SHORT COMMUNICATION

Does columelloplasty affect the outcome of septal surgery?

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Abstract

Caudal septal deviations and/or dislocations are tricky to deal with; hence patients who had undergone a columelloplasty during their septal surgery using Mohib's Suture—the surgeon's own technique—which is a variation of the techniques already in practice, were reviewed for outcome. Data was collected using medical records of the patients. A total of 450 patients who had septal surgeries were taken into account. Their surgical notes were reviewed, and 55 patients who had columelloplasty done during their septal surgery between 2017 and 2023 were included in the study. Information such as their age, gender, and indications for columella surgery was recorded. The patients were contacted and asked for reviews. Results were compiled in a spreadsheet, and basic analysis was done. Out of the 33 patients who responded, 23 had positive feedback, 66.67% patients responded positively to septo-columelloplasty, not only adding to the patients' relief of symptoms but also aesthetically refining their nasal appearance.

Keywords: Columella, Nasal septum, Caudal, Dislocation.

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Introduction

Columelloplasty is a surgical procedure to adjust the length or shape of the columella, which is the strip of tissue between the nostrils. It involves a suture technique to correct caudal septal cartilage as well as refine the tip of the nose.

Caudal septal dislocation is a common finding in patients presenting with nasal symptoms, leading to various functional and aesthetic abnormalities. Many different techniques have been established to support and stabilise the anterior nasal septum, each presenting its own advantages as well as challenges, such as technical and practical difficulties.[1]

A deviated nasal septum is a common finding in patients presenting with nasal obstructive symptoms such as congestion and difficulty breathing. When the deviation is severe, the patient may be advised to undergo septoplasty or submucous resection (SMR) with or without turbinate reduction, to provide relief from the symptoms. The caudal septum could present on either side of the midline at the external nares in case of anterior dislocation on the septum.[2]

Usually, an alar columellar disproportion, or hanging columella, can be adjusted by trimming the membranous and cartilaginous tissue. If the cartilage is already retracted, the surgeon will only remove membranous nose tissue. Trimming this lower tissue and cartilage will tuck the columella inward so it will no longer be hanging or pointed.

Correction of the columella remains surgically challenging, as it is an extremely important structure not only upholding the tip of the nose and stabilising it but also impacting the length of the nose, the nasolabial angle, and the general appearance of the nose. Over time, various techniques have been devised to correct the septum via grafting but an isolated suture technique is rarely seen.[3]

Ahmed Abdelfattah Bayomy Nofal uses a technique in which the mucoperichondrial flap is straightened and stretched by excision which acts as a support for the straightened septum holding it in the midline.[1]

Nevzat Demirbilek states that the two-level septo-columellar suture technique fixes the caudal septum to the nasal bone by suturing and a columellar pocket is formed. Superior and inferior septocolumellar sutures are taken increasing the stability of the septum.[4]

Another technique present in literature describes how a full length pocket is formed between the medial cruras and the caudal septum is placed in it, fixed to the columella.[5]

A publication in 2021 described another technique to support the columella whereby the septum was initially fixed to the anterior nasal spine by sutures followed by creating a columellar pocket and then suturing the septum inside with the help of upper and lower sutures.[6]

In a case report published in 2024, Dong Won Jung wrote about using a 3-layered strut graft which is taken from the septal cartilage and inserted to support the columella.[7]

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Caudal septal deviations and/or dislocations are tricky to deal with, hence the cases of patients who had undergone a columelloplasty during their nasal procedure were reviewed. The columelloplasty technique used in these patients involves a slight variation of the above-mentioned suture techniques. The aim was to ensure that this technique would be acceptable with satisfactory results and end up with a decently straight caudal part of the septum.

Patients/Methods and Results

A retrospective study was conducted, including patients who had a columelloplasty done using our suture technique during their septal surgery, between January 1, 2017 and September 26, 2023, at Northwest General Hospital & Research Centre, Peshawar.

Data was collected using the Hospital Management Information System (HMIS), which contained online electronic medical records of the patients, including their out-patient department (OPD) and admission notes, history, examination findings, operation notes, and discharge summaries. A total of 450 patients who had septal surgeries done were taken into account. Out of these, 55 patients had a columelloplasty done using Mohib's Suture and were included in the study. Information including age, gender, presenting complaints, indications for columella surgery, duration of stay in the hospital, and complications, if any, was recorded. The patients were then contacted by telephone and inquired about their reviews with the following questionnaire:

- Were you relieved of your symptoms?
- Were you satisfied with the change in the external appearance of your nose?
- Have you experienced any complications after the procedure?
- How would you term your overall experience with the procedure: satisfied, unsatisfied or indifferent?

Their feedback was taken into consideration and their responses along with the data collection results were compiled manually on a spreadsheet on Microsoft Excel version 1.5. Basic analysis of data was done using SPSS version 26. Ethical approval was granted by the institute's Ethical Review Board (Reference number: IRB&EC/2025-GH/0211). All of these patients were admitted for just one day. There were no complaints of any immediate and/or long-term post-operative complications. The patients who could not be contacted were excluded from this study. The basic demographics can be seen in Table.

All patients were explained in detail as well as shown images of Mohib's Suture when they first came in for consultation. A formal consent was taken before the procedure.

After performing septoplasty, columelloplasty was performed using our variation of the techniques already in practice. This technique involves three crucial steps as shown in Figure 1. Step 1 (Figure 1a) is through and through septal suture from the opposite side after creating a columellar pocket. In step 2 (Figure 1b), the surgeon takes a suture from

Table: Demographic characteristics of patients (n=33).

Variable	Mean±SD
Mean Age (years)	26.84±8.72 (Range: 9–53)
Gender	n (%)
Male	28 (84.8%)
Female	5 (15.2%)

[n: number of patients, SD: standard deviation]

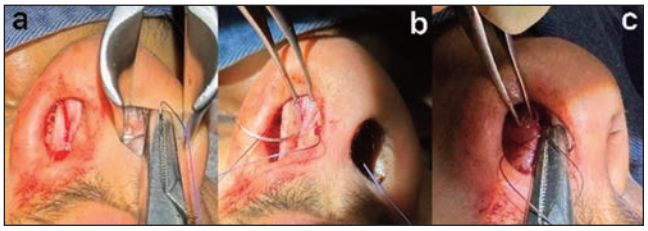

Figure-1: a, b, c: Steps of Mohib's suture.

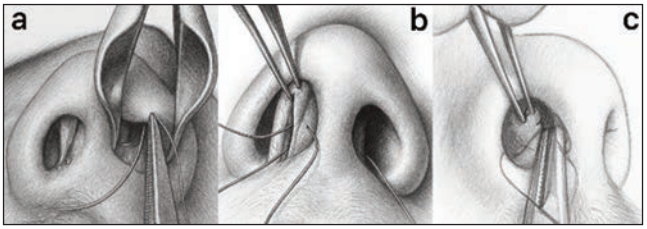

Figure-2: a, b, c: Hand drawn sketch of the steps of Mohib's suture.

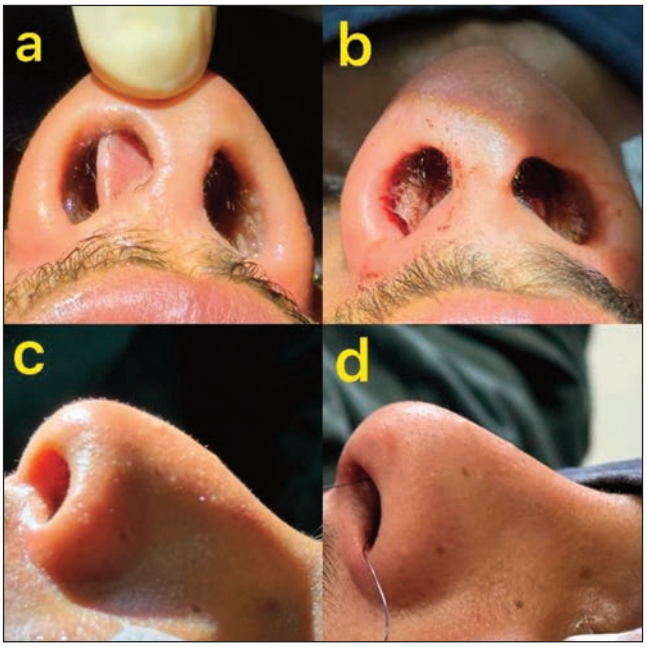

Figure-3: a, b, c, d: Results after using Mohib's suture.

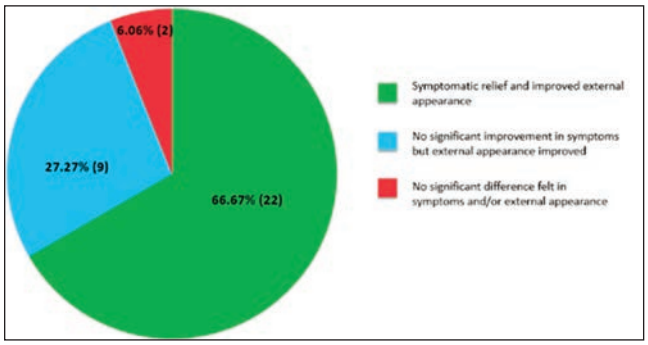

Figure-4: Detailed responses of the patients with percentages and count.

the anterior part of the incision through the columellar pocket. Finally, in step 3 (Figure 1c), the suture is taken through the cartilage approximating it inside the columellar pocket. For better understanding of the technique, the images have also been hand drawn and the steps mentioned above can be seen in Figures 2a, 2b, and 2c.

All the patients in this study had presented with the primary complaint of nasal obstruction, unilateral or bilateral. However, cosmetic anomalies were a significant concern as well. When contacted for the study, 33 patients responded, out of which 28 (84.85%) were males and 5 (15.15%) were females. Twenty-two (66.67%) patients responded positively to a septo-columelloplasty. They stated that their symptoms improved tremendously. Two (6.06%) patients felt no significant difference before or after the procedure in both their symptoms and/or their external nasal appearance. Nine (27.27%) patients were disappointed as they felt no improvement in their symptoms, however, they did feel an improvement in the external appearance of their nose. The before and after results following columelloplasty can be seen in the anterior view in Figure 3a (visibly deviated columella) and Figure 3b (corrected columella). The before and after results in the lateral view can be seen in Figure 3c (pre-columelloplasty) and Figure 3d (post-columelloplasty). A summary of the detailed responses of the patients can be seen in Figure 4.

The main limitation of this study is perhaps the small sample size which could be amended by prolonging the duration of the study. The low rate of compliance with follow-up by the patients could be another factor leading to the need of telephonic interviews. This opens the study to recall bias. To minimise this effect, all information was cross checked with the primary surgeon.

As with any surgery, columelloplasty also carries the risk of complications. To minimise these chances, surgical procedures performed independently or in combination should be decided on the basis of each individual's external and internal nasal characteristics.[8] Surgeons should take these factors into account to get optimum functional and aesthetic results.[9] Ideally, a septal surgery with or without columella surgery should be minimally invasive whilst achieving the goal of elimination of nasal obstruction.[10]

Conclusion

Our success rate with columelloplasty is 66.67% with no complications reported. This encourages the use of this technique. As more and more procedures are performed using this technique, the sample size will increase and this will help compare results directly with the conventional approach of columelloplasty as well as other techniques used worldwide.

Disclaimer: The findings of this study have been presented at the 1st KMC CON, 2023.

Conflict of interest: None to declare.

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Author Contribution:

ZIK: Data collection, got ethical approval, conducted telephonic interviews with patients, took consented photographs, data analysis, interpretation, literature review, writing and drafting.

IMK: Innovated the suture technique from the ones already in practice, concept, editing and supervision.