

*Research Article***The effectiveness of inferior turbinoplasty in children with Nasal Obstruction****Balegh H. Aly, Ahmed A. Sadek and Zein S. Zein**

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Abstract

Introduction: Nasal obstruction caused by inferior turbinate hypertrophy is a common complaint among the pediatric population. Symptoms include mouth breathing, snoring or obstructive sleep apnea, and nasal drainage. **Aim of the stud:** The purpose of this study is to evaluate the effectiveness of inferior turbinoplasty for the treatment of nasal obstruction in children. **Patients & Methods:** **Patients:** The current study is a prospective study that done at the department of Otorhinolaryngology, Minia University hospital from December 2017 to July 2018 to evaluate the effectiveness of inferior turbinoplasty for the treatment of nasal obstruction in children. **Results:** The study was done on 40 patients, 17 (42.5%) were females and 23 (57.5%) were males. Patients were in the age range of 6-16 years (mean 12.1 ± 2.6) with no significant difference regarding the age and sex distribution. Our study was carried out on 40 patients, 23 of them were males and 17 females, their ages ranges between 6-16 years. The operative time of medial flap inferior turbinoplasty ranged from 10-22 minutes (mean 12.1 ± 2.6)

Introduction

Nasal obstruction caused by inferior turbinate hypertrophy is a common complaint among the pediatric population. Symptoms include mouth breathing, snoring or obstructive sleep apnea, and nasal drainage⁽¹⁾.

Children with inferior turbinate hypertrophy may be successfully managed with oral antihistaminics, chromoglycates and steroidal sprays. However, whereas mucosal hypertrophy is initially reversible, continued hypertrophy leads to varicosity of the venous plexus unresponsive to medication.⁽²⁾

When medical therapy has failed, surgical reduction of the inferior turbinates has become a popular option.⁽³⁾

The aim of surgery is to reduce the bulk of the inferior turbinate either by surface and submucosal diathermy, cryotherapy⁽⁴⁾, turbinoplasty⁽⁴⁾, partial and radical turbinectomy, laser turbinectomy⁽⁶⁾, or lateralising the inferior turbinate into an intranasal antrostomy.

Goals for the ideal inferior turbinoplasty (IT) include maximizing nasal airflow while limiting

crusting and synechiae formation by preserving the turbinate mucosa.⁽⁶⁾

Current surgical techniques for IT include radiofrequency ablation (RFA), microdebridement, and partial turbinectomy, although no consensus on a superior method or device has been established.⁽⁶⁾

Patients & Methods**Patients:**

The current study is a prospective study that done at the department of Otorhinolaryngology, Minia University hospital from December 2017 to July 2018 to evaluate the effectiveness of inferior turbinoplasty for the treatment of nasal obstruction in children. A total of 40 children patients aged 6-16 years and of both sexes were involved in the study.

All patients presented with bilateral nasal obstruction due to bilateral hypertrophied inferior turbinates that did not respond to medical treatment for 3 successive months in the form of (systemic antihistamines, systemic and local decongestant drugs and local corticosteroid sprays). All Patients were subjected to turbinate reduction through medial

flap inferior turbinoplasty. The study was approved clinical research ethics committee of faculty of medicine – El-Minia University.

Methods:

A-Evaluation of the patients:

1- History taking:

All patients and their parents were subjected to a detailed history of ear, nose and throat with special emphasis on nasal symptoms (nasal obstruction, nasal discharge, sneezing and snoring).

2- Degree of nasal obstruction:

the patients recorded a questionnaire to grade their nasal obstruction according to Visual Analogue Scale (VAS) as follow:

1-Mild obstruction: 1-3.

2-Moderate obstruction: 4-7.

3-Severe obstruction: 8-10.

Endoscopic Nasal examination:

All patients are examined under local anaesthesia and without local decongestants by Nasal endoscopy (2.7mm and 4mm diameter, 0° nasal endoscope, Karl Storz, Germany) to assess the actual turbinate size pre and postoperatively and to detect any abnormalities in nasal cavity criteria.

Results

The study was done on 40 patients, 17(42.5%) were females and 23(57.5%) were males. Patients were in the age range of 6-16 years (mean 12.1±2.6) with no significant difference regarding the age and sex distribution (Table 1).

Intraoperative assessment parameters:

1-Operative time: the operative time of medial flap inferior turbinoplasty ranged from 10-22 minutes (mean 12.1 ± 2.6).

2-Blood loss: the blood loss with medial flap inferior turbinoplasty ranged from 30-65 ml (mean 41.7±5.5) .(Table 2)

Table 1: Shows baseline characteristic data in the study group

	Freq.* Mean	Percentage* SD
Sex		
Males	23	57.5%
Females	17	42.5%
Age (years)	12.1	2.6

Table (2) shows operative data (blood loss and operative time) in the study group

	Freq.* Mean
Blood loss (cc)	41.7±5.5
Operataive time(min)	12.1± 2.6

Discussion

Nasal obstruction is a common complaint in children and it can impair normal breathing, forcing patients to breathe through the mouth and often affects their daily activities, it is often caused by inferior turbinate enlargement or hypertrophy⁽⁷⁾.

Enlarged turbinates and nasal obstruction can also contribute to headaches and sleep disorders such as snoring and obstructive sleep apnea, as the nasal airway is the normal breathing route during sleep⁽⁸⁾.

Inferior turbinoplasty (IT) in pediatric patients is a common procedure used to treat childhood

nasal obstruction, the goals for the ideal inferior turbinoplasty include maximizing nasal airflow while limiting crusting and synechia formation by preserving the turbinate mucosa⁽⁹⁾.

This is a prospective study included a total of 40 children patients with bilateral nasal obstruction due to bilateral hypertrophied inferior turbinates. Patients did not respond to medical treatment for 3 successive months and all these patients were subjected to turbinate reduction through inferior turbinoplasty.

In the present study, the improvement in nasal obstruction was studied depending on visual analogue scale scores (VAS). We used VAS, as it was noted to be dependable and reliable in other studies⁽¹⁰⁾ noted that a significant and strong correlation observed between VAS for allergic symptoms and nasal airway resistance by rhinomanometry, they concluded that VAS especially for nasal blockage regarded as a good and reliable predictor if objective nasal examinations are absent, their study supports the use of VAS in researches or clinical practice.

Conclusion

The present results revealed that there was a significant improvement in the degree of nasal obstruction at 1 and 3 months postoperatively, this was evidenced by that the majority of patients transformed from severe or moderate degrees of nasal obstruction "preoperatively" to mild degree or completely with no nasal obstruction ($P < 0.001$)

Our study was carried out on 40 patients, 23 of them were males and 17 females, their ages

ranges between 6-16 years.

The operative time of medial flap inferior turbinoplasty ranged from 10-22 minutes (mean 12.1 ± 2.6).

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