CASE REPORT

Subcutaneous emphysema to the head and neck: an unlikely traumatic origin

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Accepted 29 May 2018

SUMMARY

Subcutaneous emphysema to the neck represents a rare entity mainly derived from iatrogenic and traumatic origin. We report a case of a subcutaneous emphysema resulted from an intraoral injury aiming to emphasise the significance of precise medical history to identify an unlikely mechanism. A 40-year-old female patient was presented with subcutaneous emphysema extending from the region underneath the left eye up to the submandibular area of the neck. The patient complained of painful, swollen neck. The patient mentioned that the symptoms began after an intraoral injury accidentally caused by the use of a high-pressure water jet device meant for car wash. The patient was managed conservatively and was discharged after 2 days. This case highlights the urgency for clinical suspicion for unlikely mechanisms. Moreover, the manufacturer companies should alert and give official warning for the contingency of injury due to incorrect or careless usage.

BACKGROUND

Subcutaneous emphysema to the neck represents an entity mainly derived from iatrogenic and traumatic origin. Furthermore, it has been referred to as spontaneous when the aetiology is unclear.¹ We report a case of a subcutaneous emphysema resulted from an intraoral injury. The aim of the study is to emphasise the significance of precise medical history to identify an unlikely mechanism since the misuse of a water jet device was the source of trauma.

Figure 1 Oral examination revealed palate oedema and a deep ulceration in the oral mucosa of the retromolar region (blue arrow).

CASE PRESENTATION

A 40-year-old female patient was admitted to the emergency department complaining of painful, swollen left part of the neck and pain in chewing and swallowing. Voice and breathing was normal without any signs of distress. Medical history was negative. The patient had no history of previous surgical procedure or signs of inflammation. The patient mentioned that the symptoms began after an intraoral injury accidentally caused by the use of a high-pressure water jet device meant for car wash and became worse the following 2–3 hours, leading her to the decision to visit the emergency department. Physical examination revealed painful swelling on the neck extending from the region underneath the left eye until the submandibular area of the neck and there was crepitus on palpation. Oral examination revealed soft palate oedema and a deep ulceration in the oral mucosa of the retromolar region (figure 1). Endoscopy with the use of a flexible endoscope did not reveal significant oedema of the mucosa or signs of airway compromise.

INVESTIGATIONS

Endoscopy revealed swelling of the left wall of nasopharynx, oropharynx and vallecula without further extension to the larynx or airway compromise. The rest of the clinical examination was unremarkable and vital signs were normal.

CT of the head and neck revealed extended subcutaneous emphysema containing multiple air bubbles at the level of the left orbital area extending to the upper level of the thyroid cartilage whereas multiple air bubbles were identified medially to the mandible. In addition, mild swelling of the left rhinopharyngeal and pharyngeal wall with vallecula obliteration was noticed ipsilaterally. Slight deviation of the airway was noticed without oedema or obstruction (figures 2 and 3).

TREATMENT

The patient was managed conservatively with intravenous administration of antibiotics and anti-inflammatory medications. She was discharged 2 days later after the swelling resolved.

OUTCOME AND FOLLOW-UP

The patient was examined 15 days later, and she had a complete uneventful recovery.

DISCUSSION

Subcutaneous emphysema to the head and neck represents an uncommon condition. There is a

To cite: Hajioannou J, Sioka E, Koukoura O, et al. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2018-224380

Figure 2 CT images depicting subcutaneous emphysema with multiple air bubbles medially to the mandible. In addition, mild swelling of the left pharyngeal wall with vallecule obliteration was noticed ipsilaterally (white arrows).

paucity of data in the literature indicating that the majority of cases originate from dental and ear, nose and throat surgical procedures.²⁻⁵ Apart from the iatrogenic cause, traumatic or spontaneous rare cases have also been reported.⁶

The underlying pathophysiological mechanism is the inclusion of air under pressure under the fascial spaces of tissue. As a consequence, the quite slight connective tissue is dissected along joining adjacent muscle planes. Furthermore, the air spreads to

Figure 3 CT image depicting subcutaneous emphysema with multiple air bubbles medially to the mandible.

Learning points

- ▶ Subcutaneous emphysema to the neck represents a rare entity mainly derived from iatrogenic and traumatic origin.
- ▶ A case of subcutaneous emphysema to the neck due an accidental intraoral injury caused by the use of a high-pressure water jet device meant for car wash is presented.
- ▶ Symptoms and signs suggestive of subcutaneous emphysema such as crepitus, pain and neck swelling require a thorough clinical examination (oral examination and flexible nasendoscopy) plus a CT scan to establish the diagnosis of subcutaneous emphysema.
- ▶ The presented case highlights the importance of clinical suspicion for unlikely mechanisms.

the retropharynx, mediastinal, pericardial or thoracic spaces due to the proximity of the fascial spaces.³

In patients presenting with symptoms and signs suggestive of subcutaneous emphysema such as crepitus, pain, neck swelling, a thorough clinical examination including oral examination and endoscopy of the nasal cavity, nasopharynx oropharynx and larynx by flexible endoscope should be performed. Additionally, a CT scan confirms the diagnosis of subcutaneous emphysema with the characteristic appearance of air collection in the soft tissues under the skin.

In our case, we assume that the water jet under high pressure caused the tearing of the oral mucosa and enabled the introduction of air submucosally and between the fascial planes. To the best of our knowledge, this is the first case reported in the literature.

This case reports a rare injury mechanism and emphasises the importance of the cautious usage of water jet devices. Besides, the manufacturer companies should give official warning for the contingency of injury due to incorrect or careless usage. Precise medical history and clinical suspicion for unlikely mechanisms trigger prompt diagnosis.

Contributors JH: surgeon and writing. ES: writing and editing. OK: editing. JB: supervision.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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