

Subcutaneous Emphysema Complicating Tonsillectomy

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Abstract

Subcutaneous emphysema after tonsillectomy is rarely encountered. One such case following tonsillectomy was seen in our institution. It was due to air passing into subcutaneous tissue through the tonsillar fossa and superior constrictor muscle into fascial layers of neck following a bout of coughing. Emphysema can then spread to parapharyngeal, retropharyngeal spaces and mediastinum with its related morbidity.

Introduction

Tonsillectomy is a frequently performed surgery in ENT. Common indications for surgery are adenotonsillitis, chronic tonsillitis and as a part of treatment for sleep apnea. Tonsillectomy in children is relatively simple, as their tissue planes of dissection are easier to identify. Elderly patients have more fibrosis and thus a more difficult surgery with greater chances for the occurrence of complications. Common complications of tonsillectomy are bleeding, pain, fever, infection and edema of the uvula. The rare ones are damage to glossopharyngeal nerve and internal carotid artery [reported more when styloid process excision is combined with tonsillectomy requiring dissection of muscle planes]. Subcutaneous emphysema is also rarely reported after tonsillo-adenoidectomy [Knutson R C, Quelle A J, 1954].¹

Case Report: A 54-year-old male patient came to the ENT OPD with the complaint of a mass inside mouth, cancerophobia and pain in right side of neck. The right tonsil had a suspicious mass for carcinoma. The rest of the clinical examination was normal. Patient was given a course of antibiotic without relief. The patient underwent tonsillectomy, right tonsil only (as he feared cancer), by dissection method under local anesthesia. During surgery significant adhesions were encountered in the deeper planes of dissection around the tonsillar capsule. One bleeder was identified and ligated. There were no other perioperative complications. One hour after surgery the patient complained of pain in the neck following a bout of coughing. Patient had no respiratory distress or difficulty in swallowing. On examination, patient's

face was swollen more on the right side along with diffuse swelling of neck and right upper chest extending laterally up to the deltoid. On palpation, crepitation was felt all along the swelling. On examination of the oral cavity, the right tonsillar fossa was covered with friable tissue. There was no bleeding or gaping. However, the deep muscle was exposed near the lower pole in the right fossa. Bedside x-rays revealed air in the subcutaneous plane of the neck, in the prevertebral and retropharyngeal space of the neck. Fig. 1 and 2 show the x-ray photograph of the neck, lateral and AP views. However, the chest x-ray was normal and had no pneumomediastinum. All vital parameters were normal. Patient was treated conservatively. Oxygen was given by mask and cough suppressant, antibiotic and analgesic medications were given. Strict bed rest was advised. Strapping was done at the clavicle and mandibular levels. Patient responded well to the above treatment and by the 2nd day, the swelling had subsided completely. Histopathology of the excised tissue revealed nonspecific infection of the tonsil with adherent muscle in the deeper planes.

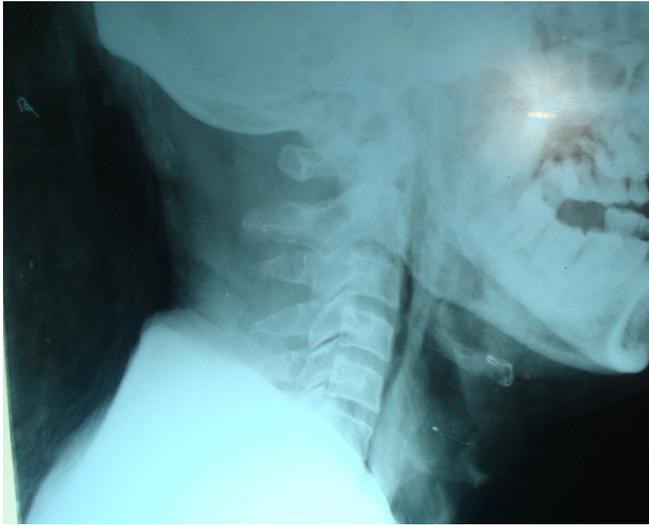


Figure 1 - Lateral X-Ray



Figure 2 - AP X-Ray

Discussion

Subcutaneous emphysema is a known entity in ENT. It is usually encountered following tracheostomy, cricotracheal tear in accident cases or rarely iatrogenic during endoscopy. This was the first time we encountered it, following tonsillectomy. The complication is infrequently reported. Inadvertent injury to the tonsillar fossa, damaging the superior constrictor muscle is the cause. Air passes into the subcutaneous tissue following an increase in intraoral pressure, as during coughing. This air may find its way into the parapharyngeal and retropharyngeal spaces. These are in communication with the mediastinum. The subsequent sudden development of pneumomediastinum may cause respiratory distress and death.

Recurrent attacks of acute tonsillitis give rise to fibrosis and adhesions between the tonsillar capsule and muscle. Thus, in these cases, dissection is difficult and there is a greater chance of damage to deeper structures. This difficult dissection of tonsil from its bed and inadvertent injury to the superior constrictor muscle leads to creation of a pinhole. During coughing this pinhole permits air entry into deeper tissue planes. Air is trapped in the tissue planes since there is no pathway for air to exit. This complication has also been reported infrequently following styloid excision where the muscle deeper to the tonsillar bed is dissected.

Only sparse reports of subcutaneous emphysema complicating tonsillectomy were found in the Indian literature reviewed by the author. 11 such reports were found in International journals.² In the latter-series, 63% of patients were adults, with tonsils being more fibrosed and atrophic³ and 72% of the patients were female. Pain in neck was the common presenting complaint. 44% of the patients also complained of dyspnea. Snare⁴ and electrodissection⁵ techniques were reported equally as methods of tonsillar dissection. Thus, we cannot ascribe this complication to a particular method.

A significant number of these patients were further complicated by pneumomediastinum (45% of cases).⁶ One case developed pneumoperitoneum.⁷

Surgical intervention was required in only 3 patients. One patient required tracheostomy and suturing of the tonsillar fossa[6]. Two patients required thoracotomy.⁸ The majority were managed conservatively. The minimum recovery time was 5 days and the maximum 3 weeks. No mortality has been reported due to this complication.

Conclusion

In conclusion, the authors want to highlight the importance of dissection, adhering to surgical planes to avoid complications. This is especially important in adult tonsillectomies wherein there is a higher incidence of fibrosis and excessive bleeding.

This short case is presented to highlight the importance of proper postoperative care following routine tonsillectomy operations. Awareness of and timely diagnosis of subcutaneous emphysema with proper treatment can avert its further progression and morbidity. In surgeries where there is a difficult dissection and damage to the capsule, the patient should be counseled not to cough and if necessary cough suppressants should be prescribed.

References

1. Knutson RC, Ouellette AJ. Subcutaneous emphysema following tonsillectomy and adenoidectomy. *Minn Med.* 1954 Dec;37(12):877-9. [View Abstract](#)
2. Kim JP, Park JJ, Kang HS, Song MS. Subcutaneous emphysema and pneumomediastinum after tonsillectomy. *Am J Otolaryngol.* 2010 May-Jun;31(3):212-5. doi: 10.1016/j.amjoto.2009.02.004. Epub 2009 May 1. [View Abstract](#)
3. Prupas HM, Fordham SD. Emphysema secondary to tonsillectomy. *Laryngoscope.* 1977 Jul;87(7):1134-6. [View Abstract](#)
4. Braverman I, Rosenmann E, Elidan J. Closed rhinolalia as a symptom of pneumomediastinum after tonsillectomy: a case report and literature review. *Otolaryngol Head Neck Surg.* 1997 Apr;116(4):551-3. [View Abstract](#)
5. Shine NP, Sader C, Coates H. Cervicofacial emphysema and pneumomediastinum following pediatric adenotonsillectomy: a rare complication. *Int J Pediatr Otorhinolaryngol.* 2005 Nov;69(11):1579-82. Epub 2005 Jun 6. [View Abstract](#)
6. Panerari AC, Soter AC, Silva FL, Oliveira LF, Neves MD, Cedin AC. Onset of subcutaneous emphysema and pneumomediastinum after tonsillectomy: a case report. *Braz J Otorhinolaryngol.* 2005 Jan-Feb;71(1):94-6. Epub 2006 Jan 2. [View Abstract](#)
7. Vos GD, Marres EH, Heineman E, Janssens M. Tension pneumoperitoneum as an early complication after adenotonsillectomy. *J Laryngol Otol.* 1995 May;109(5):440-1. [View Abstract](#)
8. Pratt LW, Hornberger HR, Moore VJ. Mediastinal emphysema complicating tonsillectomy and adenoidectomy. *Ann Otol Rhinol Laryngol.* 1962 Mar;71:158-69 [View Abstract](#)