Case Report

Adherence of tunnelled haemodialysis catheter to superior vena caval stent: successful percutaneous removal

Christopher W. McIntyre, Maarten W. Taal, Richard J. Fluck and David Hinwood

Departments of Renal Medicine and Radiology, South Derbyshire Acute Hospitals Trust, Derby, UK

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Introduction

Despite being initially developed as short-term vascular access in haemodialysis patients, cuffed tunnelled haemodialysis catheters are now often relied on in the medium to long term [1,2]. This is either as a consequence of sub-optimal access to vascular surgical support or technical difficulties in obtaining definitive vascular access. These catheters are associated with an increased incidence of sepsis [3] and thrombosis [4], as compared with definitive vascular access. Furthermore, their use is associated with the development of stenosis within the great vessels. This risk although first recognised with the subclavian approach is also an issue with catheters placed within the internal jugular vein [5].

We present a novel case of a further complication arising from the combination of continued use of such catheters within a chronic haemodialysis patient who had had a previous venous stenosis radiologically intervened upon.

Case

A 43-year-old chronic haemodialysis patient was seen as a day attender on the dialysis unit to have a tunnelled silastic haemodialysis catheter (KSC divided lumen catheter; Kimal, Uxbridge, UK) removed under local anaesthesia. The patient had reached end-stage renal failure in 1996 (secondary to chronic glomerulonephritis) and had been treated initially with peritoneal dialysis. This failure in 1999 due to recurrent peritonitis. Vascular access had been difficult with multiple failed attempts at AVF formation and infectious complications of PTFE graft insertion. Long-term use of tunnelled catheters had been complicated by superior venocaval (SVC) stenosis, which had been relieved with venoplasty and stent insertion 6 months earlier. A further attempt at definitive access had been successful, and therefore the catheter removal had been arranged.

The tissue around the cuff was anaethetised and cut down to in the normal fashion. However, despite mobilisation of the cuff, it proved impossible to remove the catheter. Attempts to do so induced considerable patient discomfort with a severe ‘choking’ sensation. The procedure was consequently abandoned. A chest radiograph was performed (Figure 1). This demonstrated that one lumen of the split catheter was in close apposition to the superior end of the caval stent. Under radiological guidance an attempt was made to snare the catheter from below, but this was unsuccessful. Further imaging revealed no restenosis of the SVC or evidence of stent thrombosis. Contrast introduced down the catheter revealed a portion of ~1.5 cm that appeared to be involved in a fibrous tissue overgrowth on the superior end of the stent.

Choosing the optimal method for catheter removal was difficult, as both a surgical option or removal by traction seemed highly undesirable. Access to the right femoral vein was gained by inserting a 7F sheath. Eventually a hydrophilic Terumo wire was manoeuvered under fluoroscopic control, with the help of an SOS II catheter over the tethered portion of catheter. This was then directed back to the IVC. The SOS II catheter was carefully removed and the Terumo wire captured with a 10 mm Gooseneck snare and recovered externally through the femoral vein sheath. A sawing motion was performed with both ends of the wire and the tethering tissue cut through, allowing the catheter to be removed with the femoral sheath, and haemostasis achieved.

Discussion

This patient illustrates a novel complication of long-term dialysis catheter use in a stented vein and...
its subsequent resolution. To our knowledge this is the first report of such a complication. However, given the increasing reliance on this type of vascular access and the requirement to maintain patency within the great vessels such a combination of catheter and stented vessel will inevitably become more commonly encountered. It would appear prudent that if such a combination is unavoidable (as it was in this patient) that the catheter tip is placed either proximal to the stent, or completely across it within the right atrium, although this would in no way completely remove the risk of stent adherence. If adherence of catheter to vascular stent does occur, resolution is possible without recourse to an open surgical approach.

References


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