

Post Turbinectomy Hemorrhage - A study of 50 cases

M YAQOOB M B PAL S GHOURI I NAZIR

Department of ENT, K.E. Medical University/Mayo Hospital, Lahore

Correspondence to Dr. Muhammad Yaqoob, Senior Registrar

The aim of the study is to know clearly about the major complications of a commonly performed nasal operation i.e. partial inferior turbinectomy. The current study is a randomized control trial and retrospective research work regarding 50 cases that underwent partial inferior turbinectomy and its major complication i.e., hemorrhage. The said operation is performed to open up the nasal cavities that were previously blocked due to the hypertrophied inferior turbinates. The study was conducted in ENT Unit II, Mayo Hospital, Lahore. The patients were randomly selected belonging to all age groups and to both sexes and to rural and urban areas. They got admitted in the wards. Base line investigations were done for all the patients e.g. HBs-Ag, Anti HCV, HIV, Bleeding Time, Clotting Time, Blood and Urine C/E. The patients were made fit for general anesthesia. Other investigations such as X- rays' paranasal sinuses and CT scan were done to look for associated disease processes in the neighborhood. The occurrence of bleeding is divided into per operative, primary just after the surgery, reactionary during pack period and at the time of removal of nasal packs and secondary when the patients are sent home and got post operative infections. With careful surgical interference, effective nasal packing, gradual removal of packs and regular suction clearance in postoperative follow up, only one patient created nuisance and needed readmission & revised nasal packing and blood transfusion. 5 cases (10 %) got noticeable per operative bleeding, while one patient (2 %) got primary bleeding, 3 cases (6%) got reactionary, while one patient (2%) got secondary bleeding. The conclusion drawn from the study is that although the operation of partial inferior turbinectomy gives immediate relief regarding nasal obstruction but it has the hazards of hemorrhage.

Keywords: Turbinectomy, nasal obstruction, per operative, primary, reactionary and secondary hemorrhage.

The hypertrophy of the turbinates, especially the inferior ones, is a common cause of nasal obstruction. The results of the partial procedures on the inferior turbinates are not very much satisfactory e.g., surface cauterization, submucosal diathermy, submucosal resection of the turbinate, cryosurgery, laser turbinectomy and lateral fracture of the inferior turbinate¹. For the persistent nasal obstruction due to enlarged turbinates, turbinectomy is the only effective treatment². Some times the word of hyperplastic turbinates is also used instead of enlarged, hypertrophic or hypertrophied turbinates³. The complex anatomy of midfacial structures including the turbinates, has direct relationship with the embryological development of these structures⁴. The inferior turbinate on the lateral wall of the nose is a separate bone. Its central portion is arched so that the inferior meatus, which it overhangs, is both wider and higher at this point⁴. The nasal vasculature is highly developed over the turbinates and part of the nasal septum. The blood supply is derived from deep vessels traversing the bone^{5,6}. The turbinates may be hypertrophied on congenital or on acquired basis. The problem is compounded by the frequent use of the nasal decongestants thus developing the problem of rhinitis medicamentosa⁷. Chronic vascular engorgement of the inferior turbinates causes nasal blockage. If the cause of these symptoms is not identified then the etiology is termed as vasomotor rhinitis⁸. Enlargement of the inferior turbinates is almost always due to the swelling of the submucosa and rarely due to the hypertrophy of the bone itself⁹. The turbinates' swelling is caused mainly by the dilatation of the submucosal venous sinusoids¹⁰. The

disease processes which complicate the presence of enlarged turbinates may be due to the stasis of infected secretions or to the hypoventilation through the nasal cavities. The hypoventilation may lead to mouth breathing, snoring, & sleep apnoea¹¹. Investigations needed for the patients with turbinates' hypertrophy, include X- rays nose and para nasal sinuses, CT scan and nasoendoscopy¹². Rhinomanometry is advisable for the measurement of nasal resistance giving an important objective assessment of the nasal airway^{13,14}. When the turbinates have lost their ability to shrink, it is verified by placing a pledget of cotton wool in the nasal cavities, soaked in cocaine and adrenaline, for about 5minutes. Failure of the organ to shrink indicates an irreversible hypertrophy of the turbinates requiring surgery¹⁵. Conservative surgical procedures include lateral out fracture of the turbinates, surface linear cauterization, submucosal diathermy (SMD), cryosurgery, submucosal resection of the turbinates and laser turbinectomy¹⁶. The results of partial procedures on the turbinates are often disappointing¹⁷. Submucosal diathermy produces submucosal fibrosis, having maximal effect only on the erectile tissue¹⁸. Turbinectomy as an approach to the tumor in the roof the maxillary sinus is a well described procedure¹⁹. Turbinectomy is a well known indication for recurrent epistaxis due to bleeding from turbinates²⁰. The turbinates have an extremely rich blood supply and per operative bleeding can be a problem; but this can often be reduced by the application of Burkett's' artery forceps over the base of the inferior turbinates. The operation is facilitated by preliminary medial fracture of the turbinates²¹. Post turbinectomy complications consists

mainly of bleeding and other problems are less considered²².

Material and methods

The study was conducted on the patients admitted for turbinectomy operation in whole of the year of 2003 at ENT Unit II, Mayo Hospital, Lahore. It is a controlled trial & retrospective study involving 50 patients with nasal obstruction due to the enlarged inferior turbinates, treated previously with medical treatment but not responding and needed surgical intervention. The patients were randomly selected from both sexes belonging to all age groups and to both urban and rural areas. They got admitted in the wards after initial base line investigations as Hepatitis B & C and HIV tests, blood and urine routine tests, bleeding and clotting times. They were made fit for general anesthesia and were subjected to partial inferior turbinectomy. They were followed up for a period of one year after the surgical intervention to look for the major complication of per operative, primary, reactionary and secondary bleeding.

Table 1: Case description proforma

Description	=n	%age
<i>Area</i>		
Rural	30	60
Urban	20	40
<i>Gender</i>		
Males	30	60
Females	20	40
<i>Age</i>		
0- 10 yrs	2	4
11- 20 yrs	4	8
21- 30 yrs	36	72
31-40 yrs	6	12
41- 50 yrs	2	4
10 yrs	2	4
45 yrs	2	4

Table 2: Pre operative examination findings

Description	=n	%age
<i>Reduced patency</i>		
Unilateral	30	60
Bilateral	20	40
<i>Inferior Turbinate Hypertrophy</i>		
Smooth surfaced	30	60
Mulberry surfaced	20	40
DNS to opposite side	30	60
Nasal discharge	18	36
<i>Probe test</i>		
Mobile anterior ends of turbinates	4	8
<i>Shrinkage on vasoconstrictor test</i>		
Almost nil	46	92
Slight	4	8
Nasal polypi	1	2
Adenoids	1	2

All the patients were subjected to thorough clinical examination which included local inspection, palpation,

nasal patency test, anterior and posterior rhinoscopy and general ENT examination. The condition of the turbinates was noted on anterior rhinoscopy. The vasoconstrictor test remained the main criterion to label the turbinates as irreversibly hypertrophied and to select the patients for surgical intervention.

The procedure done was partial inferior turbinectomy. The nasal cavities were packed with gloved fingers for a variable period and the patients were gradually depacked in the wards. They were kept on injectable antibiotics till whole of the packs were taken out. Nasal suction clearance was done before they were discharged. The patients were followed up first at one week interval, then at 2 weeks, one month, 3 months, 6 months and one year. The complaint of per operative, primary, reactionary and secondary hemorrhage was noted down and the results were charted out.

Results

The per operative hemorrhage was controlled with quick surgical technique and immediate effective nasal packing. Primary and reactionary hemorrhage was controlled by gradual removal of nasal packs over a period of days and frequent instillage of liquid paraffin. Secondary hemorrhage was controlled by repacking the nasal cavities with gloved fingers, readmission in the wards and use of broad spectrum antibiotics and fresh blood transfusion. The partial inferior turbinectomy gave immediate relief of nasal obstruction but led to per operative, primary, reactionary and secondary bleeding which remained controllable.

Table 3: Post turbinectomy hemorrhage; noticeable cases

Description	=n	%age
Per operative hemorrhage	5	10
Primary	1	2
Reactionary	3	6
Secondary	1	2

Discussion

The results in our study remained very much comparable to the world's literature. The operation of partial inferior turbinectomy provided dramatic improvement in the major complaints of nasal obstruction. The trouble of bleeding after turbinectomy operation remained a nuisance even in world wide research works^{23,24,25}. In our study, the situation remained similar to the above studies. The per operative hemorrhage is reduced by application of Burkett's artery forceps at the base of the turbinates. Cauterization of the bleeding vessels after partial inferior turbinectomy is also an effective method to reduce this bleeding. Primary and reactionary hemorrhage is minimized by doing an effective nasal packing into the whole of the nasal cavities with the help of gloved fingers filled with strip gauze. Secondary hemorrhage is minimized with meticulous use of broad spectrum

antibiotics to reduce the chances of postoperative infections. The ligation of common carotid artery is well documented in world's literature for the secondary hemorrhage in the nasal cavities²⁶. Oral antibiotics when the patient is sent home plus regular douching with water by the patient and suction clearance in Operation Theater is needed to avoid the accumulation of infected secretions within the nasal cavities. The use of nasoendoscope to get rid of infected material in the nasal cavities is well established. Role of cryotherapy to control posterior bleed is well mentioned²⁷. Even therapeutic embolization has been used for severe nasal bleed in cases of turbinectomy patients²⁸.

Conclusions

The conventional operation of partial inferior turbinectomy which is still frequently done is not free of the side effects. In inexperienced hands, it may lead to heavy bleeding. It has to be dealt with full confidence and attention. The results of the said operation in our third world's set up remained very similar to the world wide research works. The end point remained acceptable in our polluted set up. As the bleeding problem after the operation can be minimized with expert surgical technique and regular follow up that is why the said surgery must be advised for the betterment of the patient where ever the persistently obstructing turbinates are found that are not responding to medical and conservative surgical interventions.

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