

Nasal skin tracts or nasal abscess long-term complications of rhinoplasty: A case series.

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ABSTRACT

Objective: This study aims to illustrate some cases of post-rhinoplasty that presented with abscesses and skin tracts.

Methods: In a case series of 11 patients who presented with post-rhinoplasty abscess or skin tract, we try to consider the interval, etiology, risk factors, age, and gender to mention the possibility of the presence of skin tract as a post-rhinoplastic sequel.

Results: In 11 patients (4 females,7 males) we discovered 5 cases of skin tract that probably occurred due to remaining suture.

Conclusion: The allergic history of patients should be considered and the suturing method and kind of material should be noticed.

Positive habitual history should be considered before surgery in case selection and the smoker patients have to be advised to reduce or quit smoking.

Keywords: skin tract; Abscess; Rhinoplasty; Postoperative Complication.

INTRODUCTION

Rhinoplasty is a surgical operation usually indicated to improve the nasal breathing quality and cosmetic appearance of the nose. Both aesthetic and non-aesthetic complications of rhinoplasty have been reported. Post-rhinoplasty nose infection is a much less frequently encountered complication

and is poorly documented. Foda¹ investigated 500 external rhinoplasty cases and described a post-operative infection rate of 2.4 percent. When infection of the nasal tip occurs, it is expected to manifest within the first few weeks of nasal surgery. If not adequately recognized and perfectly treated, more morbid sequelae may occur, such as an abscess or bacterial meningitis necrosis of the nasal tip, and cavernous sinus thrombosis. Here is a case series of post-rhinoplasty complications that focused on demographic characteristics and the interval between surgery and the incidence of complications.

Case 1

A 34-year-old male presented with a supra-tip abscess 41 months after rhinoplasty. he had a history of smoking and opium sniffing. As shown in the picture we discovered the skin tract at the site of infection.



**Case 2**

A 25-year-old male presented with an abscess in the nasal dorsum 10 days after rhinoplasty that seems to be the consequence of sterility failure. He had no history of underlying disease. Habitual history was negative.

Case 3

A 29-year-old male has been evaluated due to skin tract in tip area 21 months after rhinoplasty. His habitual history was positive for smoking. No underlying disease has been detected.

**Case 4**

A 32-year-old male presented with a dorsal abscess 6 months after rhinoplasty with a positive history of smoking and heroin usage.

**Case 5**

A 68-year-old female presented with infection in the sill area 2 weeks after rhinoplasty.



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Case 6

A 35-year-old female has been admitted for abscess formation in the tip area 22 months after rhinoplasty. Both habitual and past medical history were negative.



Case 7

A 37-year-old male presented with skin tract in the tip area 20 months of rhinoplasty. He mentioned recent trauma to the nose. The patient has a positive history of smoking and opium usage.

Case 8

A 36-year-old male presented with an abscess in the tip area which seems to be the consequence of strut suture 28 months after rhinoplasty.



Case 9

A 42-year-old male with abscess formation in the tip area 29 months after rhinoplasty. No risk factor was detected.



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Case 10

A 38-year-old female presented with infratip skin tract 27 months after rhinoplasty. No risk factor was detected.



Case 11

A 50-year-old female presented with a tip abscess 4 months after rhinoplasty. No risk factor was detected. The abstract of the patient's demographic data is presented in Table 1.



Table 1: Demographic data& site of infection& cause& risk factor.

number	Gender	age	Interval	site	cause	Risk factor
1	male	34	41 months	supra tip	Skin tract	Smoking/opium sniffing
2	male	25	10 days	dorsum	Sterility failure	–
3	male	29	21 months	tip	Skin tract	smoking
4	male	32	6 months	dorsum	Spreader suture	Smoking/opium
5	female	68	2 weeks	sill	suture	–
6	female	35	22months	tip	Abscess formation	–
7	male	37	20 months	tip	Skin tract	Smoking/opium
8	male	36	28months	Tip& supra tip	Strut suture	–
9	male	42	29months	Tip & supra tip	Abscess formation	–
10	female	38	27months	infratip	Skin tract	–
11	female	50	4months	tip	Skin tract	–

RESULT

We reported 11 cases of post-operative complications after rhinoplasty. Despite previous reports, we focused on skin tract formation (45.4% of cases) as a destructive late-onset complication after rhinoplasty. We guess that it may be due to a granulomatous reaction to residual sutures as it manifested in pictures. All of the patients have been cured by tract removal and a short course of antibiotic therapy. More investigations are needed to prove the allergic process in late-onset cases.

DISCUSSION

Some articles are written about the presentation and causes of early and late post-rhinoplasty complications. Actually, there is no consensus about the cause and process of infective and allergic complications.

Fabrizio Gabrielli ^{iv}et.al said that The most common complications in plastic surgeries are tissue reactivity, infections, and wound dehiscence. the association of different suture materials, patient characteristics, surgeon abilities, and wound site and length with postoperative wound complications (i.e., tissue reactivity, infection rate, and wound dehiscence) were investigated. No fundamental differences were found between the different suture materials and suturing techniques. A moderate increase in the risk of tissue reactivity for silk and polyglactin 910 and a protective effect of thinner internal sutures were observed. In multivariate analysis, such information was not statistically significant. Male sex [odds ratio (OR), 1.7; 95 percent confidence interval (CI), 1.06 to 2.72] and older age (OR, 2.34; 95 percent CI, 1.36 to 4.05) were found to be the most crucial risk factors for tissue reactivity and infection rate (male sex: OR, 5.1; 95 percent CI, 1.7 to 15.9; older age: OR, 5.6; 95 percent CI, 1.9 to 16), however, younger age was associated with a higher risk of dehiscence (OR, 3.06; 95 percent CI, 1.41 to 6.65).

Foda H M ^vet.al evaluated 500 Rhinoplasty cases (380 (76 percent) were primary and 120 (24 percent) were revision cases). post-operative complications included; nasal trauma (one percent), epistaxis (two percent), infection (2.4 percent), prolonged edema (17 percent), and nasal obstruction (0.8 percent). though it is logically impossible to prep the nose as a sterile field, the infection rates after septorhinoplasty are reported to be about 3 percent. This is basically due to the perfect blood supply of the area. Post-operative infection happened in 12 cases (2.4 percent), six of which had mersiline mesh implants.

William J et.al ^{vi}demonstrate that irritant and allergic contact dermatitis from wound closure substances can occur in patients after surgical procedures. The resulting inflammatory reaction from contact dermatitis can suppress wound healing, mimic surgical site infection, and cause wound dehiscence.

Absorbable sutures are subclassified into natural or synthetic, antibiotic-coated or nonantibiotic coated, multifilament or monofilament, dyed or undyed, and continuous or barbed. In general, absorbable sutures lose their tensile strength and are absorbed within 60 to 90 days after tissue implantation. Natural absorbable sutures are made of collagen from mammalian intestines and typically demonstrate higher reactivity. Fast-absorbing gut sutures are a subset of natural absorbable sutures made from the collagenous material of sheep or cows that has been heat treated to enable faster absorption. Synthetic suture options are overall less allergenic.

Ryan Gall et.al ^{vii}mentioned that Two patients underwent primary open septorhinoplasty with the replacement of an autologous caudal septal extension graft, which was stabilized using a PDS plate and secured into position using both Dermabond and PDS sutures. Postoperatively, both cases presented a nasal septal abscess at an average of 8 weeks that needed serial drainage and removal of the PDS plate in 1 of these patients.

Cristina Benites ^{viii}et.al reveals the effect of prophylactic antibiotic therapy to prevent post-rhinoplastic infection and abscess through a meta-analysis in 2024 in the USA.

They concluded that from 697 articles, 15 studies were chosen for meta-analysis, involving 2225 patients, with 1274 receiving prophylactic antibiotics and 951 as controls. The meta-analysis indicated an odds ratio of 0.65 (95 % CI: [0.23, 1.89]), showing no significant protective effect of prophylactic antibiotics.

Arda Ozdemir ^{ix}et.al presents their case report in 2023 in Turkey. they present a case diagnosed with preseptal cellulitis accompanied by deteriorating edema and tenderness that developed in the nasal tip and nasal dorsum 7 days after the rhinoplasty operation. Group A β hemolytic streptococcus was found in the abscess culture, and the infection was treated successfully with antibiotics. crucial sequels and complications were prevented by prompt diagnosis and suitable antibiotic treatment. The patient was discharged without any complications.

A TEYMOORTASH ^xet.al described their patient through a case report. A 26-year-old woman presented with painful, progressive nasal tip swelling and redness. She had undergone septorhinoplasty 2 years previously. She was first treated with endonasal drainage of the abscess and antibiotics. Intra-operative findings included granulation tissue with pockets of pus and knotted Prolene sutures at the tip-defining points of the lower lateral cartilages. She was patch-tested with Prolene and a cutaneous Prolene suture was placed on her back; an adverse skin reaction was seen for the latter. As has been mentioned previously in some articles, there are 2 main groups of post-rhinoplasty complications: early and late complications.

Acute infection, abscess, hemorrhage, septal hematoma, and edema are the most common early complications. Deformities, allergic reactions, bone formation, nasal obstruction, late-onset infections, and abscesses are considered late-onset complications.

There are some case series and case reports that report the process of complications and consider the microbiologic aspects or allergic components that lead to infection and abscess.^{xiii} Suture hypersensitivity is generally subdivided into foreign body reactions, which are nonspecific, granulomatous, type I allergic reactions (more commonly noted with absorbable sutures), or allergic-type IV hypersensitivity reactions.

Some articles argue that the effect of different materials of sutures or positions of suture knots may result in allergic reactions, infections, or abscesses.^{xiii}

They tried to find an expression and etiology of what results in late-onset infection or abscess and report the destructive consequences like cartilage destruction, septal perforation, and saddle nose deformity.

Some evidences discuss the effect of prophylactic and therapeutic antibiotics in the prevention and treatment of infective complications of rhinoplasty.^{xiv}

In this case-series we illustrated 10 cases of post rhinoplasty who presented with infection, abscess, or skin tract.

The thing that makes our report valuable is the consideration of the skin tract in 5 of our patients. The skin tract is obviously shown in the first patent pictures.

We have 2 cases of early infection. One of them seems to be the sequel of contamination during surgery. We didn't find any underlying reasons like immunosuppression, Diabetes mellitus, positive viral marker, smoking, or opium usage in these patients.

In these 11 cases, 7 patients were male (63.6%) and 5 patients (45.4%) had a positive history of smoking.

An important point in this series about patients who presented with skin tract is that we observed a tract pathway between a remaining suture and the skin that covers it. This observation reminds us of the possibility of late reaction to the different materials of suture and skin tract formation or infection.

CONCLUSION

Surgeons should be aware of common complications after rhinoplasty to detect and cure complicated cases as soon as possible to prevent severe destructive effects.

The allergic history of patients should be considered and the suturing method and kind of material should be noticed.

Positive habitual history should be considered before surgery in case selection and the smoker patients have to be advised to reduce or quit smoking.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

1. Teymoortash A, Fasunla JA, Pfützner W, Steinbach-Hundt S. Nasal tip abscess due to adverse skin reaction to Prolene: an unusual long term complication of rhinoplasty. *J Laryngol Otol.* 2013;127(1):76-9.
2. Holt GR, Garner ET, McLarey D. Postoperative sequelae and complications of rhinoplasty. *Otolaryngol Clin North Am.* 1987;20(4):853-76.
3. Foda HM. External rhinoplasty: a critical analysis of 500 cases. *J Laryngol Otol.* 2003;117(6):473-7.
4. Gabrielli F, Potenza C, Puddu P, Sera F, Masini C, Abeni D. Suture materials and other factors associated with tissue reactivity, infection, and wound dehiscence among plastic surgery outpatients. *Plast Reconstr Surg.* 2001;107(1):38-45.
5. Foda HM. External rhinoplasty: a critical analysis of 500 cases. *J Laryngol Otol.* 2003;117(6):473-7.
6. Nahm WJ, Cohen DE, Milam EC. Contact Dermatitis in the Surgical Patient: A Focus on Wound Closure Materials. *Dermatitis.* 2023;34(3):191-200.
7. Gall R, Bevans S, Robitschek J. Postoperative Nasal Septal Abscess Following Use of 2-Octylcyanoacrylate and Polydioxanone Plate in Open Septorhinoplasty: A Case Series. *Ann Otol Rhinol Laryngol.* 2017;126(10):688-92.
8. Benites C, Awan MU, Patel H, Pandit S, Shifchik A, Harmon S, et al. An examination of antibiotic administration in septorhinoplasty: A systematic review and meta-analysis. *Am J Otolaryngol.* 2024;45(4):104333
9. Özdemir A, Babayev N, Aydınli Y, Özden N, Kaya B. A Post-Rhinoplasty Complication: Nasal Abscess And Preseptal Cellulitis. *Ankara City Hospital Medical Journal.* 2023;2:152-6.
10. Teymoortash A, Fasunla JA, Pfützner W, Steinbach-Hundt S. Nasal tip abscess due to adverse skin reaction to Prolene: an unusual long term complication of rhinoplasty. *J Laryngol Otol.* 2013;127(1):76-9.

11. Teymoortash A, Fasanla JA, Pfützner W, Steinbach-Hundt S. Nasal tip abscess due to adverse skin reaction to Prolene: an unusual long term complication of rhinoplasty. *J Laryngol Otol.* 2013;127(1):76-9.
12. Özdemir A, Babayev N, Aydınli Y, Özden N, Kaya B. A Post-Rhinoplasty Complication: Nasal Abscess And Preseptal Cellulitis. *Ankara City Hospital Medical Journal.* 2023;2:152-6.
13. Gabrielli F, Potenza C, Puddu P, Sera F, Masini C, Abeni D. Suture materials and other factors associated with tissue reactivity, infection, and wound dehiscence among plastic surgery outpatients. *Plast Reconstr Surg.* 2001;107(1):38-45.
14. Benites C, Awan MU, Patel H, Pandit S, Shifchik A, Harmon S, et al. An examination of antibiotic administration in septorhinoplasty: A systematic review and meta-analysis. *Am J Otolaryngol.* 2024;45(4):104333