

We used ultrasound to assess the cause of blockage on movement, and degree of tip movement, of 62 venous and 21 radial arterial catheters. In both venous and arterial catheters, blockage was predominantly caused by impingement of the catheter on the vessel wall, with catheter kinking and spasm of the vessel also seen” Hebbard and Flinn (2017).

Abstract:

Peripheral intravenous and intra-arterial catheters often block with movement of the limb in which they are inserted. Although the cause of this blockage is commonly attributed to a valve or other structure within the vein, evidence for this is lacking. We used ultrasound to assess the cause of blockage on movement, and degree of tip movement, of 62 venous and 21 radial arterial catheters. In both venous and arterial catheters, blockage was predominantly caused by impingement of the catheter on the vessel wall, with catheter kinking and spasm of the vessel also seen.

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Mean potential tip movement was 12.3 mm and 5.7 mm in hand and forearm venous catheters respectively and 9.5 mm in radial artery catheters. There was a significantly lower rate of blockage for forearm (20%) compared to dorsal hand venous catheters (83%, $P < 0.001$) and 52% of radial artery catheters showed damping and blockage on wrist flexion. This study emphasises the advantages of placement of venous catheters in the straight veins of the forearm.

Reference:

Hebbard, P.D. and Flinn, P. (2017) Intravascular catheters-an ultrasound imaging based observational study of position and function. *Anaesthesia and Intensive Care*. 45(4), p.499-502.



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