

Nasal Septal Abscess as a Complication of Laser Inferior Turbinectomy

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Postoperative infections are infrequent following laser inferior turbinate surgery. We report a 52-year-old man with a *Klebsiella pneumoniae* nasal septal abscess as a complication of potassium-titanium-phosphate 532-nm laser turbinectomy. To our knowledge, this is the first report of such a potentially serious complication resulting from minor ambulatory intranasal surgery. The clinical presentation, pathogenesis, and management of nasal septal abscesses are discussed. (*Chang Gung Med J* 2004;27:390-3)

Key words: septal abscess, *Klebsiella pneumoniae*, laser turbinectomy.

Nasal septal abscesses are defined as a collection of purulence between the septal cartilage and its overlying mucoperichondrium.⁽¹⁾ Nasal trauma has been noted as the most-common predisposing factor, occurring in up to 75% of cases.⁽²⁾ Other reports have also documented links between nasal septal abscesses and surgery, foreign bodies, sinusitis, dental infection, or nasal furuncles.^(3,4) *Staphylococcus aureus* and *Streptococcus pneumoniae* are the most-frequently isolated bacteria in published nasal septal abscess studies.⁽⁵⁾

The sequelae of nasal septal abscesses can be serious, yet there is no mention of nasal septal abscess as a consequence of laser turbinate surgery. We report a case of a *Klebsiella pneumoniae* nasal septal abscess as a complication of laser inferior turbinectomy.

CASE REPORT

We report on the case of a 52-year-old man with no history of diabetes or immunocompromising systemic diseases, who suffered from symptoms of bilateral nasal obstruction for many years. Oral medication and nasal decongestants did little to help the

patient. Under the impression of hypertrophic rhinitis, a potassium-titanium-phosphate 532-nm laser turbinectomy (local anesthesia, 8 W, continuous mode) was successfully performed. The immediate postoperative course was uneventful.

The patient did not return for further local nasal treatment after the laser turbinectomy until 28 days later when he had a profoundly foul-smelling nasal discharge, nasal obstruction, and local nasal pain. He also suffered from severe headache and chills. The patient denied any nasal trauma or other intranasal procedure after the laser turbinectomy. The right nasal cavity was filled with crust and a blood clot, and a synechia was found between the right inferior turbinate and septum. The patient's body temperature was 38.3 °C, and his white blood cell count was 14,000/ μ l (76% neutrophils, 13% lymphocytes, 6% monocytes, and 5% bands). Sinus computed tomography revealed abscess formation in the nasal septum (Fig. 1).

The patient was sent to the operating room and local anesthesia was performed with a submucosal injection of 1% lidocaine with epinephrine 1:100,000 in the right septum. Under endoscopy, the crust was removed and the synechia site was

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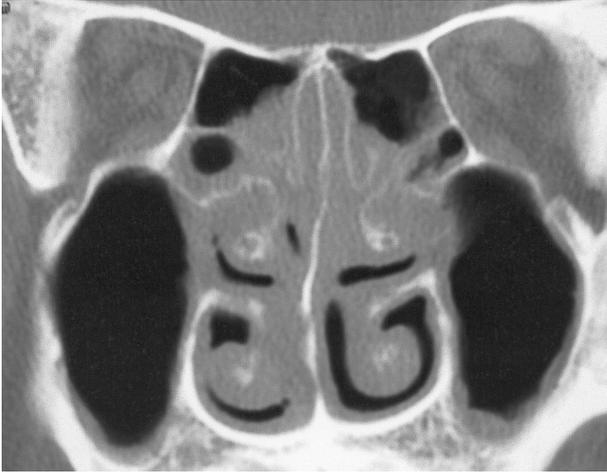


Fig. 1 coronal computed tomography of the head showing pus accumulated under the overlying mucoperichondrium.

released using a potassium-titanium-phosphate 532-nm laser. The septal mucosa bulged and fluctuated bilaterally. Purulent leakage from a tiny wound in the right septal mucosa on compression was noted, but the left septal mucosa remained intact. A mucoperichondrial incision was made in the right septum and 3 ml of purulent fluid was drained. The pus culture grew *Klebsiella pneumoniae*. The necrotic septal cartilage was removed using Blakesley forceps. Fortunately, the anterior part of the septal cartilage was intact. A small Penrose drain was placed into the nasal septum. Finally, the nose was packed on both sides with Merocele, and coated with antibiotic ointment. Parenteral cefuroxime® (3 g/day) was administered for 7 days. Local treatment of the nasal cavity to further drain the pus was performed twice daily during his hospital stay.

The purulent discharge diminished daily, and the Penrose drain and Merocele were removed on the third postoperative day. The patient's fever subsided within 48 hours after drainage, and the nasal pain gradually disappeared over a 7-day period. The patient was discharged with a 14-day course of oral cefaclor®. The nasal mucosa healed nicely and there was no saddle nose deformity at the 6-month follow-up visit.

DISCUSSION

Abscesses of the nasal septum are uncommon;

major medical centers may treat fewer than 10 cases per year.⁽²⁾ Injury to the nose is listed as the major cause of nasal septal abscess.⁽⁵⁻⁷⁾ In rare situations, a septal abscess can result from nasal surgery, a furuncle of the nasal vestibule, sinusitis, and dental extraction.⁽³⁾ About 7% of septal abscesses are reported as complications of septomeatoplasty.⁽⁸⁾ An infection can develop in an untreated, preexisting septal hematoma following nasal trauma or surgery. A hematoma of the nasal septum separates the mucoperichondrial blood supply from the septal cartilage. Pressure ischemia from a hematoma can lead to necrosis of the septal cartilage within 72 hours; thus, incision and drainage, rather than aspiration alone, is the preferred treatment.^(2,9) In this case, we used a Penrose drain to keep the drainage route patent in order to continuously release tension within the abscess. Development of an abscess in a hematoma consequently leads to even more-rapid destruction of the cartilage, and then a unilateral abscess often becomes bilateral as the cartilage gradually dissolves.⁽²⁾ Necrosis of the septal cartilage can cause septal deformity, perforation, and saddle nose. Thus, early debridement is necessary in addition to drainage, as in our case. Ambrus et al. reported 16 cases of nasal septal abscess that were managed with drainage and antibiotic treatment.⁽²⁾ Three patients (43%) had significant saddle nose deformities. Because the patient number in his series was small, it is hard to tell whether the development of sequelae had any significant association with the time interval between the trauma and establishment of a diagnosis and the etiologic agent.⁽²⁾ Nonetheless, complex reconstruction to correct the airway obstruction and cosmetic deformity is often eventually required for patients with extensive loss of septal cartilage.

Staphylococcus aureus is the most-commonly isolated pathogen in septal abscess, with *Streptococcus* and other anaerobes reported less frequently.^(3,4,8) *Haemophilus influenzae* is more likely to occur in pediatric patients.^(3,4,8) Rare pathogens such as *Pseudomonas* have also been reported,⁽¹⁰⁾ but we found no reports of a *Klebsiella* septal abscess in the literature.

Nasal congestion is the most-common presenting complaint (95%) in patients with septal abscesses.⁽¹¹⁾ Most patients also complain of nasal pain (50%), headaches (5%), fever (50%), and malaise (x%).⁽¹¹⁾ On physical examination, there is usually

fluctuant, tender, bilateral or unilateral swelling of the anterior nasal septum, causing obstruction of the nasal cavities. The external part of the nose may become swollen, tender, and erythematous. Fever and leukocytosis may be present in up to 50% of patients with septal abscesses.⁽²⁾

Potential life-threatening complications of nasal septal abscesses from contiguous spread of the infection have been reported, including osteomyelitis, orbital and intracranial abscesses, meningitis, and cavernous sinus thrombosis.⁽¹²⁻¹⁴⁾ A rare complication of a nasal-oral fistula has also been reported.⁽¹⁵⁾ The rich perineural lymphatic drainage at the anterior skull base and the lack of valves in the angular, ethmoidal, and ophthalmic veins may facilitate the spread of infection.

A patient with a septal abscess should be referred to an otolaryngologist, and the abscess should be drained as soon as a diagnosis is established. Sinus CT is an excellent diagnostic tool to detect the presence of an abscess (Fig. 1).⁽¹⁶⁾ The patient should then be treated with oral or parenteral antibiotics. Some investigators advocate early reconstruction for patients with extensive cartilage destruction, to prevent saddle nose deformity.⁽²⁾

Wang and Wang reported 2 cases of septal perforation in their preliminary KTP/532-nm laser nasal turbinate surgery group (N = 33).⁽¹⁷⁾ They concluded that scattered laser energy and consequent nasal crusting might be attributable to septal mucosa injury. However, septal abscess caused by laser turbinate surgery has never been reported in the literature. We hypothesized that septal mucosal damage and consequent synechia with nasal crusting between the septum and turbinate might have contributed to the local infection and subsequent abscess formation in this case.

Proper management of a nasal septal abscess requires a prompt diagnosis, adequate surgical drainage, and parenteral antibiotic treatment to prevent the potentially dangerous spread of the infection and the development of severe functional and cosmetic sequelae. This case serves to remind us of the

possibility of septal violation and subsequent infection resulting from laser turbinate surgery.

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雷射下鼻甲手術引起的鼻中膈膿瘍

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因雷射下鼻甲切除手術所引起的感染並不常見，尤其是感染處不在下鼻甲，更為少見。我們報告一例52歲男性病人，於接受兩側雷射下鼻甲切除後，28天未接受鼻內局部治療，因發生鼻惡臭、嚴重鼻塞、頭痛及畏寒返回門診，發現右側下鼻甲和鼻中膈發生沾黏，鼻中膈內有膿瘍形成，培養結果為肺炎克雷勃士桿菌。病患經靜脈注射抗生素及鼻局部治療，症狀獲得緩解，並避免了可能的鼻外觀的變化。因雷射下鼻甲切除手術引起的鼻中膈肺炎克雷勃士桿菌感染甚為罕見，特此提出報告。(長庚醫誌 2004;27:390-3)

關鍵字：鼻中膈膿瘍，肺炎克雷勃士桿菌，雷射下鼻甲切除術。

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