

## Hydrothorax: An Uncommon Complication of Central Venous Catheterization

Sir,

Central venous catheterization (CVC) is an interventional technique, which is frequently used in critical patients and is associated with both short term and long term complications. Mechanical complications from CVC remain a significant cause of morbidity and mortality in inexperienced hands. They are considered as iatrogenic and hence, have medicolegal significance.

We report a rare complication of unilateral hydrothorax due to malposition of central venous catheter. Our extensive search found out that very few reports of hydrothorax secondary to CVC are available on Medline. Prompt recognition of complication and its treatment prevented further morbidity.

A 42-year-old female of American Society of Anesthesiology (ASA)-II having carcinoma esophagus was posted for transhiatal oophagectomy under general anesthesia. Considering intraoperative and postoperative fluid requirements, we decided to put a central line. Under aseptic precautions, a 16 G intranule was inserted in the right internal jugular vein (IJV) with free aspiration of blood. An intravenous (IV) line was connected, which showed free and fast flow of fluid. The tumour was found to be inoperable and ended with feeding gastrostomy. Meanwhile 1,000 mL of IV fluid was administered. The patient was hemodynamically stable throughout the surgery with normal peripheral capillary oxygen saturation (SpO<sub>2</sub>) and normal airway pressures. After completion of surgery, the patient was extubated and shifted to the postoperative ward. There, she received some more fluid. At night, she suddenly became dyspneic with a fall in O<sub>2</sub> saturation. On auscultation, there was no air entry on the right side of the chest. Emergency x-ray of the chest showed massive pleural effusion on the right side. Intercostal drain was placed to drain the hydrothorax. This drain contained clear fluid and the volume was comparable to the volume of fluid that the patient received through the central line. The patient's condition markedly improved thereafter. The central line was removed immediately. The follow-up chest x-ray did not show any effusion. The patient was discharged on the 7<sup>th</sup> day with stable vitals. With this case report, we want to highlight the fact that mechanical complications due to CVC are potentially lethal. The following points are to be considered to prevent such complications:

- One should always prefer flexible catheters with the J guide wire for insertion instead of wide bore stiff cannulas though they are more economical
- One should confirm the tip of the catheter in the vein. Only by chest x-ray, we cannot conclude about whether the tip is in the vessel or in the pleura. Injection of contrast into the catheter may be helpful in determining the location of the

catheter. Ultrasound-guided central venous cannulation can be useful to confirm correct placement of the catheter in the vein. Transesophageal echocardiography can also be utilized to identify a wire in the vena cava or right atrium<sup>[1]</sup>

- It should be kept in mind that complications as a result of CVC can occur at a later stage too<sup>[2]</sup>
- One should be cautious not only while inserting but also while removing these catheters. An intrapleural catheter that has traversed a vessel before entering the pleural space actually may be plugging a pathway for blood to flow into the pleural space.<sup>[3]</sup> Hemorrhage into the pleural space may increase with removal of the catheter. This is a key reason why large bore catheters that have been misplaced should not be removed blindly or without imaging studies
- Experience and skill of the anesthetist is equally important.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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##### DOI:

10.4103/2394-6954.173538

**How to cite this article:** Patki J. Hydrothorax: An uncommon complication of central venous catheterization. *Karnataka Anaesth J* 2015;1:161.