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■ Image in Critical Care ■

A Pleural Catheter Malposition through Diaphragm to Abdominal Cavity

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A 78-old-man with history of diabetes mellitus and cerebral infarction was transferred to intensive care unit of Korea University Anam Hospital from nursing hospital. He presented with acute respiratory failure requiring mechanical ventilation caused by pneumonia and empyema. We inserted chest tube for empyema on the right side. A few days later, pleural effusion occurred on the left side. Thus, pleural catheter was inserted into left seventh intercostal space at the mid axillary line after marking of site using ultrasound. Chest simple radiography showed that the catheter direction had been inserted too downward (Figure 1A). A subsequent computed tomography scan revealed that the catheter first entered into the pleural space, passed through diaphragm, and the tip was located in the abdominal cavity (Figure 1B). The catheter was removed immediately with a close monitoring. After catheter removal, the patient was still stable and showed no signs or symptoms of any complication. The rate of chest tube malposition is less than 3% and 0.6% especially for small drain [1,2]. Pleural catheter malposition was very rarely reported [3]. Pleural catheter into the abdominal cavity through diaphragm is an exceptional complication. Various complications from chest tube misplacement into the abdominal cavity

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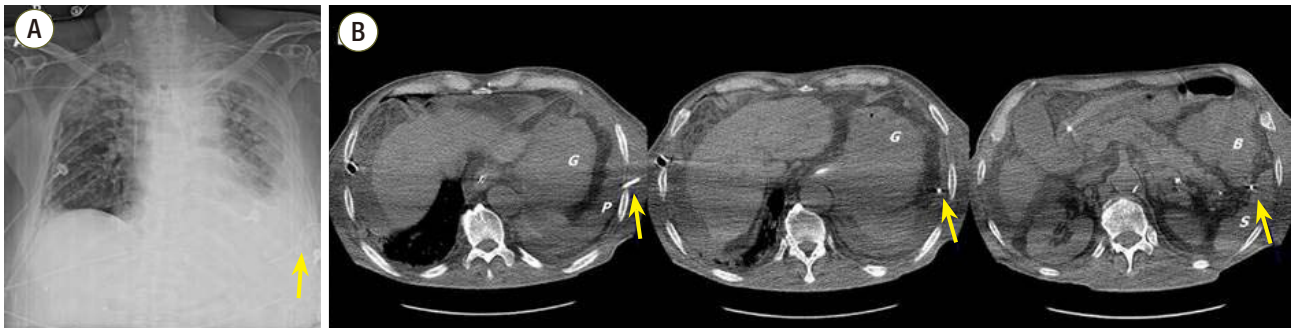

Figure 1. (A) Chest radiography showed the pleural catheter directed downward, marked with arrow. (B) Computed tomography scan showed that the catheter first entered into the pleural space, passed through diaphragm and the tip was located in the abdominal cavity, marked with arrows. G: stomach; P: pleural effusion; B: bowel; S: spleen.

were reported [4]. Catheter malposition into the abdominal cavity, although rare and less severe, also can lead to injury of diaphragm and any intra-abdominal organ such as stomach, liver, spleen, bowel. Clinical manifestation includes enteric content drainage, peritonitis, bleeding, hemodynamic instability, respiratory insufficiency. The position of the pleural catheter must be checked through chest radiograph after insertion. Also, proper training and supervision are needed as well as ultrasound guidance to reduce complications associated with pleural procedures.

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