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Title: Pulmonary Air Embolism Caused by an Air Turbine During Oral Surgery Under General Anesthesia: A Case Report

Background: In clinical scenarios like wisdom tooth extractions, compressed air may infiltrate tissue gaps or venous vessels. We observed a patient who developed a pulmonary air embolism secondary to subcutaneous emphysema (SE) during a wisdom tooth extraction performed with an air turbine. The patient required immediate cardiopulmonary resuscitation (CPR) and was successfully revived from pulseless electrical activity (PEA).
Case description: This case was a 47-year-old female, and upper and lower pericoronitis on the right side and multiple dental caries were noted. Due to her intellectual disabilities (ID), so the extraction of the upper and lower right wisdom teeth was scheduled under general anesthesia. At approximately 10 minutes after starting the oral surgery, the monitor showed plethysmograph and the end-tidal carbon dioxide (E_TCO_2) waveform disappeared following the sudden drop in SpO_2. Based on these findings, cardiopulmonary arrest (CPA) was diagnosed, and PEA was confirmed on the ECG. CPR was immediately initiated on the dental unit. However, because the dental unit remained in a supine position, it sank with each chest compression. To stabilize the surface and prevent vertical movement, a dental chair was placed under the backrest of the dental unit. Approximately 3 minutes after starting CPR, the SpO_2 plethysmograph reappeared on the monitor during artificial ventilation. A CT scan was performed, and she was diagnosed pulmonary air embolism resulting from SE caused by the use of an air turbine with compressed air.
Conclusion: This case highlights that SE can easily occur when using an air turbine with compressed air in dental procedures. In severe instances, an air embolism resulting from SE may lead to CPA. Therefore, caution is needed when using dental instruments and drills that utilized compressed air during dental procedures.

Reference: Abe S, Wakamatsu K, Takahashi K, Sato H, Yoshida K, Yamazaki S, Kawaai H. Pulmonary Air Embolism Caused by an Air Turbine During Oral Surgery Under General Anesthesia: A Case Report. Int Med Case Rep J. 2025, 18:1439-1446. doi: 10.2147/IMCRJ.S547085. eCollection 2025.