Facilitated central venoplasty with catheter directed thrombolysis procedure in a hemodialysis patient: A case report

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Introduction

Central venous disease is a serious complication in patients undergoing hemodialysis. Previous attempts of dialysis catheter implantations and high-flow status in arterio venous fistula (AVF) trigger central vein injury with subsequent restorative process that lead to vein stenosis or occlusion.

Case

An 80 year-old male patient presented with left arm swelling and pain. He had been complaining for 1 week. His medical history consisted of coronary bypass graft surgery and chronic kidney disease with hemodialysis for 3 years and some unsuccessful attempts of implantation of hemodialysis catheter on his arm.

Left arm Doppler ultrasonography showed a profound thrombus formation in the Axillary vein and an occlusion in the Subclavian vein. Venous angiography performed through a right Femoral vein approach showed total occlusion of the left Subclavian vein (Figure 1a).

It was crossed through a supporting 5 French microcatheter (Trailblazer; Medtronic) and multiple coronary balloon (4*20mm) predilatations were performed with slight inflations. Thrombus formation was easily seen in the valves of the Axillary vein and a straight line dissection ensured in the left Subclavian vein (Figure 1b).

Resolution of thrombus was managed with catheter directed thrombolysis by insertion of a pigtail catheter into the left Axillary vein through which a low dose of 10 mg t-PA infusion for 15 hours (1mg for 5 hours, 0.5mg for 10 hours) was administered (Figure 3a). After contemplation of infusion patient’s arm swelling was diminished.

Control angiography showed a residual stenosis in the Subclavian vein successfully treated with self expandable stent implantation (peripheral nitinol self-expandable stent (PROTEGE EV 3.5x60 mm) (Figure 3b). Patient clinical scenario showed a dramatical recovery after the procedure and hemodialysis went on normally through the brachial arterio-venous fistula.

Figure 1: From left to right: Profound turbulence of blood flow in the left brachial AVF; No blood outflow implying occlusion in the left Subclavian Vein; Thrombus formation in the left Axillary vein.

Figure 2: a) Total occlusion of the left Subclavian Vein. b) thrombus formation and straight line dissection seen after crossing the occlusion and balloon slight predilatations.

Figure 3: a) Catheter directed thrombolysis via the Pigtail catheter. b) A peripheral self- expandable stent (7x60 mm) successfully implanted with a good blood outflow restored.