

Case Report

A 63-Year-Old Female Presenting to the Emergency Department with Massive Facial Swelling and Dyspnea

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A 63-year-old woman presented to the emergency department with acute dyspnea and progressive swelling of the face (Figure 1), neck, and upper trunk. An allergic reaction was suspected and intravenous prednisolone 250 mg and dimetinden 2 mg were administered, which did not result in improvement of her symptoms. Because of increasing global respiratory insufficiency, the patient required tracheal intubation and admission to the intensive care unit.



Figure 1. Massive facial swelling in particular of the orbital region.



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What Is Your Diagnosis?

Diagnosis: Subcutaneous Emphysema

On skin palpation, there was a clear crepitus. The patient received a chest X-ray, revealing a pneumothorax on the right side with massive soft tissue and mediastinal emphysema. Moreover, a right-sided non-dislocated fracture of the 7th rib dorsolateral was detected. This was in agreement with her history of having fallen on her hemithorax one day before presentation to the hospital. After the fall, however, the patient had no pain or other complaints. Cranial and thoracic computed tomography revealed massive subcutaneous soft tissue emphysema of the face, eyes, neck and a pneumothorax, with massively replacing atelectasis of the right lung (Figure 2). At first, a Portex/Seldinger chest drainage kit was used. This was replaced one day later by a Bülow-drainage system. Within three days, the pneumothorax as well as the soft tissue emphysema significantly regressed, accompanied by the resolution of the patients' respiratory problems. Hence, the patient could be extubated. During the course of her condition, several control X-rays were performed to control how much air was being drained and how much the lung re-expanded, and also to determine the final position of the chest tube. Accordingly, the Bülow drainage was removed after four days since there was no more air escaping through the tube and the right lung was fully re-expanded. After nine days, the patient fully recovered and was discharged from hospital.

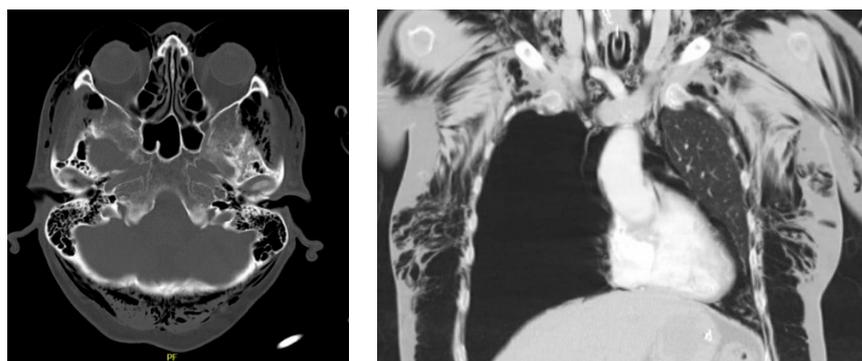


Figure 2. Cranial (left) and thoracic (right) computed tomography one day after presentation to the hospital.

Subcutaneous emphysema is caused by air bubbles or other gases trapped in the subcutaneous tissue, resulting in a sudden onset of swelling in the affected areas [1]. Air is capable of migrating through fascial planes to affect a variety of body sites, including the thorax, abdomen, perineal area, limbs and most frequently the neck and face. The latter manifestations may mimic acute angioedema [2], particularly when it is associated with dyspnea. Even though the clinical presentation of facial subcutaneous emphysema strongly resembles that of angioedema, one can easily differentiate both conditions from each other. Crepitation, which can be easily provoked by skin palpation, is a striking clinical finding of patients with subcutaneous emphysema. By contrast, crepitation is not a clinical feature of patients with angioedema or other pseudoangioedemas such as acute contact dermatitis (e.g., hair dyes), dermatomyositis, superior vena cava syndrome, hypothyroidism, Morbus Morbihan, orofacial granulomatosis, and capillary leak syndrome [1].

Subcutaneous emphysema may develop due to different causes, including trauma, pneumothorax, barotrauma, infections, injection injuries, neoplasms, or surgery complication [3]. As also described in the present case, subcutaneous emphysema may occur in association with pneumothorax and/or pneumomediastinum [1]. Subcutaneous emphysema caused by surgery is also called surgical emphysema. If the underlying process is obscure, it is known as spontaneous subcutaneous emphysema which is a rare condition [3]. Notably, subcutaneous emphysema is not a dangerous condition since air is spontaneously reabsorbed over time. However, the underlying cause of subcutaneous emphysema can be

a reason for concern and always necessitates diagnostics as well as treatment. X-ray and/or computed tomography scans should be performed to detect the air in soft tissues and to determine the source of the emphysema. Hence, the air may become trapped because of surgical interventions or trauma in most cases.

In conclusion, facial subcutaneous emphysema is a significant mimicker of acute angioedema. However, it can easily be differentiated from angioedema by means of skin palpation and crepitus provocation.

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References

1. Andersen, M.F.; Longhurst, H.J.; Rasmussen, E.R.; Bygum, A. How Not to Be Misled by Disorders Mimicking Angioedema: A Review of Pseudoangioedema. *Int. Arch. Allergy Immunol.* **2016**, *169*, 163–170. [[CrossRef](#)] [[PubMed](#)]
2. Kaplan, A.P.; Greaves, M.W. Angioedema. *J. Am. Acad. Dermatol.* **2005**, *53*, 373–388. [[CrossRef](#)] [[PubMed](#)]
3. Karadakhly, K.A.; Kakamad, F.H.; Mohammed, S.H.; Salih, A.M.; Ali, R.K.; Kakamad, S.H.; Hama Amin, B.J.; Abdulla, B.A. Recurrent spontaneous subcutaneous emphysema of unknown origin: A case report with literature review. *Ann. Med. Surg.* **2022**, *76*, 103443. [[CrossRef](#)] [[PubMed](#)]

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