



Correspondence

Extraction with an electric motor-driven handpiece may still cause subcutaneous emphysema - A case report

**KEYWORDS**

Subcutaneous emphysema;
Extraction complication;
Dental iatrogenic disease;
Dental high-speed equipment

Subcutaneous emphysema (SE) in the head and neck region is a rare iatrogenic complication from oral surgery, restorative dentistry, endodontic, and periodontal treatments.^{1,2} The air-driven air-turbine handpiece was responsible for most SE events. Patients with SE show noticeable swelling and discomfort where air has penetrated into subcutaneous tissue. Differential diagnosis of SE from anaphylactic reactions or angioedema is crepitus on palpation and timing. In severe cases, SE can spread and cause respiratory or cardiac distress.³ However, most SE cases resolve within 3–5 days without complications.

This article reported a case of SE around the paraorbital and submandibular regions through extractions of teeth 28 and 38. This 20-year-old man came to the emergency room at night with the major complaint of pain and discomfort during swallowing. Sudden swelling at his left face during extractions of teeth 28 and 38 three hours ago was mentioned. The original surgeon who performed the odontectomy was aware of the SE after removing the surgical drape and specific post-operation instructions were given as follows: immediate hospital care may be needed if the patient encountered difficulties in swallowing or any worsen complications or discomfort. The surgeon was uncertain whether using the electric motor-driven handpiece

during tooth extraction was the main cause of SE. Lacking the ability to differentiate between difficulties in swallowing or post-operation discomfort, the patient decided to visit our hospital for further help. Physical examination revealed that everything was within normal range, except the swelling at the left paraorbital and submandibular regions with typical crepitus on palpation and minor discomfort. Thus, the SE during and after teeth extraction was diagnosed (Fig. 1A). Both the left upper and lower extraction wounds were primarily closed with sutures, no sign of inflammation or swelling was noted at either the tonsil or lingual area, and hemostasis was obtained. Panoramic radiograph showed no obvious jawbone lesion (Fig. 1B). The patient was kept under observation for 1.5 h and then granted permission to leave due to absence of further complications. Oral administration of 1 tablet of amoxicillin/clavulanic acid (875/125 mg/tablet, Curam®) every 12 h, 1 tablet of diclofenac potassium (25 mg/tablet, Cataflam®) three times a day, and dexamethasone (0.5 mg/tablet, Dexazone®) three times a day were prescribed to the patient for 3 days. Patient was later followed at the previous surgeon's local dental clinic after 3 days and signs and symptoms of SE were resolved.

Tooth extraction-related SE is often caused by using air-driven/air-turbine high speed handpiece. Although some suggestions were raised for preventing extraction complications,⁴ using electric-driven, sonic/ultrasonic or non-vented high-speed devices for surgical extraction is the best method preventing the occurrence of SE.⁵ In this case, even though electric motor driven handpiece was used, SE still occurred. That was probably caused by the air from the water-cooling system of the handpiece (from the dental unit) which the surgeon did not notice. This issue was later confirmed by him. It is better to check if there is extra air vented forward from the handpiece before using a new device. By giving antibiotic, analgesic, and corticosteroids, SE can be effectively managed without the need for surgical intervention, but prevention is still the best policy.

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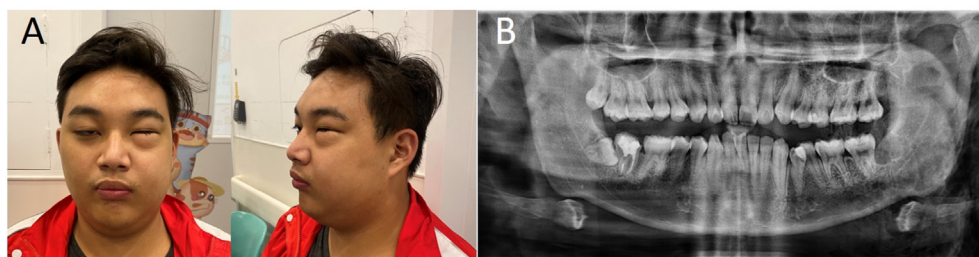


Figure 1 Clinical and radiographic photographs of the patient. (A) Extra-oral appearance of the patient showing the swelling at the left paraorbital and submandibular regions during and after extractions of teeth 28 and 38. (B) Panoramic radiograph showing intact lamina dura of the extraction sockets and no obvious jawbone lesion.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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