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CLINICAL IMAGE

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Chest drainage, a basic but essential procedure

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Key message

Chest drainage is a basic and important procedure in the treatment of pneumothorax. When properly implemented, even the most severely ill patients may be able to be treated without surgical intervention.

KEYWORDS
chest drainage, chest tube, emergency medicine, pneumothorax, respiratory medicine

CLINICAL IMAGE

The patient was an 80-year-old man. He had undergone chest drainage at another hospital using a 20-Fr tube for secondary left pneumothorax related to chronic obstructive pulmonary disease, but was transferred to our hospital due to worsening respiratory condition (Figures 1A and 2). The tip of the tube was identified between the lung lobes. On arrival, heart rate was 122 beats/min, respiratory rate was 36 breaths/min, blood pressure was 88/49 mmHg, and peripheral capillary oxygen saturation was 86% on supplemental oxygen at 15 L/min. Degassing with a single 20-Fr tube proved difficult due to an incorrectly positioned tube tip and large air leaks. The initial tube was removed and two new 24-Fr tubes were placed (Figure 1B). After the procedure, subcutaneous emphysema gradually improved within 7 days. Air leakage was observed during coughing, suggesting alveolo-pleural fistula. Since the patient did not wish to undergo surgery, only talc pleurodesis was performed as an additional treatment.[1] Eventually, pneumothorax resolved with no recurrence after the removal of the chest tubes one at a time (Figure 1C,D). Chest drainage is a basic and important procedure in the treatment of pneumothorax. If properly implemented, this technique may be able to treat even the most severely ill patients.

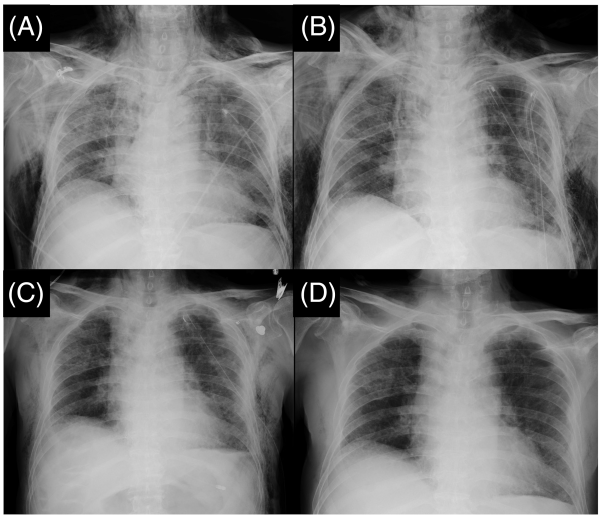

FIGURE 1 Changes on chest radiography. (A) Chest radiography at the time of transfer to our hospital. Marked subcutaneous emphysema is noted, but the chest tube seems appropriately located at first glance. (B) Chest radiography after chest tube replacement. Two 24-Fr tubes have been placed. Talc pleurodesis was performed later. (C) Chest radiography after talc pleurodesis. Air leakage observed during coughing has improved and the pulmonary fistula is considered closed. The subcutaneous emphysema has continued to disappear after removal of one chest tube. (D) Radiography after chest tube removal. After removal of the tube, subcutaneous emphysema has completely resolved and the left lung shows full inflation.

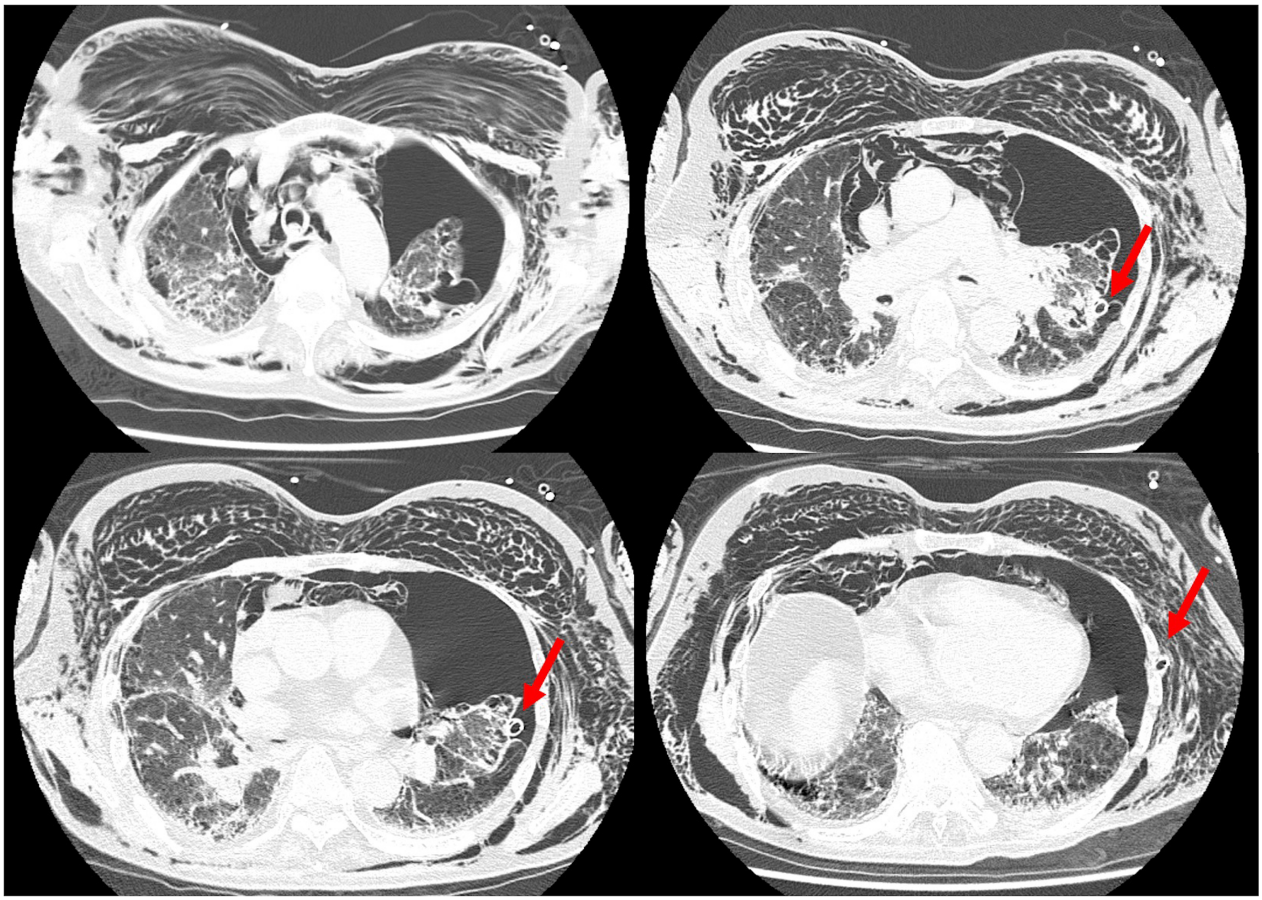

FIGURE 2 Chest computed tomography at the time of transfer to our hospital. Marked subcutaneous emphysema is seen throughout the body, along with collapse of the left lung. A single 20-Fr tube has been placed in the thoracic cavity, but the tip lies between the lobes of the lungs (arrow). Degassing with a single 20-Fr tube is difficult due to incorrect positioning of the tube tip and large air leaks.

AUTHOR CONTRIBUTIONS

MH wrote the manuscript. MH and TI contributed to the data collection. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

Research data are not shared.

ETHICS STATEMENT

The authors declare that the appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

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