Abnormal U-shape course of central venous catheter

Sir,

A 50-year-old male patient with shortness of breath was referred from other hospital to our center. After doing all routine blood investigations and bedside chest X-ray in the casualty ward, patient was transferred to intensive care unit. Patient had triple lumen central venous catheter (CVC) in right internal jugular vein (IJV) which was inserted in outside hospital. However, there was no back flow in all 3 lumens, so it was removed. Chest X-ray revealed abnormal U-shape course of CVC [Figure 1]. Before inserting new central venous line, ultrasound of right IJV was done which showed large valve in right IJV [Figure 2]. Central line was inserted in left IJV under ultrasound guidance. Back flow in all 3 lumens of CVC was present.

Valve in IJV is present in 88–100% of cases. It inhibits retrograde flow from the right atrium to the brain.[1] This valve prevents a sudden increase in the jugular venous pressure during positive pressure ventilation or conditions with raised abdominal pressure (e.g., ascites). Thereby it prevents cerebral congestion by avoiding excessive backward flow to the brain.[1] The types of valve leaflet can be unicuspid (1.4–16%), bicuspid (77–98%) or tricuspid (0–7%).[2] There is a risk of persistent incompetence of the IJV valve by CVC.[3] Valve damaged during IJV catheterization can be a site for thrombus formation[1] Large venous valve causing difficult central catheter placement has been reported.[4] In the present case, large valve in IJV might have changed the course of guidewire in the reverse direction. CVC rolled over the guidewire acquired the same U-shape course of

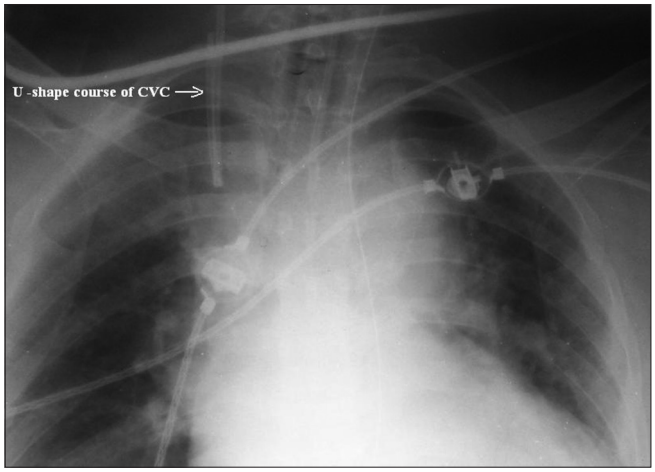

Figure 1: Chest X-ray showing abnormal U-shape course of central venous catheter

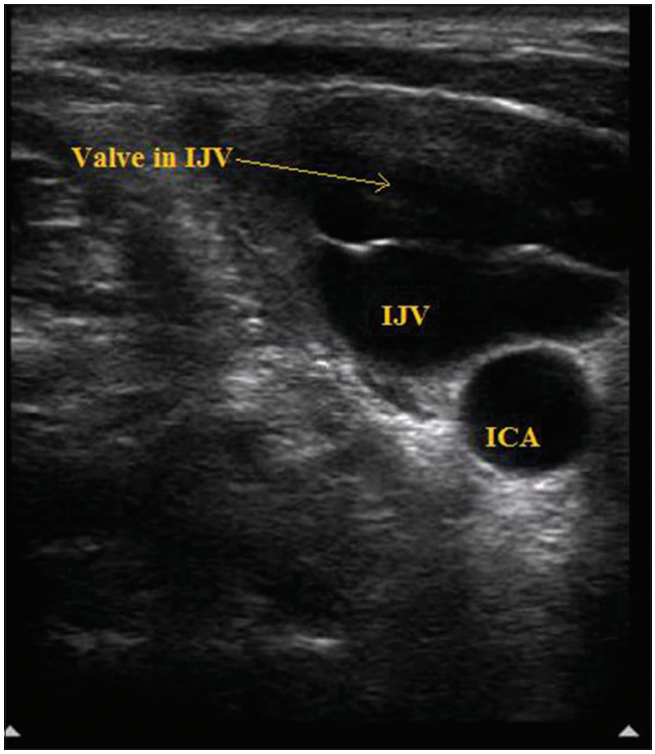

Figure 2: Ultrasound image showing large valve in internal jugular vein

guidewire. There was no backflow in all 3 lumens due to reverse bent of CVC at IJV valve. It is always better to do ultrasound screening of course and structure of IJV before CVC.

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