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Case Report

BiPAP Is Not Always the Right Answer

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Abstract

Severe emphysema can result in spontaneous pneumothorax and even pneumomediastinum and cause acute dyspnea. Early recognition is important because routine bi-level positive airway pressure therapy for respiratory support can make it worse.

Case Presentation

67 year-old man with known medical history of recurrent stage IV squamous cell carcinoma of the lung and bullous lung disease, who developed severe right-sided chest pain and shortness of breath after a coughing episode. Emergency Medicine Technicians noted right-sided facial swelling and startedbi-level positive airway pressure for respiratory support. Workup in the Emergency Department revealed bilateral pneumothorax and severe subcutaneous emphysema. He later developed severe respiratory distress, thus was intubated and placed on mechanical ventilation. He required placement of multiple chest tubes. He was discharged after 10 days but was admitted again in 4 weeks for worsening pneumothorax and pneumomediastinum. Chest radiograph (Figure 1) and computed tomography (Figure 2) show the emphysematous lung changes and extensive subcutaneous emphysema and pneumomediastinum. The coughing episode resulted in the pneumothorax and subcutaneous emphysema extending to the right side of neck and face. Those worsened with the positive-pressure ventilation.

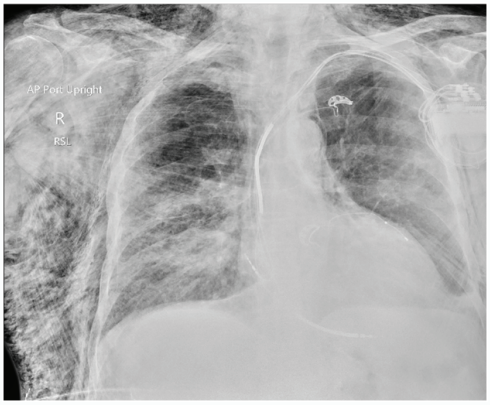

Figure 1: Chest radiography showing extensive subcutaneous emphysema.

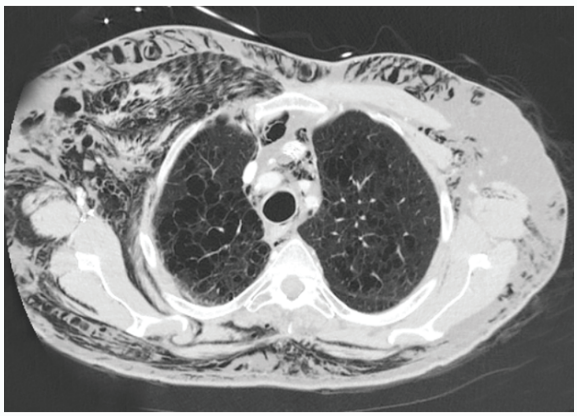

Figure 2: Chest computed tomographic scan showing emphysematous lung disease with pneumomediastinum and subcutaneous emphysema.

Discussion

Subcutaneous emphysema is not an uncommon complication of barotrauma and is associated with increased mortality [1]. Risk factors include severe emphysema, particularly if associated with spontaneous pneumothorax and managed with positive pressure ventilation. Differential diagnosis for sudden-onset chest pain and shortness of breath that occurs after a coughing episode should always include pneumothorax. Swelling under the skin should always be evaluated, especially if worsened after positive pressure ventilation. Physical examination in this case may reveal subcutaneous crepitus. Findings can be confirmed with chest radiography. Management may include using the lowest positive end-expiratory pressure possible during ventilation and even thoracostomy tubes if needed [2].

References

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