobin and creatinine measurements were obtained which did not demonstrate bleeding or impaired graft function. Central venous access was established via a left femoral trialysis line.

MICU Course:
The patient was continued on pressure support and broad-spectrum antibiotics. She was weaned from pressure support over approximately 18 hours and was downgraded to the general floors after approximately 48 hours.

Follow-Up

- Urine and blood cultures grew *Enterococcus faecalis* and antibiotic therapy was narrowed. Her home immunosuppression regimen was resumed.
- She was discharged home after eight days.

Discussion

- We describe a case of inadvertent placement of a right femoral venous catheter into the intrarenal vasculature of a living-relative kidney transplant recipient.
- Bleeding and infection are by far the largest risks of central line use, and these risks are highest when using femoral vein access.
- The right iliac fossa is the most common location of renal transplant grafts, with venous drainage typically anastamosed to the right external iliac vein.
- This work demonstrates a further potential complication: patients with transplants may have atypical vascular anatomy which can create further risks to femoral access.
- It is important to monitor for bleeding, vascular compromise of the grafted kidney, and impaired renal function when a catheter has been introduced into a kidney.
- When possible, femoral access should be avoided in all patients because of increased risk of the primary causes of mortality and morbidity of intravascular access.

References

1. Kakaei F, Nikeghbalian S, Ali Malekhosseini. Kidney Transplant Techniques. In: Rath T ed. Current Issues and Future Direction in Kidney Transplantation. InTech. 2013: 173.