

Submucous resection of the septum versus septoplasty a comparison study

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عملية تعديل الحاجز الأنفي مقابل عملية تقويم الحاجز الأنفي

دراسة مقارنة

ضياء غازي طاهر

أخصائي الأنف والأذن والحنجرة (بورد عراقي) في مستشفى الزهراء التعليمي/ الكوت/ العراق

المستخلص

دراسة مستقبلية لمائة مريض يعانون من انسداد الأنف نتيجة انحراف الحاجز الأنفي تتراوح أعمارهم بين 18 و 55 سنة. عولجوا في مستشفى الزهراء التعليمي للفترة من (كانون الثاني 2009 لغاية كانون الأول 2011) حيث قسموا إلى مجموعتين. 60 مريض أجريت لهم عملية تعديل الحاجز الأنفي بينما 40 مريض أجريت لهم عملية تقويم الحاجز الأنفي تحت التخدير العام. النتائج كانت استفاضة (إزالة انسداد الأنف) 60/50 مريض (83,3%) بعد عملية تعديل الحاجز الأنفي مقابل 40/28 مريض (70%) بعد عملية تقويم الحاجز الأنفي علما بان إجمالي المضاعفات كانت متقاربة (33,3% مقابل 30% على التوالي) . يستنتج من ذلك هو تفوق عملية تعديل الحاجز الأنفي بإزالة انسداد الأنف للمرضى الذين يعانون انحراف الحاجز الأنفي .

Abstract

Background: Nasal septal deviation is a common cause for nasal obstruction and usually treated by surgery. Submucous resection of the septum (SMR) and septoplasty are the common procedures for the treatment of nasal septal deflection.

Aims of the study: To audit the functional outcome of the patients undergoing submucous resection of the septum and septoplasty for deflected nasal septum.

Materials and methods: 100 patients are complaining from symptomatic nasal obstruction due to nasal septal deviation. Their ages are ranged from 18-55 years. They were divided in to two groups, 60 of them were treated by SMR and 40 patients (caudal end and anterior deviation) were treated by septoplasty in Alzahra Teaching Hospital, Al- Kut / Iraq. From January 2009 to December 2011. Both surgeries were done under general anaesthesia with anterior nasal packs for 24 hours. For the patients with septoplasty a bilateral silastic splints left for 10 days. Follow up done in the outpatient department for 6 months to 1 year.

Results: The functional nasal obstruction was relieved in 50/60 patients (83.3%) for SMR and 28/40 (70%) for septoplasty. The overall complications were nearly equal (33.3%) for SMR and (30%) for septoplasty.

Conclusion: The study revealed the superiority of SMR in relieving the symptomatic nasal obstruction than septoplasty.

Key words: SMR, Septoplasty, Deviated nasal septum, Nasal septum.

Introduction

The nasal septum has functional and aesthetic significance. The septum is the main support structure of the external nose. It is divided the nose into two cavities, regulating the air flow through the nose and supporting the mucosal lining of the nasal cavities (1).

The nasal septum consists of bones and cartilage. The triangular vomer is articulating above with sphenoid body form the posterior border of the septum. The perpendicular plate of ethmoid articulate with upper margin of vomer but not throughout its length. The septal cartilage, the unossified part of perpendicular plate of ethmoids forms the anterosuperior part of the septum. Inferiorly it is slotted into a bony groove at its vomerine and maxillary articulations. The nasal septum is frequently deviated from the midline (2). The submucous resection was first described by Freer in 1902 and by Killian in 1904. The preservation of the bilateral mucoperichondrial flaps and cartilaginous support were considered essential in their technique (3, 4).

Until the 1960s, submucous septal resection was standard practice in Western Europe. With this technique more or less straight septum was obtained where the septal skeleton was resected. Two strips of cartilage were left behind, one to maintain the dorsum and the other to keep the tip and columella in place. So saddling, columellar retraction and septal perforations were common complications (5). These led to emergence of septoplasty operation introduced by Cottle and Loring in 1946 (6). It involves correction of deflected nasal septum with minimal removal of septal cartilage and /or bone.

Objective

To audit the functional outcome of the patients undergoing submucous resection of the septum and septoplasty for deflected nasal septum.

Materials and methods

100 patients of symptomatic septal nasal deviation were selected from both genders, their ages were ranged from 18 to 55 years. Admitted to ENT unit in Alzahra Teaching Hospital, Al- Kut / Iraq. From January 2009 to December 2011 for correction of obstructive deviated septum. A set of questionnaires was designed including the name, age, sex, nasal obstruction, headache, rhinorrhoea, sneezing, snoring, nasal speech, sore throat, hyposmia and halitosis. All patients were examined clinically (anterior rhinoscopy) to confirm the symptomatic septal deviation (moderate and severe impacted types). A total of 100 cases were included in this study. The males 63 (63%) and females 37 (37%). 60 patients were submitted to SMR

and 40 patients (those with caudal end and anterior deviation) were subjected to septoplasty. In all patients anterior nasal packs were left for 24 hours. For the patients with septoplasty, a bilateral silastic splints left for 10 days.

The follow up was done in the outpatient clinic looking for the functional outcome and complications for 6 months to 1 year postoperatively. Statistical analysis showed significant difference for SMR procedure than septoplasty in relieving nasal obstruction ($P < 0.05$).

Results

Table (1) showed the pre-operative symptoms where the nasal obstruction presents in all patients (100%). Nasal obstruction was relieved in 83.3% (50/60 patients) after SMR and 70% (28/40 patients) after septoplasty. Other symptoms such as headache, snoring, sneezing, rhinorrhoea, hyposmia, nasal speech, halitosis and sore throat were also relieved more frequently after SMR than septoplasty (Table 2). Table (3) demonstrated the post-operative complications where the columellar retraction was found in 3/60 (5%) cases after SMR and 1/40 (2.5%) after septoplasty. Saddle nose deformity happened in 3/60 (5%) after SMR and 1/40 (2.5%) after septoplasty. Residual deviation occurred in 2/60 cases (3.4%) after SMR and 3/40 cases (7.5%) after septoplasty. Septal perforation occurred in 2/60 cases (3.4%) after SMR and 1/40 (2.5%) after septoplasty. The altered dental sensation occurred in 4/60 cases (6.6%) after SMR and 3/40 (7.5%) after septoplasty, but this complication occurred temporarily (few months). Intranasal adhesions found in 2/60 (3.4%) after SMR and 3/40 (7.5%) after septoplasty. Septal haematoma happened in 3/60 cases of SMR (5%) and 2/40 cases (5%) after septoplasty. Bleeding after removal of nasal packs occurred in 1/60 (1.6%) after SMR (repacking was done to control bleeding for another 24 hours) while none of the patients developed postoperative bleeding after septoplasty.

Table (1): Pre-operative symptoms

SYMPTOMS	SMR PATIENTS		Septoplasty Patients	
	Number	Percentage	Number	Percentage
Nasal obstruction	60	100	40	100
Headache	30	50	16	40
Rhinorrhoea	25	42	18	45
Sneezing	22	37	17	42.5
Snoring	30	50	20	50
Nasal speech	34	57	12	30
Sore throat	28	47	18	45
Hyposmia	16	27	8	20
Halitosis	20	34	10	25

Table (2): Post-operative functional results

Symptoms Relieved	SMR Patients		Septoplasty Patients	
	Number	Percentage	Number	Percentage
Nasal obstruction	50/60	83.3	28/40	70
Headache	20/30	66	10/16	62.5
Rhinorrhoea	5/25	20	3/18	16.5
Sneezing	6/22	27	3/17	17.5
Snoring	22/30	73	10/20	50
Nasal speech	23/34	67.5	6/12	50
Sore throat	19/28	68	8/18	44.5
Hyposmia	12/16	75	4/8	50
Halitosis	12/20	60	5/10	50

Table (3): Post-operative complications

Complication	SMR Patients		Septoplasty Patients	
	Number	Percentage	Number	Percentage
Saddle nose	3/60	5	1/40	2.5
Columellar retraction	3/60	5	1/40	2.5
Septal perforation	2/60	3.4	1/40	2.5
Adhesion	2/60	3.4	1/40	2.5
Altered dental sensation	4/60	6.6	3/40	7.5
Septal Haematoma	3/60	5	2/40	5
Residual deviation	2/60	3.4	3/40	7.5
Bleeding	1/60	1.6	0/40	0
Total	20/60	33.3	12/40	30

Discussion

Nasal obstruction was relieved in 50/60 patients (83.3%) after SMR which is better result than those patients subjected to septoplasty where the nasal obstruction was relieved in 28/40 patients (70%). (Table 2)

The nasal obstruction is the main symptom of septal deviation (100%) of patients from both groups, so it is the main outcome clinical parameter. International literatures shows better results for septoplasty (66%) than SMR (60%) (7). Better results for SMR patients in our study can be explained by the fact that we are relatively more experienced in performing SMR than septoplasty. Jessen et al.(8)found that while the long term objective nasal patency improved after septoplasty , long term sensation of nasal obstruction was not improved . Unfavorable airflow pattern due to post-operative anatomical changes were cited as a possible explanation. Barr (9) believes altered airflow pattern results in abnormal mucociliary function which causes the sensation of nasal obstruction.

In our study cosmetic results of septoplasty were better than those of SMR where one out forty patients (2.5%) after septoplasty developed saddle nose (nasal bridge depression) while three out of sixty (5%) after SMR (Table 3). The same results above occurred as a columellar retraction complication (2.5% after septoplasty and 5% after SMR). Phillips (10) noted cosmetic changes in 21% of cases after SMR. Samad et al.(11) found it in 8.5% of cases after septoplasty. In this study we got better results probably due to short follow up period (6 months to 1 year). The other reason that the nasal shape did not document pre-operatively in most of our patients. Saddle nose deformity is attributed to gradual absorption of the quadrilateral cartilage remnant along the dorsum of the nose (12). The cause of columellar retraction after septal surgery results from tissue deficiency and dislocation of caudal margin of the septum and often the anterior nasal spine from the midline (13).

In our study septal perforation has been occurred in two out sixty patients (3.4%) after SMR and one out forty (2.5%) after septoplasty. The higher percent of perforation with SMR was due to correspondent tear during surgery where the most of septal scaffold removed preserving only the mucoperichondrial flaps. Zia and butt (14) noted septal perforation in 2% of their cases while Haradsson et al.(15) found septal perforation in 1.6% after septoplasty and 8% after SMR.

Post-operative intranasal adhesions occurred in two out sixty patients (3.4%) after SMR and one out forty (2.5%) after septoplasty. Nasal adhesion happened due to bad post-operative care and in almost always because the patients are carelessness and did not follow the post-operative instructions and visit. In all patients adhesions were released under local anesthesia in the outpatient department. Adhesion can be avoided by minimize the trauma on the lateral wall intra-operatively, control of infection, removal of slough and blood clots and placement of intranasal splints post-operatively. Shone and Clegg(16) demonstrated that 11% of their cases developed adhesions, the possible causes were synchronous surgery on the nasal septum and lateral wall or trauma to the nasal septum and lateral wall by nasal speculum and nasal packs.

Altered dental sensation in upper incisors teeth were seen in four out sixty patients (6.6%) after SMR and three out forty (7.5%) after septoplasty. The reason for this complication was the manipulation of the anterior nasal spine and incisive foramen. Higher rates of altered dental sensation were noted in 11% of cases after septoplasty and 13% after SMR (16). Septal haematoma has seen in three out sixty (5%) after SMR and one out forty (2.5%) after septoplasty. This complication developed due to post-operative oozing inside the flaps after removal of nasal packs as a result of increase in blood pressure particularly after nose blowing. It occurred less after septoplasty might be due to the using of silastic splints. Fjermedal et al.(7) noted that 6.9% of cases developed septal haematomas.

Residual or recurrent deviation noted in two out sixty after SMR (3.4%) and three out forty after septoplasty (7.5%). It is nearly similar when compared with that of 6% by

Muhammad (13). The inadequate mobilization that leaves tension and resilience of the septum may lead to recurrent deviation or deformity (17). Recurrence of deflection after SMR could be due to angulations or deformity of the neochondrogenesis in the septal area after submucous cartilage resection (18).

There has been a general shift among ENT surgeons towards a septoplasty where the cartilage is preserved. A study by Haraldsson et al. (15) supports this view but actually the majority of the otolaryngologists employ neither a classical SMR nor septoplasty but a functional septal combination surgery.

Conclusion

The study revealed the superiority of SMR in relieving the symptomatic nasal obstruction in patients with septal deflection rather than those treated by septoplasty.

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