Thoracic Duct Injury: An Unusual Complication following Subclavian Catheterization for Hemodialysis

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Dear Sir,

The subclavian hemodialysis catheter has become a widely used form of temporary vascular access for hemodialysis and plasmapheresis [1, 2]. It is used both for short-term dialysis in cases of acute renal failure, and also for long-term hemodialysis when the permanent vascular access is temporarily nonfunctional [1]. Sporadic reports of subclavian catheter-related complications, such as pulmonary embolism, atrial or caval perforation, air embolism, hydrothorax, hemothorax, infections and thrombosis, have appeared in the literature. Most complications occur within a few days of catheter implantation [2–5]. We report herein a thoracic duct injury with cutaneous lymphatic fistula, related to a subclavian dialysis catheter placement on the left side. This complication has not been previously reported.

Case Report

A 52-year-old man, on maintenance hemodialysis for chronic glomerulonephritis since 1972, was admitted because of progressive obstruction of a left forearm arteriovenous fistula created 14 years previously. A hemodialysis subclavian catheter was placed, with some difficulties, in the left subclavian vein. The chest X-ray confirmed its proper position and the absence of complications. The first hemodialysis was performed without any incidences. The next day the patient required a new dialysis session but the catheter did not deliver enough blood flow. The catheter was removed, and immediately a milky fluid sprang under pressure through the puncture hole. The analysis of the fluid revealed: proteins 3.2 g/dl, albumin 1.8 g/dl, glucose 40 mg/dl, sodium 130 mEq/l, potassium 3 mEq/l, total lipids 950 mg/dl, cholesterol 525 mg/dl, and fatty acids 270 mg/dl. Manual pressure was applied over the cutaneous lymphatic leak and a fixed compressive system was placed afterwards. Twenty-four hours later the lymphatic leak ceased and no chylothorax developed.

Discussion

Advantages of subclavian access for hemodialysis include its ready availability, ease of insertion, the relatively low incidence of complications and the fact that its use avoids sacrificing peripheral vessels as temporary access sites [1, 5]. Potential acute complications of this procedure are air embolism, subclavian artery puncture, atrial or caval perforation, pneumothorax, catheter embolism and thoracic duct injury [2, 7]. Major complications generally have a sudden onset, allowing corrective measures to be rapidly instituted [5]. Verification of

proper catheter positioning and the absence of major complications are routinely confirmed by chest X-ray taken immediately after placement [1, 3, 6].

We did not find any references in the literature about thoracic duct injury by left subclavian catheterization for hemodialysis. The thoracic duct comes in the left subclavian jugular union, and therefore it is not surprising that it can be damaged by the subclavian catheterization procedure on the left side. However, this lesion is infrequently seen, probably because right subclavian catheterization is usually preferred. Thoracic duct injuries can cause chylothorax or cutaneous lymphatic fistula [1], as in our case. The treatment depends on the degree and severity of the lesion. Conservative measures include manual pressure or other compressive methods until the escape stops. If the leak persists in spite of conservative treatment or a large chylothorax develops with secondary respiratory failure, surgical repair may be necessary [8].

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