After an uneventful first month, although there was no change in venous pressures on dialysis, the patient, her husband and dialysis staff began to note a gradual asymmetrical enlargement of the left leg over a period of weeks, and the development of a small black necrotic spot on the tip of the third toe. The leg became oedematous and mottled, with a thigh girth over 2 times the size of the contralateral leg. There were no palpable distal pulses, but the foot was warm and well perfused. Deep venous thrombosis was excluded early with Doppler ultrasound scan, and 10 days later the leg had further enlarged such that rest pain was now present. The patient was admitted, warfarin was converted to heparin, and an urgent vascular opinion was sought. This confirmed the diagnosis of venous hypertension, with good capillary refill in the foot, but with such gross swelling that there was now significant gangrenous involvement of the first three left toes. A MR venogram was performed which showed a 10 cm thrombosis in the

Iliac vein stenosis secondary to femoral catheter placement

Sir,

Upper central vein stenoses are well described in the dialysis population, in particular, subclavian vein stenosis (SVS), which is usually secondary to previous catheter insertion [1]. Most units have moved to preferentially cannulating internal jugular (IJ) veins, with femoral veins also increasingly being used particularly in the emergency management of acute uraemia, or failed chronic access. There are still reports of complications for the IJ route [2], but few with the femoral route. Epidemiological trends suggest that in the USA, polytetrafluoroethylene (PTFE) grafts are now the most common form of initial permanent vascular access [3], whilst in Europe they tend to be reserved for second line access in cases where further fistula formation is not possible or deemed unlikely to succeed. Herein we report a case of common iliac vein stenosis, which threatened both the viability of the distal limb, and the PTFE graft which had been created proximally.

Case. A 55-year-old woman with SLE diagnosed in 1987, and with IgM and IgG antiphospholipid antibodies, progressed to end-stage renal failure and was successfully dialysed via CAPD for 4 years before 5 episodes of peritonitis in a 3-month period necessitated switch to haemodialysis. She had a stormy course regarding vascular access; over the ensuing 7 months she required a total of 13 separate cannulations for dialysis catheters, once because of proven sepsis (L femoral catheter) but in all other instances due to thrombosis—despite proceeding to full anticoagulation. Native fistula formation was also thwarted due to thrombosis, and therefore a PTFE femoral loop graft was planned. Left lower limb venography performed 2 days prior to surgery was unremarkable. The arteriovenous graft was fashioned uneventfully, used first 2 weeks later and continued to work adequately through all of the intervening problems.

![Image of pressures on dialysis](https://example.com/image.png)

**Fig. 1.** A greater than 50% stenosis of the internal iliac vein; intravenous pressures (mmHg) measured during pull-back procedure.
superficial femoral vein. As a result, and because the clinical condition of the limb was worsening, interventional radiology—either local lysis of the thrombus, or thrombectomy was contemplated. At formal ilio-femoral venography however, we were surprised to find a greater than 50% stenosis of the internal iliac vein (Figure 1).

This was treated with percutaneous transluminal angioplasty (PTA) and the leg decompressed over the next weeks. The residual necrotic areas on the toes were treated conservatively with success, and the graft is continuing to function successfully.

Comment. Ilio-femoral compression syndromes are well recognized, but iliac vein stenosis secondary to previous femoral dialysis catheter placement has not previously been reported. In the upper limb, however, different investigators have shown the incidence of stenosis post catheter insertion to range from 20–50% in the subclavian veins, or up to 10% in internal jugular veins [1,2,4]. Risk factors for stenosis are previous catheter related sepsis [2,5], more cannulations of that vein [2], and more cumulative days of cannulation per vein [1,2], all of which factors were pertinent in our patient.

In our case, there had been one episode of catheter sepsis, and a total of three separate cannulations at the left femoral site, one of which had been used for over 8 weeks. The natural history in this case appears to be of a gradually progressive stenosis over time, with no raised venous pressures at dialysis to suggest the underlying lesion: as femoral cannulation becomes more commonly used, this type of stenosis may contribute to the inability to obtain adequate flows through femoral catheters in other patients. Evidence for the use of MR venography at present, attractive because of its non-invasive nature, is mixed, with sensitivities reported between 45–100%, and significant reader variability in reporting. From our experience we would advocate that standard contrast venography remains at present the investigation of choice.

In summary, this case demonstrates that as femoral catheterization is being deployed with increasing frequency, clinicians must be just as aware of the possibility of secondary stenoses in the pelvic veins, as of those occurring after upper central venous cannulation which, as in this case, may present a threat to the viability of the limb.

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