

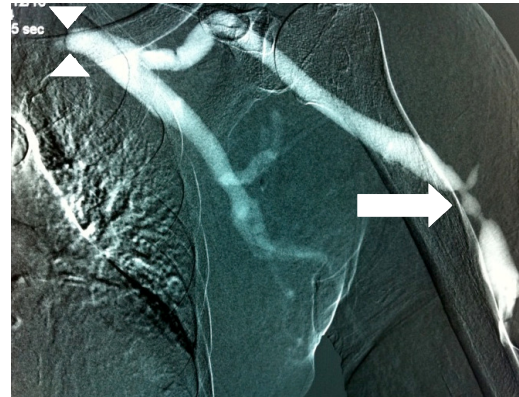
**(Refer to page 138)****Answer: Central vein stenosis**

The incidence of central vein stenosis (CVS) following catheterisation with double lumen temporary or permanent catheters for haemodialysis has been reported to be as high as 40%.<sup>1</sup> In a study of 100 patients undergoing haemodialysis with double lumen catheters, 11% had CVS affecting the subclavian vein (SCV), 4% in the internal jugular vein (IJV) and SCV, 2% in SVC and brachiocephalic vein and 2% in IJV.<sup>2</sup>

The aetiology of CVS may be due to high flow states created by an active arteriovenous fistula (AVF), in contrast to the low flow normally seen in veins, creating turbulence at sites of venous valves, kinked vessels or the presence of indwelling double lumen catheters.<sup>3</sup> Long-term indwelling double lumen catheters has been reported to be a significant factor in the development of CVS.

Patients generally present with unilateral progressive swelling of the arm with the active AVF. The affected arm can be twice the size of the normal arm with pitting oedema and skin with *peau-de-orange* appearance commonly seen in lymphoedema. The arm is cool to touch and in severe cases, the fingers may be cyanotic fingers from congestion.

Deep venous thrombosis needs to be excluded. Once this is excluded, duplex ultra-sound can be performed to examine the



central veins and in most cases diagnosis can be confirmed. A fistulogram is the gold standard for diagnosing CVS (**Panel**, indicated by arrowheads).

Management depends on whether the AVF is still required. If not, ligation of the high flow AVF would resolve the problem in all cases. Otherwise, the CVS can be repaired by open direct repair with or without using synthetic graft. A less invasive alternative is angioplasty with stenting.<sup>3</sup> However, angioplasty alone is insufficient to resolve the stenosis as the fibrosis around the vein usually leads to restenosis in 74%, necessitating re-intervention. The three, six, 12 and 24 month primary patency has been reported at 92%, 84%, 56% and 28% respectively.<sup>3</sup> Although useful, repeated interventions are required to maintain patency. Open repair provides better long-term results but carries significantly high operative risk. The use of aspirin was also found to be protective of developing CVS and warrants further study.

**REFERENCES**

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