Massive Subcutaneous Emphysema

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Figure 1 CXR demonstrating massive subcutaneous emphysema.

An 87-year-old woman with COPD presented with sudden-onset shortness of breath. She was tachypneic, with increased work of breathing and decreased breath sounds over her right hemithorax. She was intubated and had a right chest tube placed for acute respiratory failure and tension pneumothorax. Shortly afterward, she developed massive subcutaneous emphysema involving her arms, breasts, abdomen and right thigh. Chest radiography was performed after the procedures. Two days later, computed tomography imaging of the chest was performed. A chest drainage system showed persistent air leak without resolving subcutaneous emphysema. The patient subsequently underwent a right thoracotomy with right lower lung wedge resection. The subcutaneous emphysema improved significantly.

Figure 2 Computed tomography imaging of the chest revealing extensive bilateral subcutaneous, emphysema, pneumomediastinum, right pneumothorax and the tip of the chest tube in lung bullae.

Common causes of subcutaneous emphysema include blunt trauma, pneumothorax, pertussis, rib fracture, ruptured bronchial tube or esophagus, or a complication of tube thoracotomy. Clinical findings include swelling and crepitus over the involved site. In general, subcutaneous emphysema is self-limited, but respiratory and circulatory difficulties can occur due to compression of the trachea and great vessels at the thoracic inlet.¹ Successful treatment techniques for massive subcutaneous emphysema have been reported.² Bilateral infraclavicular incisions and subcutaneous drain by trocar-type chest tube have been successfully performed in a small number of cases.^{2–4} These techniques were considered effective and safe.

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