Dyspnea and Weight Loss following Left Internal Jugular Vein Dialysis Catheter Placement

Nontembiso Mhlana 1, Zane Ismail 2, and Mogamat-Yazied Chothia 1

Case Description
A 44-year-old man with ESKD secondary to chronic glomerulonephritis had been receiving RRT for two years. His initial dialysis modality was peritoneal dialysis, but he was switched to hemodialysis after 1 year due to technique failure. Hemodialysis was initiated with a right internal jugular vein (IJV) catheter, but this was removed 3 months later due to malfunction. After the placement of a left IJV catheter, dyspnea, and weight loss (10 kg) developed over 2 months.

On physical examination, he was emaciated with clinical features of a right pleural effusion. Features of superior vena cava (SVC) obstruction were absent. A plain chest radiograph (Figure 1A) and computed tomography scan confirmed a massive right pleural effusion without evidence of central vein stenosis. A radioisotope scan (Figure 1B) indicated a leak from the right lymphatic duct.

A chest drain was placed, and a large volume of milky fluid was drained (Figure 1C). Fluid chemistry revealed a triglyceride concentration of 22.6 mmol/L (normal <1.24 mmol/L). Investigations for tuberculosis and malignancy were negative. A diet containing medium-chain triglycerides resulted in reduced drainage; however, after the reintroduction of a regular fat diet, drainage increased. The patient consented to have a definitive surgical procedure. Intraoperatively, cream was administered through a nasogastric tube in order to identify the source of the leak. Thoracoscopic right lymphatic duct ligation and mechanical pleurodesis were performed. Postoperatively, the reintroduction of a regular fat diet did not result in recurrence.

Discussion
Chylothorax in hemodialysis patients is an uncommon finding. Its presence should raise suspicion of injury to the central lymphatics, malignancies, heart failure, and SVC obstruction (1). Most cases of chylothorax in hemodialysis patients are associated with SVC syndrome (2,3). Although our patient had a previous right-sided IJV catheter, we could not identify any clinical features or radiologic evidence of SVC syndrome. This raised our suspicion of direct injury to the lymphatic system. Previous case reports have described injury to the thoracic duct on the left side after the insertion of left subclavian and left IJV vein catheters (4,5). Although there have been cases that resolved with conservative management, our decision for surgical correction was based on the severe weight loss and recurrence of the effusion after the reintroduction of a regular fat diet.

In conclusion, chylothorax is an uncommon complication after central venous catheter placements but should be included in the differential diagnosis when weight loss and a pleural effusion appear after the insertion of IJV catheters.

Teaching Points
- Chylothorax should be considered in a hemodialysis patient with an internal jugular vein dialysis catheter who has pleural effusion and weight loss.
- Chylothorax is frequently associated with central venous stenosis in dialysis patients. One should consider direct lymphatic injury in the absence of central venous stenosis.
- Large-volume chylothorax needs surgical intervention.

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Author Contributions
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References

1Division of Nephrology, Department of Medicine, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa
2Department of Cardiothoracic Surgery, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Correspondence: Dr. Mogamat-Yazied Chothia, Rm 3127, Department of Medicine, 3rd Floor, Clinical Building, Faculty of Medicine and Health Sciences, Stellenbosch University, Francie van Zijl Drive, Cape Town, South Africa 7505. Email: yaziedc@sun.ac.za
Figure 1. | Plain chest radiograph and computed tomography scan. (A) Chest radiograph indicating a massive right-sided pleural effusion and temporary left internal jugular vein dialysis catheter in situ. (B) Large volume of chyle drainage after the insertion of a right-sided intercostal chest drain. (C) A $^{99m}$Tc radioisotope scan indicating a right-sided hemithorax lymphatic leak.


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