

Trendelenberg position in subclavian vein cannulation in patients with pleural effusion: A necessary evil?

Sir,

Trendelenberg position is routinely applied during subclavian vein cannulation.^[1,2] However, in patients with pleural effusion, Trendelenberg position is to be applied with great caution. We would like to report two cases where pleural fluid was aspirated while attempting subclavian vein cannulation in patients with pleural effusion.

A 30-year-old female patient, with bilateral pneumonia and minimal pleural effusion and on ventilator, required central venous access. Having checked that the coagulation parameters were within normal range, it was decided to cannulate the right subclavian vein. Patient was placed in a 15 degree Trendelenberg position with a roll of sheet under the shoulders. Under strict aseptic precautions, a 16 gauge needle with syringe attached was inserted 1.5 cm below the medial and distal third junction of right clavicle, pointing towards the suprasternal notch. After hitting the clavicle, the needle was gently slid under the clavicle and was threaded further while applying continuous negative pressure. While inserting, a thin yellow colored fluid was aspirated. The needle was withdrawn. There were no signs of pneumothorax. Patient was observed in the ICU for 6 hours, and the right-sided subclavian vein was cannulated subsequently.

A 60-year-old female patient with acute and chronic pancreatitis required central venous access for total parenteral nutrition. Coagulation parameters were within the normal range, and it was decided to cannulate left subclavian vein. The patient was placed in 15 degree Trendelenberg position with a roll of sheet under the shoulders. Under strict aseptic precautions, 16 gauge needle with syringe was

inserted with at 1.5 cm below medial and distal third of left clavicle using the same technique as described above. As the needle was advanced further with continuous negative pressure, yellow colored fluid was aspirated. A triple lumen catheter was passed over guide wire using seldinger technique. Yellow colored fluid was aspirated through all 3 lumens. The catheter was withdrawn. The patient was stable with no signs of pneumothorax. The left subclavian vein was subsequently cannulated. Post-procedure chest x-rays to confirm the position of central line showed no evidence of pneumothorax.

Diagnosis of pleural fluid was made on the basis of clarity and color of the fluid. A biochemical analysis would have been confirmatory but could not be carried out due to infrastructural problems and cost considerations.

Through the report of these two cases, we would like to highlight that great caution is to be practiced while cannulating a central vein in the presence of pleural effusion. Trendelenberg position causes the pleural fluid to gravitate and distend the pleural cap, making the cannulation of central vein technically more challenging, but on the other hand, it could protect from pneumothorax..

In such cases, an alternate site such as the internal jugular vein, with a comparatively lower risk of pneumothorax but a higher risk of infection^[1] and patient discomfort may be considered for central venous access. Ultrasound-guided central venous catheterization, if available, can also help reduce the rate of pleural insertions and other complications.^[3]

Thus, in conclusion, caution is required while cannulating the subclavian vein in the Trendelenberg position in patients with pleural effusion in order to avoid pleural puncture.

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References

1. McGee DC, Gould MK. Preventing complications of central venous catheterization. *N Engl J Med* 2003;348:1123-33.
2. McGee WT, Moriarty KP. Accurate placement of central venous catheters using a 16-cm catheter. *J Intensive Care Med* 1996;11:19-22.
3. Karakitsos D, Labropoulos N, De Groot E, Patrianakos AP, Kouraklis G, Poularas J, *et al.* Real-time ultrasound-guided catheterisation of the internal jugular vein: A prospective comparison with the landmark technique in critical care patients. *Crit Care* 2006;10:R162.

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