

Nasal septal abscess following septoplasty in a patient with type 2 diabetes mellitus

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SUMMARY

A man in his 50s with type 2 diabetes mellitus (T2DM) presented with a nasal septal abscess 3 weeks following septoplasty. Diabetes mellitus has been reported in association with nasal septal abscess, thought to be due to a relative immunodeficient state. We present an unusual, delayed presentation of nasal septal abscess following septoplasty and performed a literature review. Nasal septal abscess is rare. It is associated with significant complications if not diagnosed and management expediently. The association between T2DM and nasal septal abscess following septoplasty emphasises the importance of good perioperative blood sugar control and postoperative nasal care and raises the question of empirical antibiotics in this group.

BACKGROUND

Nasal septal abscess is rare. It forms between the cartilaginous/bony nasal septum and the mucoperichondrium/mucoperiosteum.¹ Nasal septal abscess typically occurs in association with septal haematoma. Other precipitants include acute rhinosinusitis and septal surgery.² Prompt treatment is essential as nasal septal abscess can lead to meningitis, osteomyelitis, cerebral abscess and cavernous sinus thrombosis.³ Furthermore, it may cause nasal septal perforation and result in significant nasal deformity.

Septoplasty is a common procedure within ear, nose and throat surgery; it is generally indicated in patients with nasal septal deviation causing symptomatic nasal airway obstruction or for access in transnasal surgery. Antibiotics prophylaxis is generally not used in patients undergoing septoplasty. We present a case of nasal septal abscess following septoplasty in a patient with type 2 diabetes mellitus (T2DM). In addition, we performed a literature review to evaluate the association between diabetes mellitus and nasal septal abscess.

CASE PRESENTATION

A man in his 50s presented to the ENT department with nasal pain, swelling and obstruction 3 weeks following septoplasty. His medical history included hypertension and T2DM. His regular medications were metformin and saxagliptin for T2DM; his HbA1c was 53. He had a septoplasty with bilateral inferior turbinate reduction for deviated nasal septum and inferior turbinate hypertrophy.

The initial operation was uneventful. Septoplasty was done using a left Killian's incision, bilateral flap raised, the deviated part of cartilaginous and bony septum was excised, 3:0 vicryl suture was used

to close the incision. Nasal splints were not used. Inferior turbinate reduction was performed using submucosal diathermy (monopolar needle). Nasopore with Naseptin cream was used to pack nose bilaterally. There were no intraoperative complications. Prophylactic perioperative antibiotic was not used.

He remained well for 3 weeks postoperatively, then subsequently had a consultation with his general practitioner for facial pain and the sensation of a blocked nose. The assessment was performed via the telephone due to the COVID-19 crisis, and there was no face-to-face clinical assessment. He was treated for a presumed postoperative infection with a 1-week course of oral amoxicillin/clavulanic acid. There was an initial improvement in his symptoms during the course of antibiotics. However, following treatment, his symptoms returned over the subsequent 2 weeks: worsening facial pain and bilateral nasal obstruction. He was then referred to the ENT department for clinical assessment.

On clinical assessment of the patient, there was bilateral fluctuant septal swelling with erythema around the nasal vestibule (see [figure 1](#)).

DIFFERENTIAL DIAGNOSIS

Nasal septal abscess and haematoma are essential diagnoses to consider in patients presenting with nasal obstruction following septal surgery or nasal trauma.

TREATMENT

The patient underwent incision and drainage under local anaesthetic. The nasal septum was bilaterally infiltrated with 2.2 mL of lidocaine hydrochloride 2% with epinephrine (epinephrine) 1:80 000. A single incision was made to the left septal swelling and a significant volume of purulent discharge was drained freely; a sample was sent for culture and sensitivities. The area was suctioned and then thoroughly cleaned with approximately 100 mL of 50:50 sterile water and povidone iodine solution. The right side was aspirated using a wide bore needle; three separate aspirations were performed draining approximately 2–3 mL of blood stained pus. The anterior septal cartilage appeared viable. The nose was packed bilaterally with NasoPore bioresorbable nasal dressing. A further 2 weeks of oral amoxicillin/clavulanic acid was prescribed alongside analgesia, and saline nasal douching two times per day was advised.



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Figure 1 Nasal septal abscess.

OUTCOME AND FOLLOW-UP

The patient was reviewed 3 days following initial incision and drainage. There was no evidence of recollection of the abscess.

The pus sample grew *Streptococcus milleri*, which was sensitive to amoxicillin. He was further reviewed at 2 and 4 weeks post treatment: the pain and swelling improved, and there was no septal perforation. At 1-year follow-up, there was no septal perforation or nasal deformity.

DISCUSSION

This case report highlights a rare clinical condition, a delayed presentation of nasal septal abscess post septoplasty, and provides learning points to both community and hospital clinicians. In an era of increasing virtual consultation, the presence of nasal pain and obstruction post septoplasty should raise suspicion of nasal septal abscess and face-to-face clinical assessment. There is a lack of evidence in prevention and management of nasal septal

abscess; the literature is limited to case reports and small case series.

The timing of presentation of the nasal symptoms is unusual as the patient presented 3 weeks postoperatively. It is possible that the patient may have developed a small septal haematoma or seroma, and this was subsequently complicated by nasal septal abscess given the relative immunodeficient state.

Patients with diabetes mellitus are generally considered to be at increased risk of developing surgical site infections⁴; postulated mechanism include relative immunodeficient state as a result of hyperglycaemia.⁵ A literature search of PubMed, Embase, the Cochrane Library and Google Scholar was undertaken to examine the occurrence of nasal septal abscess following septal surgery in patients with diabetes mellitus.

We found a total of five articles on this subject (see table 1). Of these, four were from South East Asia and one was from Africa. Nasal trauma is the the most common predisposing factor to occurrence of nasal septal abscess. The most common pathogen isolated was *Staphylococcus aureus*.

Non-traumatic nasal septal abscess has been reported in patients with diabetes mellitus. Dinesh *et al* reported spontaneous nasal septal abscess in three patients with uncontrolled diabetes mellitus; there was no history or trauma or nasal surgery.⁶

A population-based Taiwanese study evaluated the risk of nasal septal abscess in patients with T2DM after septoplasty.² This study used the national health insurance database and clinical codes to identify patients, exposures and outcomes. They compared outcomes of 382 patients with T2DM versus a matched control group of 382 without diabetes mellitus following septoplasty. All patients were followed up for a minimum of 3 years post septoplasty. The rates of nasal septal abscess following septoplasty were significantly higher in the T2DM group compared with control (17.5% vs 8.6%, $p=0.001$). Three small case series on patients with nasal septal abscess found 14%–50% had diabetes mellitus.^{1 7 8}

Given the rarity of nasal septal abscess, the data pool is represented by small case reports, small case series and the use of national database. To our knowledge, this is the first case report to discuss this association in Europe. There is scope for cohort multicentre studies, using patient-level data, accounting for confounding variables, with long-term follow-up to further explore this topic.

Table 1 Articles reporting on nasal septal abscess in association with diabetes mellitus

Author (year) study type	NSA	Study period (years)	M:F	Aetiology	Patients with DM	Outcome
Luan <i>et al</i> (2021) ² Population-based Taiwan	100	5	NK	Post septoplasty	67 patients with DM	Not reported
Sogebi and Oyewole (2021) ⁷ Case series Nigeria	9	8	2:1	Trauma (66.7%)	3 poorly controlled	3 Nasal deformity 1 Facial orbital/cellulitis 1 Intracranial infection
Jalaludin (1993) ⁸ Case series Malaysia	14	10	5:2	Trauma (85.7)	2 poorly controlled	2 saddle nose deformity and septal perforation
Cheng <i>et al</i> (2019) ¹ Case series Taiwan	6	10	1:1	Trauma (1) Nasal surgery (1)	3 poorly controlled	2 saddle nose deformity
Dinesh <i>et al</i> (2011) ⁶ Case reports Malaysia	3	NK	0:3	Spontaneous	3 poorly controlled	1 saddle nose deformity

DM, diabetes mellitus; F, female; M, male; NK, not known; NSA, nasal septal abscess.

Nonetheless, our case and the review of the literature suggests predisposition to nasal septal abscess in patients with diabetes mellitus undergoing septoplasty. Patients should be specifically informed of the risk of such complication in the early and late postoperative period and should be encouraged to seek medical assessment if they develop persistent pain, progressive nasal obstruction and fever postoperatively. Good nasal care with saline rinse and avoiding trauma from nose picking may prevent introduction of pathogens into the nasal mucosa.

This case report and the review of the related literature highlights the need for preventative strategies for nasal septal abscess following septoplasty, particularly in patients with diabetes mellitus. The reported association between diabetes mellitus and nasal septal abscess emphasises the importance of good blood sugar control. Furthermore, there may be a role for perioperative empirical broad-spectrum antibiotics in patients with type 2 diabetes undergoing nasal septal surgery.

Learning points

- ▶ Septal abscess is an important differential when considering pain and nasal obstruction following nasal septal surgery.
- ▶ Early diagnosis recognition and treatment is key.
- ▶ Patients should be informed of important postoperative red flags and should be empowered to seek healthcare if they develop symptoms.
- ▶ Patients with uncontrolled diabetes mellitus may have higher risk of nasal septal abscess.
- ▶ There may be a role of perioperative empirical broad-spectrum antibiotics in patients with type 2 diabetes undergoing septal surgery.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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