

CASE REPORT

Subcutaneous Emphysema Secondary to Tonsillectomy

¹Shobin Suja Abraham, ²Vijay Stephen, ³Lakshana Deve, ⁴Mary Kurien

ABSTRACT

Background: Tonsillectomy is one of the most common surgical procedures performed worldwide. However, it can potentially be associated with several complications. One of the very rare complications post-tonsillectomy in adults is subcutaneous emphysema, as in our case here. Although, most reported cases are resolved spontaneously, it may lead to fatal complications, like tension pneumothorax.

Case report: Tonsillectomy was performed on an adult patient with history of frequent tonsillitis. The patient developed facial subcutaneous emphysema 48 hours after the surgery (evident by clinical and radiological examination) that resolved within 2 days without further complications.

Conclusion: Tonsil should be removed along with tonsillar capsule. If tonsillectomy causes deeper than usual mucosal tear up to the level of the muscles, then air might pass into the subcutaneous tissue through the tonsillar fossa and superior constrictor muscle into fascial layers of neck. Emphysema can then spread to parapharyngeal, retropharyngeal spaces and mediastinum with its related morbidity. Though a rare complication, all otorhinolaryngologists must be aware of this complication and its management.

Keywords: Adult tonsillectomy, Post-tonsillectomy, Subcutaneous emphysema.

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INTRODUCTION

Tonsillectomy is a very common surgical procedure done by otolaryngologists for different indications, mostly in recurrent tonsillitis or tonsillar hypertrophy. Tonsillectomy in children is relatively easier, as their tissue planes of dissection are easier to identify. Older patients have more fibrosis, and thus a more difficult surgery with greater chances for occurrence of complication. One of the very rare complications is subcutaneous emphysema.¹⁻¹⁰

It was first reported in 1953.² After that, it was reported very infrequently.

CASE REPORT

A 30-year-old healthy female patient who had frequently suffered from tonsillitis was admitted for tonsillectomy. The preoperative physical examination revealed no other abnormalities. Tonsillectomy was performed by dissection and snare method under general anesthesia with orotracheal intubation. There was no significant bleeding during the procedure, after which the patient was monitored in the recovery room. She had no difficulties on swallowing when she had food later in the evening.

However 48 hours after surgery, patient complained of mild pain and swelling which first she noticed on the left cheek. On examination, patient's face was swollen more on the left maxillary region, extending posteriorly to the parotid region under the left ear lobe and inferiorly, to the submandibular area (Fig. 1). On palpation, crepitus was felt all over the region of the swelling. Examination of the oropharynx showed normal granulating healthy healing tissue in both the tonsillar fossas, with no clear tear or dehiscence in the oropharyngeal mucosa. All vital parameters were normal. The patient gave history of dry cough in the postoperative period; otherwise there were no special events. A plain sinus X-ray was taken which showed subcutaneous emphysema in the left facial area (Fig. 2). Based on clinical examination, there was no suspicion of abscess or serious infection, and therefore, neck computed tomography (CT) imaging was not carried out.



Fig. 1: Subcutaneous emphysema on the left cheek

^{1,2}Assistant Professor, ³Postgraduate Student

⁴Professor and Head

¹⁻⁴Department of ENT, Pondicherry Institute of Medical Sciences Kalapat, Puducherry, India

Corresponding Author: Shobin Suja Abraham, Assistant Professor, Department of ENT, Pondicherry Institute of Medical Sciences, Kalapat, Puducherry, India, Phone: 09789192420 e-mail: shobinabraham0312@gmail.com



Fig. 2: X-ray showing subcutaneous emphysema on the left side

TREATMENT

Patient was continued on intravenous antibiotic and was kept under observation in the ear, nose and throat (ENT) ward. The following day, the swelling had reduced slightly and was now localized in the left maxillary region alone. Crepitus was still apparent on palpation. On the 5th postoperative day, the swelling had subsided completely and the patient was discharged on oral antibiotics.

DISCUSSION

Subcutaneous emphysema can be a rare complication of a variety of oral and maxillofacial surgical procedures where mucosal integrity is breached. It has been reported that the development of subcutaneous emphysema after surgery in the oral cavity is caused by injury to the pharyngolaryngeal mucosa.¹ It can be caused by surgical techniques and also anesthesia related causes—traumatic intubation, excessive positive pressure ventilation from ventilator and manual ventilation.^{2,6} Once the air finds its way to the subcutaneous plane, any further increase of airway pressure, such as by the valsalva maneuver and positive pressure ventilation will facilitate the entry of air which dissects the subcutaneous planes. In this patient, most likely the tonsillectomy created a weak surface, through which air entered the deeper spaces through the superior constrictor muscle.

Tonsillar fossa is formed anteriorly by the palatoglossus muscle and laterally by the palatopharyngeus and the superior pharyngeal constrictor muscle. Deep dissection of the superior pharyngeal constrictor muscle creates a path through the cervicofacial planes to the parapharyngeal, retropharyngeal and prevertebral spaces. Air may go down to the mediastinum and cause pneumomediastinum. In a few rare cases, the air that has descended into the mediastinum may then descend

further to the abdominal cavity via the diaphragmatic aperture.³⁻⁵ It is important to check for symptoms, such as dyspnea, dysphagia, chest and back pain to rule out pneumomediastinum.⁷ Of the deep neck spaces that are limited above by the hyoid bone, the paryngomaxillary and masticator spaces are located closest to the tonsil. In our case, the subcutaneous emphysema was limited to the left cheek area extending inferiorly to the submandibular area and posteriorly to the parotid gland area, just under the left ear lobe.

Subcutaneous emphysema is typically associated with crepitus and subcutaneous air can be detected relatively easily by radiological imaging. Till date, literature regarding a total of 30 similar cases were identified.⁸ Based on the reported cases, the treatment of patients with subcutaneous emphysema and pneumomediastinum involves a regular assessment of the airways and the extent of the emphysema. Coughing, vomiting, straining or vigorous activity that increases upper airway pressure must be avoided. Broad spectrum antibiotics may be prescribed. Literature also showed that oxygen therapy has been used for faster absorption of the emphysema.^{9,10} If clinical examination shows any macroscopically obvious tear, suturing must be done to avoid secondary entry of bacteria to the subcutaneous emphysema and extension of the emphysema.^{7,10} In most cases, the emphysema resolved spontaneously. Only three cases required aggressive treatment—one case required a tracheotomy¹⁰ and two cases involved a thoracotomy.³ Even though none of the patients died, subcutaneous emphysema and pneumomediastinum can be potentially fatal complications.

CONCLUSION

Cervicofacia subcutaneous emphysema is a rare complication that occurs following tonsillectomy in adults through the weakness of the pharyngeal mucosa. To reduce its occurrence, meticulous dissection must be done in cases with significant adhesions of the tonsil with the tonsillar bed. Care should also be taken in airway management, smooth emergence from anesthesia to avoid possible positive pressure ventilation, nausea, vomiting and coughing. In order to detect and treat these patients as early as possible, we should keep this complication in mind.

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