Surgical Emphysema Following Intraoral Drainage of Buccal Space Abscess

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Abstract

The authors present a case of surgical emphysema following intraoral drainage of a buccal space abscess, a complication not previously reported. Surgical emphysema was remedied after removing a penrose drain and conservative treatment, suggesting retention of the drain caused the emphysema.

Key word : Surgical Emphysema, Intraoral Drainage, Buccal Space Abscess

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Subcutaneous emphysema can be classified into spontaneous, traumatic or iatrogenic. Spontaneous emphysema can be self-induced following too vigorous nose blowing[1] or prolonged playing of wind instruments[2]. The traumatic variety can accompany fractures involving the facial skeleton[3]. Iatrogenic emphysema can follow surgical procedures, where the mucosal integrity is breached[4], for example after dental extraction and temporomandibular joint surgery[4]. Surgical emphysema resulting from dental treatment has been linked to the use of the air-driven and high-speed water-cooled equipment used in dental practice[5]. The aim was to report a case of surgical emphysema following intraoral drainage of a buccal space abscess, a complication not previously reported.

CASE REPORT

A 64-year-old woman presented with right cheek swelling, pain and a high-grade fever for three days. Two weeks prior, she complained of toothache in the first right upper molar. She had no underlying

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disease. On examination, she looked toxic and febrile. A soft tissue swelling was noted on the right cheek with tenderness but no trismus. Intraoral examination revealed swelling of the right buccal mucosa and a small ulcer with slightly pus at the right upper gingivobuccal groove. A provisional diagnosis of right buccal space abscess was made.

She was admitted for parenteral antibiotic (high-dose penicillin) and was prepared for incision and drainage. The intraoral drainage was performed under general anesthesia. Transoral incision was extended from the small ulcer just above and parallel to the right Stensen's duct. Drainage of pus from the buccal space was performed and a penrose drain was placed into the buccal space.

The pus was sent for routine aerobic culture. On arrival at the recovery ward, the gross swelling of the right buccal area was already decreasing. However, 24 hours after the operation, swelling of the right cheek had progressed to the right zygomaticotemporal area, the angle of mandible and periorbital area. The patient was in less pain, but she had a low-grade fever and pus continued to drain from the buccal area *via* pressure over the cheek. Palpation of the affected tissues revealed slight crepitus but no tenderness. There was no evidence of stridor or respiratory compromise. General physical examination yielded no evidence of cardiovascular instability or bronchospasm. There was no history of atopic or anaphylactic reactions. A computed tomography of the buccal space and paranasal sinus was performed and showed diffuse surgical emphysema in the right scalp, temporalis muscle and retromandibular region (Fig. 1).

The penrose drain was, therefore, removed and two days later, the surgical emphysema was significantly reduced. The patient was then referred to a dentist for tooth extraction to get rid of the source of infection. The patient was discharged on the sixth post-operative day. The surgical emphysema was resolved and she had no fever. At the one-week follow-up, the patient had no complications and was completely cured of the buccal space abscess.

Fig. 1. Coronal CT scan showing diffuse surgical emphysema in the temporalis muscle and related tissue spaces (arrow).

DISCUSSION

Surgical emphysema is defined as the abnormal presence of air or gas in the body tissues or tissue spaces. Discomfort is a variable finding. Most cases run an uneventful course as the gas is gradually absorbed from the tissue. Occasionally, gas may accumulate in deeper structures such as the mediastinum or more rarely the peritoneal cavity, pleura or pericardium[6,7]. The presented patient had developed right facial swelling following intraoral drainage. The differential diagnosis for a condition producing rapid-onset swelling includes surgical emphysema, necrotizing fasciitis, anaphylaxis, angioedema and internal hemorrhage.

Crepitation is the most important differentiating factor because it is absent in angioedema and hematoma formation. On examination, the patient had only slight crepitation so other causes could not be excluded. In 1999, Chuang and Huang[8] reported a case of cervical necrotizing fasciitis after a local incision of the buccal abscess. Computed tomography was performed and it showed diffuse surgical emphysema. The presented patient exhibited no airway compromise or any other localized abscess.

Surgical emphysema can be treated conservatively, which was especially so in this patient, since the cause was obviously disruption of the buccal mucosa from a local incision and retention of the penrose drain. It was retention of the drain that may have allowed gas to enter the tissue, hence, the condition improved after removing the penrose drain and conservative treatment was given.

SUMMARY

Surgical emphysema is an uncommon complication but can occur after intraoral drainage of the buccal space abscess. The important causative factor

in the presented patient may have been the retention of the penrose drain. Retention of the penrose drain in-patients undergoing intraoral drainage of a buccal space abscess is not advisable.

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ภาวะมีอากาศในเนื้อเยื่อที่เกิดตามหลังการผ่าตัดระบายหนองในโพรงแก้ม

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รายงานผู้ป่วยที่มีภาวะมีอากาศในเนื้อเยื่อซึ่งเกิดตามหลังการผ่าตัดระบายหนองในโพรงแก้ม ซึ่งเป็นภาวะแทรกซ้อนจากการระบายหนองที่ไม่เคยมีใครรายงาน สาเหตุของภาวะแทรกซ้อนนี้อาจจะเกิดจากการใส่ท่อระบายหนองไว้หลังจากที่ผ่าตัดระบายหนอง ภาวะนี้ดีขึ้นโดยการรักษาแบบประคับประคองและเอาท่อระบายหนองออก

คำสำคัญ : ภาวะมีอากาศในเนื้อเยื่อ, การผ่าตัดระบายหนอง, หนองในโพรงแก้ม

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