

## Nasolabial cyst: Transnasal Marsupialization versus Sublabial Technique

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### ABSTRACT

**Background:** nasolabial cyst is relatively rare soft tissue lesion of nasal alar region. It is nonodontogenic in origin. Surgical sublabial excision is the treatment of choice for nasolabial cyst (NLC). However, it is associated with high complication rate. The transnasal marsupialization was introduced as an alternative modality of surgery.

**Aim of the work:** to compare between both approaches to assess the intra-and post-operative outcome.

**Patients and Methods:** twenty two patients presented by unilateral nasolabial cyst were included in the study and divided into two equal groups: endoscopic transnasal marsupialization (TM group; 11 patients) and sublabial surgical excision technique (SL group; 11 patients). For all patients, operative time, postoperative pain, postoperative complications and recurrence of the NLC were documented.

**Results:** the operative time was significantly shorter in TM when compared to SL group (18.54±3.01 vs. 44.63±5.4 minutes respectively). Postoperative VAS was lower in TM when compared to SL group (3.09±0.83 vs. 6.09±1.13 respectively). The overall complications were significantly lower in TM group (18.2%) when compared to SL group (72.7%).

**Conclusion:** the transnasal endoscopic marsupialization is preferred than conventional sublabial approach as it had shorter operative time, less postoperative pain and lower overall complications rate.

**Keywords:** nasolabial cyst, sublabial, transnasal, marsupialization.

### INTRODUCTION

Nasolabial cyst (NLC) is a developmental cyst of non-odontogenic origins. It typically arises in the maxillofacial soft tissue<sup>(1,2)</sup>. usually, the NLC is related to soft tissue of ala nasi or to the nasolabial<sup>(3)</sup>, and may secondarily comprise the bone<sup>(4)</sup>.

The incidence of NLC is about 0.7% of all cysts of the jaws<sup>(4,5)</sup>, and about 2.5% of all cysts of non-odontogenic origin<sup>(6,7)</sup>. However, **Choi et al.**<sup>(8)</sup> reported 8 cases of NLC in only one year and proposed that NLCs maybe more common than previously reported.

The NLC is usually unilateral. However, bilateral existence was reported in about 10%<sup>(5,7)</sup>. The NLC is asymptomatic unless it was progressed to cause nasal obstruction, complication by infection or lead to development of deformity by size enlargement<sup>(3,5)</sup>.

Many therapeutic interventions were presented for the management of the NLC e.g., endoscopic marsupialization, surgical excision, aspiration, drainage and injection of sclerotic materials. All these modalities except complete excision and endoscopic marsupialization, had a high rate of recurrence<sup>(6)</sup>.

surgical excision through a sublabial approach has been the most popular and well-established procedure for the management of nasolabial cysts as it provides wide surgical field with complete excision of the cyst. However, the transnasal endoscopic marsupialization presents a good alternative as it is a simple, less invasive, easy to perform and effective procedure<sup>(1,3)</sup>. However, after successful transnasal endoscopic marsupialization, the cyst may be converted to a paranasal sinus filled with air<sup>(6)</sup>.

Here, we hypothesized that transnasal marsupialization could be as effective as the standard

surgical excision of NLC and may be associated with better complication profile.

### AIM OF THE STUDY

It is to compare between transnasal marsupialization approach and standard sublabial surgical excision technique as regard to intra-and post-operative outcome.

### PATIENTS AND METHODS

The present study is a prospective randomized trial. It was carried out at Al-Azhar University Hospitals; Damietta and Bab-elsheria. The study included 22 patients who were presented by nasolabial cyst (10 from Al-Azhar Damietta University Hospital and 12 from Bab-elsheria University Hospital). They were equally and randomly allocated into one of two groups: the first included those who were underwent endoscopic transnasal marsupialization (TM group) and those who underwent sublabial surgical excision technique (SL group). All patients had unilateral nasolabial cyst. Diagnosis of NLC was made on the basis of anatomic location, computed tomographic findings, and histopathologic examination.

In the transnasal endoscopic marsupialization group, marsupialization was done under local anesthesia. The anesthesia was accomplished by cotton pledget soaked in a solution of 2% lidocaine and 0.1% epinephrine. Then, the anterior nasal cavity, vestibular area, and mucosal surface over the cyst were infiltrated locally with 2% lidocaine containing 1: 100,000 epinephrine. An elliptical incision was made over the roof of the projected cyst. The rigid, straight, 4-mm diameter 0 and 30 nasal endoscopes were used and the NLC opening was widened with a microdebrider to at

least 10x10 mm in size, and the margins were trimmed to insure smooth surface. Nasal packing was carried out with gauze and the patients were discharged several hours after procedure.

In the sublabial surgical excision group, the surgical procedure was done under local or general anesthesia according to the patient’s request. At first, 2% lidocaine containing 1: 100,000 epinephrine was used and injected at the site of incision. The incision was carried out at upper gingivobuccal sulcus just below the pyriform aperture, and the dissection of tissues was completed until the smooth, well circumscribed cystic lesion was exposed. Then, the NLC was completely detached without leaving any remnant cystic wall or epithelium. The incision was then closed with 4.0 Vicryl sutures and a compression dressing was applied to reduce soft tissue swelling. Patients were discharged 48 hours after the procedure.

The patients in each group were counseled and asked to come for follow-up at the end of the first week, and then every week till the end of the first month and then at 3 and 6 months postoperatively.

For all patients, operative time, postoperative pain, postoperative complications and recurrence of the NLC were documented. The operative time defined as

the time of surgical procedure with exclusion of anesthetic induction and recovery times. The postoperative pain was assessed by visual analog scale<sup>(9)</sup> (VAS), where zero denoting no pain and 10 is the worst pain; mild pain: 1–3, moderate: 4–7 and severe: 8–10. Symptoms like facial pain, swelling, tingling or numbness were asked for and documented. In addition, check swelling, numbness of the teeth or gingiva, and nasal bleeding were asked for during follow up visits and was registered.

**Ethical and Approval Considerations:**

**The study protocol was approved by the local Ethics and Research Committee.** All eligible patients signed consent for participation in the study after full explanation of the study protocol.

**Statistical analysis**

The data were analyzed by statistical package for social science (SPSS) computer software package, version 18 (IBM®, USA). Chi square (X<sup>2</sup>) or Fisher exact (FE) test was used as appropriate for qualitative data for statistical analysis. Meanwhile, student (t) test was used for statistical analysis for quantitative data. P-value <0.05 was considered significant.

**RESULTS**

**Table (1): Patient characteristics and main clinical presentation among studied populations**

Variable		TM	SL	Test	P-value
<b>Age (year):</b>		46.09±8.99	48.45±9.30	t=0.605	0.55 (ns)
<b>Range (year):</b>		29-59	28-60		
<b>Sex (n,%)</b>	Male	5 (45.4%)	4 (36.4%)	<b>FE</b>	1.00 (ns)
	Female	6 (54.6%)	7 (63.6%)		
<b>Main clinical presentation</b>	Swelling	4 (36.4%)	5 (45.4%)	<b>FE</b>	1.00 (ns)
	Pain	3 (27.3%)	4 (36.4%)	<b>FE</b>	1.00 (ns)
	Obstruction	5 (45.4%)	2 (18.2%)	<b>FE</b>	0.361 (ns)

ns: Statistically insignificant difference

In the present work, the mean age was 46.09±8.99 years in TM group and 48.45±9.30 years in SL group, with no significant difference between the two groups. In addition, females represented 54.6% and 63.6% of TM and SL groups respectively. There was no significant difference between both groups as regard to main clinical presentation, as swelling, pain, and obstruction; they represented 36.4%, 27.3% and 45.4% of TM group respectively and 45.4%, 36.4% and 18.2% of SL group with the same order (Table 1).

**Table (2): intra-and post-operative data among studied populations**

Variable		TM	SL	Test	P-value		
<b>Anesthesia</b>	Local	11 (100.0%)	7 (63.6%)	<b>FE</b>	0.09 (ns)		
	General	0 (0.0%)	4 (36.4%)				
<b>Operative time (minute):</b>		18.54±3.01	44.63±5.4	t=13.997	<0.0001*		
<b>Range (minute):</b>		15-25	35-53				
<b>Post-Operative VAS score:</b>		3.09±0.83	6.09±1.13	t=7.097	<0.0001*		
<b>Range:</b>		2-4	4-8				
<b>Complications</b>	<b>Overall:</b>	2 (18.2%)	8 (72.7%)	X <sup>2</sup> =4.58	<b>0.03*</b>		
	Facial swelling	2 (18.2%)	5 (45.4%)			<b>FE</b>	0.361 (ns)
	Facial pain	0 (0.0%)	3 (27.3%)			<b>FE</b>	0.214 (ns)
	Facial bruising	0 (0.0%)	2 (18.2%)			<b>FE</b>	0.467 (ns)
	Gingival numbness	0 (0.0%)	3 (27.3%)			<b>FE</b>	0.214 (ns)

\*: Statistically significant difference, ns: Statistically insignificant difference

In the present work, all patients in TM group were operated under local anesthesia compared to 63.6% in SL group with insignificant difference between both groups. In addition, the operative time was significantly shorter in TM when compared to SL group, 18.54±3.01 vs. 44.63±5.4 minutes respectively. Also, there was statistically significant decrease of postoperative VAS in TM when compared to SL group, 3.09±0.83 vs. 6.09±1.13 respectively. The overall complications were significantly lower in TM group (18.2%) when compared to SL group (72.7%). However, when compare each complication alone, there was no significant difference between the two groups. The only registered complication in TM group was facial swelling in 18.2%, while complications in the SL group were facial swelling (45.4%), facial pain (27.3%), facial bruising in 18.2% and gingival numbness in 27.3%. All complications were managed conservatively and resolved (Table 2).

## DISCUSSION

In the present work, the mean age was 46.09±8.99 years in TM group and 48.45±9.30 years in SL group, with no significant difference between groups. In addition, females represented 54.5% and 63.6% of TM and SL groups respectively. These findings are comparable to those reported in literature, where different studies reported that, the NLC affected patients in their fourth or fifth decade<sup>(5,7,10)</sup> with a marked higher ratio of females<sup>(1,3,6)</sup>.

There was no significant difference between both groups as regard to main clinical presentation as swelling, pain, and obstruction represented 36.4%, 27.3% and 45.4% of TM group respectively and 45.4%, 36.4% and 18.2% of SL group with the same order. These results are comparable to those reported by **Kajla et al.**<sup>(11)</sup> who have proposed that patients seek therapy when there is deformity, nasal obstruction or infection caused by NLC. In addition, **Sheikh et al.**<sup>(12)</sup> reported that the most common presenting symptoms was facial swelling, seen in 70.9%, and nasal obstruction in 17.3%, and 3.1% were infected NLC, while it was discovered accidentally in 1.0%.

In the present work, endoscopic transnasal marsupialization is associated with significantly shorter operative time, significant reduction of complications rate and low postoperative pain. These results are comparable to those reported by **Lee et al.**<sup>(13)</sup> who firstly compared sublabial surgical excision to the endoscopic transnasal marsupialization, and found that, endoscopic marsupialization had shorter operating time, less postoperative pain, and low complication rate. They stated that transnasal marsupialization should be the approach of choice for treatment of NLC, replacing the sublabial surgical excision. We also adopted this recommendation, and advocate the endoscopic

marsupialization as the corner stone of NLC treatment in the future in our departments. In addition, the endoscopic approach was advocated in other circumstance – not encountered in the present study – such as if there is a risk of adhesion formation between the cyst roof and the previous skin incision as described by **Imre et al.**<sup>(14)</sup>.

On histological bases, an NLC is a true cyst with a ciliated respiratory epithelium inner lining which typically contain many goblet cells. Marsupialization is proposed to integrate the NLC into a portion of nasal cavity as an air-containing sinus covered with ciliated respiratory epithelium similar to the mucosa of the nasal cavity<sup>(8)</sup>.

Complications reported in the present work are in agreement with previous literature. Where it was reported that, after sublabial surgical excision, there could be some complications which include facial swelling, facial pain, hematoma, and numbness of gingiva and teeth<sup>(15,16)</sup>.

**Sheikh et al.**<sup>(12)</sup> in their systematic review reported that complication rate of 27.2% was reported in patients who underwent intraoral sublabial excision; while in transnasal marsupialization, the complications rate was 13.9%. The most common complication seen in both groups were facial swelling in 19 patients and five patients, respectively. Postoperative pain was observed in one patient in the SL group and two patients in the TM group. There were no significant differences between both groups.

## CONCLUSION AND RECOMMENDATION

Both endoscopic transnasal marsupialization and sublabial surgical excision are effective in treatment of nasolabial cyst. However, the transnasal endoscopic marsupialization is superior to the conventional approach as regard to operative time, postoperative pain and overall complications rate. Thus, we recommend the use of transnasal marsupialization as a treatment of choice for nasolabial cysts.

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