

Pneumomediastinum following a dental procedure

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Maythem A. Al-Kaisy *
Noura I. Al-Shaibani **
Mohammad Fazallulah ***

MBChB JMCC.A&EM
MBChB JMCC.A&EM
MBChB

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Abstract:

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Background: Subcutaneous emphysema is a common presentation in the emergency department. The presence of emphysema in the head and neck regions due to dental procedure is not common and the presence of pneumomediastinum is exceedingly rare.

Case Report: A young lady presented to the emergency department with chest pain and found to have pneumomediastinum following a dental procedure including wisdom tooth extraction.

Conclusion: Complications following dental procedures are not uncommon, hence there should be a high index of suspicion for the emergency physicians for such patients, especially when air turbine dental tools have been used.

Keywords: Pneumomediastinum, dental procedure, surgical emphysema, air turbine, chest pain.

Introduction:

Cervicofacial subcutaneous emphysema arises when air is abnormally collected in the subcutaneous tissues of head and neck. It is usually the result of trauma or surgery in head and neck regions; however, it can also be caused by general anaesthesia, coughing or Valsalva manoeuvre. The occurrence of subcutaneous emphysema due dental interventions is rare, and mediastinal introduction of air is much scarcer (1). These scenarios could lead to dangerous and life-threatening infections in the retropharyngeal and mediastinal spaces because of the likelihood of extension of bacteria through the maxillofacial fascial space into the mediastinum (2). However, most of such conditions resolve on their own. Thoracic and general surgeons are usually involved in the treatment of these clinical scenarios due to the risk of development of life-threatening situations such as oesophageal perforation or necrotizing mediastinitis that need to be excluded or managed on an emergency basis (3).

Case Report

A 35 years-old girl with unremarkable medical history, presented to our emergency department with shortness of breath, neck, and chest pain. On the same day, the patient visited a private dental clinic where she had undergone a left wisdom tooth extraction. She went home after her procedure and within 3 hours, she began experiencing chest pain and shortness of breath. On arrival to the emergency department, she was feeling anxious, her respiratory rate was 22 per minute, her heart rate was 120 bpm, and blood pressure 135 / 76 mmHg. On examination she had mild left-sided neck tenderness, but normal heart

and lung examination. Routine laboratory tests were sent which were normal and a chest-x-ray was obtained (Fig.1). The x-ray showed signs of left-sided pneumomediastinum, and surgical emphysema in the left suprascapular region, suggesting a ruptured bulla. A chest CT-scan was done (Fig.2 & Fig.3) which clearly showed the extent of pneumomediastinum and surgical emphysema with no signs of lung bullae or blebs. The patient was informed about the condition, and a surgeon was consulted. The patient was admitted under surgical services, and a thoracic surgeon was consulted for further management. Our follow up of the patient showed that she was put under observation, a repeat chest x-ray was done which demonstrated clearance of previously noted emphysema and pneumomediastinum. The patient was discharged after 3 days with no surgical intervention.

Discussion:

The development of spontaneous pneumomediastinum is commonly seen in healthy patients after peripheral pulmonary alveoli burst because of an instant rise in the intra-alveolar pressure usually after exaggerated Valsalva manoeuvre (4). However, pneumomediastinum following emphysema in the cervicofacial planes is exceedingly uncommon and has been mentioned in the literature after head and neck surgery, trauma to the face and oral cavity as well as dental surgical interventions (5). The introduction of air into the subcutaneous tissues is usually caused by using high pressure high-speed air-turbine dental tools on 2nd and 3rd lower molars as well as wisdom teeth because the roots of the mentioned teeth open straight into the sublingual and submandibular spaces (6). The air from the device is assumed to enter through the oral cavity through the mentioned teeth into the pterygomandibular, parapharyngeal, and

*Dept. of Emergency Medicine, Tawam Hospital, Al Ain, UAE.

Correspondence email: dr.maythem84@yahoo.com,
nishaibani@seha.ae,
mfazalullah@seha.ae.

retropharyngeal spaces in addition to the mediastinum. Usual cases happen with extra invasive oral procedures, including extraction and root canals (7). In our case, the extraction of the wisdom tooth using high-speed high-pressure air turbine device most likely led to the inception of air into the subcutaneous tissues of the neck that eventually led to pneumomediastinum. The literature also supports this as the most common aetiology.

Conclusion:

In our conclusion, patients presenting to the emergency department after visiting a dentist should not be overlooked, specifically those who underwent a procedure involving wisdom tooth, as there might be dangerous and life-threatening complications that need immediate diagnosis and management.

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Authors' contributions:

Maythem Abdulhassan Al-Kaisy: Study conception, study design, drafting of manuscript, clinical revision.
Noura Ishaq Al-Shaibani: Acquisition of data analysis
Mohammad Fazallulah: Interpretation of data.

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استرواح المنصف بعد اجراء تداخل في الاسنان

د. ميثم القيسي
د. نورا الشيباني
د. محمد فاز الله

الخلاصة:

خلفية البحث: استرواح الجلد هو من الأسباب الشائعة للقدوم الى ردهة الطوارئ. ولكن وجود استرواح الجلد في منطقة الرأس والرقبة نتيجة تداخل جراحي متعلق بالأسنان هو ليس عرض شائع. ووجود استرواح المنصف هو نادر جدا.

تقرير الحالة

دخلت الى ردهة الطوارئ سيده شابته تعاني من الم في الصدر وقد وجد انها تعاني من استرواح المنصف بعد قدومها من عيادة طب الأسنان حيث قامت بعملية قلع لاحد أسنان العقل.

الخلاصة

المضاعفات التي تلي التداخلات في طب الأسنان هي ليست غير مألوفة. لذلك يجب وجود قدرة شك عالية لطبيب الطوارئ في مثل هذه الحالات. خاصة عند استخدام أدوات التوربينات الهوائية.

الكلمات الدالة: استرواح المنصف. اجراء سني. نفاخ جراحي. توربين هوائي. الم في الصدر