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Pneumomediastinum and subcutaneous emphysema may follow dental extraction.

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Pneumomediastinum (PM) and subcutaneous emphysema (SCE) can lead to life-threatening conditions such as pulmonary embolism, extravascular pressure and obstructive shock [1]. Their high dynamics require immediate and accurate diagnosis, which subsequently guarantees proper therapy [2,3]. Dental procedures represent a very rare cause
of PM and SCE, so patients are often misdiagnosed with allergic reactions to locally administered anesthetic agents [4]. The authors present a case of a patient with PM and SCE as complications of dental extraction.

A 21-year-old woman visited a dental clinic for extraction of the right upper third molar. An injection of 1% lidocaine with adrenaline was administered for local anesthesia. The patient’s local and general preparation for dental extraction was exemplary, which was important for clinical, economic and social reasons [5]. During surgery, the patient felt severe central chest pain, exhibited shortness of breath and developed acute dyspnea. The dentist interrupted the surgical procedure to call for an ambulance. The rescuer performed a physical examination, which revealed additional soft tissue swelling on the right side of the face and neck. Chest auscultation was symmetric and normal. The patient was transported to the emergency department (ED), where she was diagnosed with an allergic reaction to the local anesthetic agent. She received standard antihistamine drugs. The vital signs normalized; however, the swelling in the cheek remained. The patient felt better and went home. At night, dyspnea persisted, and chest pain recurred. The patient visited a night health clinic, and she was transported to the nearest hospital. In the emergency room, her vital signs upon arrival were as follows: temperature, 37°C; blood pressure, 130/80 mmHg; and heart rate, 92 beats per minute. The other tests were within normal ranges. Extensive SCE with crepitations was found, involving the tissues of the right infraorbital region, right cheek, both sides of the neck, both supraclavicular fossae and the anterior chest wall. In the neck and chest radiographs, SCE and PM were detected (FIGURE 1A,B). In the tertiary referral university hospital, where the patient was transported, a computed tomography (CT) scan was performed. It revealed massive mediastinal emphysema that extended from the diaphragm to the upper thoracic aperture, including the paraoesophageal and paratracheal areas, upward into the soft tissues around the neck and right cheek (FIGURE 1C,D) along the anterior surface of the sternum
Maxillofacial and thoracic surgeon consultations were performed, which confirmed PM and SCE diagnoses. No abnormalities from gastro- or bronchoscopy were revealed. An otolaryngology consultation did not reveal any defects in the mucosa of the oral cavity or pharynx. The patient was treated conservatively, and the treatment included intravenous fluids, pain killers and prophylactic antibiotics. After five days of hospitalization, the radiological and physical symptoms regressed, and the patient was discharged.

The authors highlight dental extraction as one of the potential causes of PM and SCE. The diagnosis may be established with plain anterior chest and neck films. Physicians must be aware of these rare complications of dental procedures to avoid misdiagnosing specific symptoms.

References

FIGURE 1. (A) Posteroanterior neck radiograph showing air in the subcutaneous tissue (arrows). (B) Posteroanterior chest X-ray image showing the subcutaneous supraclavicular emphysema and pneumomediastinum (arrows). (C) Computed tomography scan showing the dental extraction area, where air entered from the oral cavity to the right cheek subcutaneous
space (arrow). (D) Computed tomography scan showing air typically found in areas anterior and lateral to the thyroid gland and medial to the internal jugular veins (arrows). (E) Computed tomography scan showing gas located in the presternal subcutaneous and retrosternal mediastinal areas (arrows). (F) Computed tomography scan showing gas located anterior to the pericardium (arrows).