

Case Report

PARAMEDIAN FOREHEAD FLAP FOR NASAL TIP RECONSTRUCTION RELATED TO BARBED SUTURE INFECTION

Yuni Ariani^{1*}, & Bambang Wicaksono²

1. Internship Department of Plastic and Reconstructive Surgery DR. Ramelan Naval Hospital, Surabaya, East Java, Indonesia
2. Department of Plastic and Reconstructive Surgery DR. Ramelan Naval Hospital, Surabaya, East Java, Indonesia

ABSTRACT

Introduction : The nasal tip abscess is a rare pathology that affects the soft tissue of the nasal tip, with risk of damaging the cartilaginous framework with the resulting alteration of the anatomy and function of the nose, if not treated properly.

Case Presentation : A 22-year old female patient developed progressive defect with pain sensation at her nasal tip after bumping her nose 2 months ago and she admitted that she underwent a thread rhinoplasty 1 year ago. The reconstructive surgery was performed by excision of the ulcer, threads evacuation, and closing the defect with paramedian forehead flap procedure.

Summary: In this case, the problem can be treated very well with the paramedian forehead flap procedure which is an excellent option for nose reconstruction.

Keywords: *Paramedian Forehead Flap; Reconstruction; Nasal Tip*

Pengantar: Abses *tip of nasal* is merupakan sebuah kejadian patologis yang langka yang mempengaruhi jaringan lunak, dengan risiko kerusakan tulang rawan dan dapat mengakibatkan perubahan bentuk anatomi dan fungsi jika tidak ditangani dengan tepat.

Uraian Kasus: Wanita 22 tahun dengan keluhan luka pada *tip of nasal* is yang progresif dan disertai nyeri setelah terjatuh dan hidung terbentur trotoar 2 bulan yang lalu dan mengaku pernah menjalani tindakan tanam benang 1 tahun yang lalu. Tindakan pembedahan rekonstruksi dilakukan dengan eksisi ulkus, evakuasi benang, dan penutupan defek dengan tindakan *paramedian forehead flap*.

Ringkasan: Pada kasus ini masalah dapat diatasi dengan sangat baik dengan dilakukan tindakan *paramedian forehead flap* yang merupakan sebuah pilihan yang sangat baik untuk rekonstruksi hidung.

Kata Kunci: *Paramedian Forehead Flap; Rekonstruksi; Tip of nasal*

Conflicts of Interest Statement:

The author(s) listed in this manuscript declare the absence of any conflict of interest on the subject matter or materials discussed.

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INTRODUCTION

Rhinoplasty with thread implants is a popular method for women to enhance their appearance these days. While this procedure is popular and widely used, it does not entail that it is without complications. Infection is one of the complications that can occur, and if not treated properly, it can develop into an abscess. Nasal apex abscess is a rare pathological event that affects the soft tissue of the nasal apex, posing a risk of cartilage damage and, if not treated properly, can result in anatomical and functional changes.¹

CASE REPORT

A 22-year-old woman presented to the Department of Plastic and Reconstructive Surgery at Dr Ramelan Naval Hospital with complaints of progressive tip of nasal is injuries accompanied by pain following a fall and nose hitting the pavement 2 months prior. The patient had visited a doctor, but the wound did not heal and began to turn red, accompanied by the appearance of pus, eventually resulting in a large wound. The patient admitted to receiving thread implants at an aesthetic clinic in Malang a year prior.



Figure 1. Tip of nasal is Locale Inspection: Ulcer +, Thread +, Hyperemic -, Pus +, Crust + Palpation: Tenderness +



Figure 2. Paramedian forehead flap design is performed, incision according to flap design, flap & pedicle base release, flap retraction to side of defect and suturing is performed.



Figure 3. The clinical picture of the patient was 1 weeks after the first surgery



Figure 4. The clinical picture of the patient was 3 weeks after the first surgery. After that the flap was cut and the flap was sutured on the side of the defect, and lastly, the second postoperative patient's clinical photo was seen (Second operation)



Figure 5. The clinical picture of the patient was 1 weeks after the second surgery

DISCUSSION

Rhinoplasty is one of the most frequently performed cosmetic surgeries in Asia. According to statistics from the International Institute of Aesthetic Plastic Surgery from 2016, rhinoplasty is consistently among the top five most commonly performed procedures in Southeast Asia and Asia.²

According to a 2013 article published on the Dermatology Times website, an increasing number of patients are seeking non-surgical rhinoplasty alternatives. Initially, this request resulted in the use of fillers to augment the nose. Due to the serious complications associated with fillers, such as skin necrosis and blindness, many physicians are skeptical of their use. Accidental intravascular filler injections can result in embolic events, which can result in permanent blindness. This complication can occur when the filler is injected into and around the nose.²

The potential dangers and pitfalls of fillers, as well as their ability to migrate, have sparked interest in the use of thread. Recently, a new generation of thread (with or without cog) has hit the market. Usually, the thread is made of absorbable polydioxanone (PDO). PDO threads are commonly used for facial contouring, such as on the face, brows, and nose, to achieve a lifting and shaping effect. This material is made of absorbable synthetic polymer monofilament thread with a 120 to 180-day absorption period. There are also materials that are more durable. In some patients, especially those who prefer non-invasive augmentation, threads are a better option for augmentation rhinoplasty. This procedure is a safer approach compared to the use of fillers.²

Thread extrusion, severe infections such as abscess formation with open wounds, foreign body reactions, granulomas, hematomas, bruising, and stimulation of sensory nerves in the maxilla are all possible side effects. If the operator is unable to use the injector properly, thread extrusion is the most common complication.^{3,5}

The nose is one of the dirtiest parts of the body and is home to a large number of bacterial colonies. To avoid inoculation, it is critical to use proper aseptic and antiseptic technique during the procedure. The nose contains a large number of sebaceous glands, which produce sebum. Sebum promotes the growth of facultative anaerobic bacteria such as *P. acnes* and other

bacteria. Because these bacteria are found within the sebaceous glands, they are inaccessible to ordinary preparations.²

A surgical scrub or antiseptic can only reach about 20% (20%) of the microbes on the surface of the skin. These findings support the theory that during the insertion of the cannula for the suture procedure, a small hole penetrates the skin, allowing microorganisms to enter the deep layers. Contaminated thread has the potential to be life-threatening. Infection in the "triangle of death" realm, the area bounded by the angle of the oral commissure and glabella, can cause cavernous sinus thrombosis.² Because tip of nasal abscess is a rare head and neck pathology, epidemiological data and clinical features have not been thoroughly characterized. Tip of nasal abscess is a type of infection that affects the lower third of the nose and can be caused by a number of factors. The most common are sutures, filler injections, and secondary furunculosis after rhinoplasty, though secondary furunculosis is rare.¹

There are fundamental guidelines that should be followed with every reconstruction effort. First, the surgeon should assess the defect. This patient had a sizable defect involving the tip of the nose due to a thread infection. No single flap can cover all nasal tip defects with full thickness.

The paramedian forehead flap is a type of interpolated axial flap that is commonly used to repair dorsum and nasal apex defects. Defects are most commonly caused by the removal of a skin carcinoma, but they can also be caused by trauma.⁴

The paramedian forehead flap is commonly a two stages procedure, and patients should receive preoperative counseling concerning their appearance between the first and second stages of the procedure. Thorough preoperative planning, including assessment of the defect, hairline height, and forehead laxity, is important. Patients should be given wound care instruction, and realistic goals about the final outcome of their nasal reconstruction.

Based on the source of supratrochlear artery, forehead flap divided into median forehead flap, midline (median) forehead flap and paramedian forehead flap. The paramedian forehead flap is acknowledged as the ideal donor for midface reconstruction due to its color and texture match,

vascularity, and ability to resurface all or part of the reconstructed. The donor side usually heals well and leaves a satisfactory scar.

Initially, the surgeon was concerned that elevating the defect at the tip of the nose which tended to the right side outside the midline would cause a compromise. Fortunately, at 24 h postoperative evaluation, the vascular status of the flap was excellent which was monitored by color observation and had no tendency to bleed or ischemia at the flap site. After 14 days the flap was divided, the functional outcome was excellent.

There are few contraindications to this flap, and even elderly patients with comorbidities can benefit from it. However, because of the increased risk of flap necrosis in smokers, diabetics, and patients with atherosclerotic disease, a delay in the procedure should be considered. Anticoagulant medications should also be considered prior to surgery, though they can be safely continued with the exception of clopidogrel, which can cause excessive bleeding.⁴

Overall, the paramedian forehead flap produces excellent aesthetic results and is considered the gold standard in nose reconstruction. For full-thickness defects or subtotal nasal reconstruction, these flaps can be combined with cartilage grafts, requiring three or more stages. Hair growth in the area of the defect closed with a flap, scarring on the donor side, and unintentional elevation of the brows are all possible complications. Hematoma and partial flap necrosis are uncommon in at-risk patients, and total flap failure is uncommon if precautions are taken.⁴

In this case, the patient developed an abscess that ended in an open wound defect at the nasal apex caused by a trauma to the cannula puncture site during the thread implant procedure. The paramedian forehead flap was used for this reconstruction because it is the gold standard in nose reconstruction and has good aesthetic value.

CONCLUSION

Thread implant complications can appear for a long time after the procedure is completed due to external factors, especially when using long absorbed threads. As a result, more care and caution should be executed in the selection of threads to be used, as well as caution on the part of the patient.

The paramedian forehead flap, which is an excellent choice for nose reconstruction and has good aesthetic value, was used to solve the patient's problem in this case.

Correspondence regarding this article should be addressed to:

Yuni Ariani.

Internship Department Plastic and Reconstructive Surgery
DR. Ramelan Naval Hospital, Surabaya.

JL. Gadung No. 1 Surabaya, Jawa Timur, Indonesia

E-Mail: dokteryuniariani@gmail.com

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