

SUBMUCOUS RESECTION FOR DEVIATED NASAL SEPTUM: A CRITICAL APPRAISAL

W K Low, D J Willatt

ABSTRACT

Submucous resection (SMR) for the deviated nasal septum had been criticised to have a higher complication rate and less patient satisfaction than septoplasty. Seventy-five patients who underwent SMR were studied and followed up at 6 months to 56 months post-operatively. The rates of short and long term complications were relatively low: septal haematoma 1.3%, nasal infection 1.3%, epistaxis 2.6%, external nasal deformity 9.3% and septal perforation 2.7%. While most patients achieved short term relief of nasal obstruction (93.4%), about 30% had persistent/recurrent nasal obstruction on long term follow-up. Similar rates had been quoted for the operation of septoplasty. We postulated that this was due to unfavourable airflow patterns as a result of minor residual septal deviation. Some patients had associated pre-operative symptoms of snoring (57.3%), headache (48.0%), rhinorrhoea (38.7%), sneezing (30.7%), hyposmia (30.7%) and epistaxis (21.3%). Frequencies of cure/improvement of these symptoms after SMR were 34.9%, 33.3%, 24.1%, 30.4%, 60.9% and 43.8% respectively. The overall post-operative long term (average 23.5 months) satisfaction rate was almost 70%. SMR, being relatively easy to perform, and having similar complication and patient satisfaction rates as septoplasty, should be retained in the surgical armamentarium for the deviated nasal septum.

Keywords: Nasal septum, nasal obstruction, submucous resection

SINGAPORE MED J 1992; Vol 33: 617-619

INTRODUCTION

The publications of Freer⁽¹⁾ in 1902 and Killian⁽²⁾ in 1904 marked the beginning of the present day submucous resection (SMR). The preservation of bilateral mucoperichondrial flaps and cartilaginous supports were considered essential in their techniques. The main criticisms of the SMR were a high rate of septal perforation and external deformity, the inability to correct anterior deviations and the difficulty in performing revision surgery. These criticisms led to the emergence of the septoplasty operation, introduced by Cottle⁽³⁾ in 1947 and Goldman⁽⁴⁾ in 1956. However, SMR is still widely practised, presumably because it is easy to perform with satisfactory results. The aim of this paper is to audit the outcome of our patients who have undergone SMR.

METHODS

Seventy-five patients who underwent SMR between August 1986 and November 1990 at the Hope Hospital, Manchester, were studied at 6 months to 56 months post-operatively. A clinical examination, an interview and an analysis of case-records were conducted for each patient.

RESULTS

The age range of patients studied was from 14 years to 78 years, with a median age of 34 years. The male to female ratio was 8:2. Sixty percent attributed their nasal obstruction to trauma. Thirteen percent had antral washouts done which were

all clear. Twenty-five percent of all patients had post-operative antibiotics (88% Penicillin group, 8% Erythromycin and 4% Co-trimoxazole) with an average duration of 6 days. All 75 patients had nasal packing (46% bismuth iodoform paraffin packs, 15% finger stall packs and 39% plain paraffin-based packs) for an average of one day. Total hospital stay ranged from 2 to 8 days with an average of 3.5 days.

Pre-operative symptoms and their frequencies are shown in Table I. Nasal obstruction was absent in only one patient, whose SMR was carried out for epistaxis. The proportion of patients who experienced improvement or cure of their symptoms post-operatively are shown in Table II. Note that nasal obstruction was analysed separately (see below).

Table I - Frequency of pre-operative symptoms in patients undergoing SMR

Symptoms	No. of patients (%)	
Nasal obstruction	74	(98.7%)
Rhinorrhoea	29	(38.7%)
Sneezing	23	(30.7%)
Headache	36	(48.0%)
Snoring	43	(57.3%)
Hyposmia	23	(30.7%)
Epistaxis	16	(21.3%)

Table II - Frequency of patients experiencing improvement or cure of symptoms after SMR

Symptoms	Frequency	
Rhinorrhoea	24.1%	(7/29)
Sneezing	30.4%	(7/23)
Headache	33.3%	(12/36)
Snoring	34.9%	(15/43)
Hyposmia	60.9%	(14/23)
Epistaxis	43.8%	(7/16)

The post-operative complications are shown in Table III. One patient suffered from infection of the tip of his nose (on the fifth post-operative day) which responded well to antibiotics. Two patients had epistaxis, one on the third and the other on the fifth post-operative day. The former stopped spontaneously while the latter required repacking. A septal haematoma was discovered in one patient one week after surgery. It re-

ENT Department
Hope Hospital
University of Manchester
School of Medicine
Manchester, UK

W K Low, FRCS (Glas), FRCS (Edin), DLO (Lond)
Registrar

D J Willatt, FRCS (Eng)
Consultant

Correspondence to: Dr W K Low
Department of Otolaryngology
Singapore General Hospital
Outram Road
Singapore 0316

solved with drainage. Two other patients were found to have a septal perforation. One had a 5 mm diameter perforation while the other had a 9 mm diameter septal defect. They were, however, asymptomatic. Seven patients were noted to have external nasal deformities, all of which were only mild to moderate in severity.

Table III - Short and long term post-operative complications of SMR

	No. of Patients (%)	
Short term		
Septal haematoma	1	(1.3%)
Infection	1	(1.3%)
Haemorrhage	2	(2.7%)
Long term		
Septal perforation	2	(2.7%)
External deformity:		
(i) saddle nose	4	(5.3%)
(ii) collumella retraction	3	(4.0%)

The short term relief of nasal obstruction (Table IV) was taken to be within 3 months after the operation, with an average of 1.7 months for all the patients studied. Long term results varied from 3 months to 56 months with an average of 23.5 months. Most patients had short term benefit but almost 30% had recurrence or persistence of nasal obstruction in the longer term.

Table IV- Relief of nasal obstruction after SMR

	Short term		Long term	
	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)
Cured	14	(18.7%)	22	(29.3%)
Improved	56	(74.7%)	31	(41.3%)
No change	5	(6.6%)	19	(25.4%)
Worse	0	(0.0%)	3	(4.0%)

The overall post-operative satisfaction level in the long-term was subjectively sought from each patient by asking if he/she was "very satisfied", "satisfied" or "dissatisfied" with the operation. Twenty-four patients (32.0%) were found to be dissatisfied with their operation (Table V). The reasons given were persistent snoring (1 patient), persistent rhinorrhoea (1 patient) and persistent/recurrent nasal obstruction (remaining 22 patients). Examination showed that of all the 75 patients, 28 (37.3%) had residual septal deviation but only 4 of these were severe enough to significantly occlude the nasal passage, accounting for persistent nasal obstruction. Table VI shows a number of patients in the dissatisfied group had rhinitis (defined in this study as having at least one of the following: rhinorrhoea, sneezing and post-nasal drip). However, analysis by the chi-squared test showed that this was not statistically significant when compared to the "satisfied/very satisfied" group.

DISCUSSION

Besides nasal obstruction, a deviated nasal septum can be associated with other symptoms in a significant proportion of patients. These symptoms may be improved or even cured by septal surgery. The data provided in this study serve as a valuable guide in the pre-operative counselling of patients with a deviated nasal septum.

It is of interest to note that only one patient developed a minor nasal infection post-operatively, despite only 25% of the patients being placed on prophylactic antibiotics. This raises

Table V - Overall long term satisfaction after SMR

	No. of Patients (%)	
Very satisfied	29	(38.7%)
Satisfied	22	(29.3%)
Dissatisfied	24	(32.0%)

Table VI - Contingency table relating the outcome of SMR on patients with and without rhinitis

	Rhinitis	No Rhinitis	Total
Very satisfied / satisfied	28	21	49
Dissatisfied	14	12	26
Total	42	33	75

the question of the routine use of prophylactic antibiotics in septal surgery. Our study supports the conclusions of Weimert⁽⁵⁾ and Strong⁽⁶⁾ that the routine use of prophylactic antibiotics for SMR is not justified.

Our rate of post-operative septal haematoma (1.3%) is low compared to that of 6.9% by Fjermedal⁽⁷⁾. Our septal perforation rate of 2.7% is also relatively low compared to those of some other studies. These are 6.4%, 8.0% and 11.6% for Tzadik⁽⁸⁾, Haraldsson⁽⁹⁾ and Fjermedal⁽⁷⁾ respectively.

There is a 9.3% rate of post-operative external nose deformity. Reports of external nose deformity following SMR varied from 0.4% to 18.6% (Tzadik⁽⁸⁾, Fjermedal⁽⁷⁾, Peacock⁽¹⁰⁾, and Haraldsson⁽⁹⁾). But because the shape of the nose was not specifically documented pre-operatively in most of our patients, we cannot directly attribute these deformities to the septal surgery. Indeed, Phillips⁽¹¹⁾ compared pre-operative photographs with post-operative findings 2 years after SMR. He found no example of significant external nasal cosmetic changes in the 50 patients studied.

It must be pointed out that while most patients had short term relief of nasal obstruction, many developed long term recurrence and dissatisfaction because of nasal obstruction. Fjermedal⁽⁷⁾ also quoted studies in the literature showing 25-35% of patients do not achieve satisfactory results in septal surgery. One reason may be due to failure to remember the degree of pre-operative nasal obstruction, which increased with time. One apparent factor is concomitant rhinitis. This has been cited as a relative contraindication for septal surgery by Stocksted and Gutierrez⁽¹²⁾. As our study shows that patients with rhinitis also do well with SMR, like Salas⁽¹³⁾, we conclude that rhinitis is no contraindication for SMR.

The reason for long term recurrence or persistence of nasal obstruction is not resolved. Jessen⁽¹⁴⁾ found that while the long term objective nasal patency improved after septoplasty, long term sensation of nasal obstruction was not improved. Unfavourable airflow pattern due to post-operative anatomical changes was cited as a possible explanation. With 37.3% of our patients showing some post-operative residual septal deviation, this is a definite possibility. Barr⁽¹⁵⁾ believes altered airflow pattern results in abnormal mucociliary function which causes the sensation of nasal obstruction. Graamans⁽¹⁶⁾ pointed out that submucous congestion is a major determinant of nasal airway resistance in patients with deviated nasal septum, possibly via a local reflex mechanism. Perhaps even minor residual septal deviation following SMR could result in such submucous congestion. This, while accounting for the sensa-

tion of nasal obstruction, is easily overlooked in objective tests of nasal patency which are often done after application of nasal decongestants.

Our results indicate that SMR is associated with few post operative complications. Over two-thirds of our patients were pleased with the results of SMR at a mean follow-up of 23.5 months. The main reason for dissatisfaction was recurrence/persistence of nasal obstruction, but comparable studies on septoplasties show a similar, if not higher rate, of recurrence/persistence. SMR may improve or even cure the associated preoperative symptoms of hyposmia, epistaxis, snoring, headache, sneezing, and rhinorrhea. Therefore, SMR deserves its place as an operation for the deviated nasal septum in ENT surgical practice.

REFERENCES

1. Freer OT. The correction of deflection of the nasal septum with minimum of traumatization. JAMA 1902; 4: 61-9.
2. Killian G. Die submucöse Fensterresektion der Nasenscheidewand. Arch Laryngol Rhinol 1904; 16: 362-87.
3. Cottle MM, Loring RM. Corrective Surgery of the external nasal pyramid and the nasal septum for restoration of normal physiology. Eye, Ear, Nose and Throat Monthly 1947; 26: 147.
4. Goldman IB. New techniques in the surgery of the deviated nasal septum. Arch Otolaryngol 1956; 64: 183-9.
5. Weimert TA, Yoder MG, Arbor A. Antibiotics and nasal surgery. Laryngoscope 1980; 4: 667-72.
6. Strong MS. Wound infection in otolaryngologic surgery and the inexpediency of antibiotic prophylaxis. Laryngoscope 1963; 73: 165-84.
7. Fjerrnedal O, Saunte C, Pedersen S. Septoplasty and/or submucous resection? J Laryngol Otol 1988; 102: 796-8.
8. Tzadik A, Gilbert SE, Sade J. Complications of submucous resections of the nasal septum. Arch Otorhinolaryngol 1988; 245: 74-6.
9. Haraldsson PO, Nordemar H, Anggard A. Long-term results after septal surgery - submucous resection versus septoplasty. ORL 1987; 49: 218-22.
10. Peacock MR. Submucous resection of the nasal septum. J Laryngol Otol 1981; 95: 341-56.
11. Phillips JJ. The cosmetic effects of submucous resection. Clin Otolaryngol 1991; 16: 179-81.
12. Stocksted P, Gutierrez C. The nasal passage following rhinoplastic surgery. J Laryngol Otol 1983; 97: 49-54.
13. Salas JR. Septoplasty vs SMR. J Laryngol Otol 1983; Supp 8: 113-4.
14. Jessen M, Ivarsson A, Malm L. Nasal airway resistance and symptoms after functional septoplasty: comparison of findings at 9 months and 9 years. Clin Otolaryngol 1989; 14: 231-4.
15. Barr GS. The effect of submucous resection of the nasal septum on mucociliary transport and nasal airway. Clin Otolaryngol 1989; 14: 127-30.
16. Graamans K. Does septal surgery influence submucous congestion? Rhinology 1983; 21: 21-7.

SNEC 1st International Meeting

Date: 16 – 18 April 1993

Venue: Shangri-La Hotel, Singapore

Theme: Controversies in Ophthalmology

Scientific Programme:

- * Symposia
- * Workshop
- * Special Lectures
- * Free paper
- * Trade Exhibition
- * Pre/Post Congress/Workshops

Scientific Highlights:

- * Cataract & Implants
- * Cornea/External Diseases
- * Glaucoma
- * Paediatric Ophthalmology
- * Refractive Surgery & Excimer Laser
- * What's New in Ophthalmology
- * Contact Lens
- * Vitreo-Retina
- * Research

For further information, please contact:

The Secretariat
SNEC 1st International Meeting
Singapore National Eye Centre
11 Third Hospital Avenue
Singapore 0316
Tel: (65) 2277255
Fax: (65) 2277290
Telex: SNEC RS 22842