

The effect of septal surgery on nasal symptoms

R.J. Sanderson and R.P. Rivron

Dept. of O.R.L., The Royal Infirmary, Edinburgh, United Kingdom

SUMMARY

Sixty patients scheduled for septal surgery were assessed preoperatively with regard to their symptoms of nasal obstruction, catarrh and facial pain. They were scored on a linear analogue scale and then re-assessed two months postoperatively. There was a highly significant improvement in scores for all three symptoms ($p < 0.005$).

INTRODUCTION

A ten-year literature search failed to reveal a prospective detailed analysis of the effects of septal surgery on the symptoms of nasal obstruction, catarrh and facial pain. Most studies were retrospective (Peacock, 1981; Fjermedal et al., 1988) or relied on the rhinomanometric assessment of objective resistance (Broms et al., 1982; Jalowayski et al., 1983; Holmstrom and Kumlien, 1988; Barr, 1989; Jessen et al., 1989). Those studies that have included an assessment of patients nasal symptoms have confined themselves to nasal obstruction and the patients being graded as satisfied or not (Broms et al., 1982; Holmstrom and Kumlien, 1988; Barr, 1989; Jessen et al., 1989).

The aim of this study was to perform a detailed assessment of the effects of septal surgery on the patients' symptoms of nasal obstruction and, in particular, the often associated symptoms of catarrh and facial pain.

METHOD

Sixty consecutive patients who were judged clinically to require septal surgery (mainly for nasal obstruction) were included in the study. Patients having associated nasal procedures, eg turbinate surgery were excluded. Thirty-four patients had submucous resection (SMR) and 26 patients had a septoplasty. There were 37 males and 23 females and their ages ranged from 15 to 74 years, with a median age of 32 years. Forty-three of the patients had sinus X-rays performed, all of these being clear. It is a policy on the unit that patients showing

evidence of mucosal thickening or opacification of the sinuses have a sinus wash-out or intranasal antrostomy performed, thus excluding them from the study. Prior to surgery, the patients indicated on a linear analogue scale the severity of their nasal obstruction, catarrh and facial pain from 0 (no symptoms) to 100 (severe symptoms). They repeated their symptom scores in the outpatient clinic two months postoperatively and this was performed without them having sight of their preoperative score.

No comment was made on the appearance of the postoperative septum and rhinomanometry was not performed as the main objective of surgery is to improve the patients' preoperative symptoms and it is common experience that technically successful operations do not always have a beneficial effect and vice versa.

The statistical analysis was by the Wilcoxon matched pairs sign rank test.

RESULTS

Table 1 shows a summary of the results obtained. Only four patients failed to show an improvement in their nasal obstruction, six in their catarrh and six in their facial pain. The median percentage decrease in nasal obstruction was 83% and the decrease in catarrh and facial pain was 33% and 32% respectively.

Table 1. Changes in patients' pre- and postoperative nasal symptom score.

| symptom | preoperative median and range | postoperative median and range | median % change |
|-------------------|----------------------------------|-----------------------------------|--------------------|
| nasal obstruction | 55 (0-100) | 9 (0-70)* | 83% |
| catarrh | 30 (0-100) | 10 (0-75)** | 33% |
| facial pain | 44 (0-100) | 5 (0-84)** | 32% |

* Wilcoxon $p < 0.001$.

** Wilcoxon $p < 0.005$.

These results were all significant on Wilcoxon testing of the raw data (nasal obstruction, $p < 0.001$; catarrh and facial pain, $p < 0.005$). The results of SMR and septoplasty were similar. If the results of surgery on the three nasal symptoms were analysed into those patients presenting with scores of 50 and over, against those patients with scores less than 50 (i.e. patients with severe symptoms against patients with less severe symptoms) there was shown to be no significant difference between the two groups suffering with catarrh and facial pain, $p > 0.1$ on Wilcoxon testing (Tables 2 and 3). If the symptom of nasal obstruction is analysed, there was shown to be a larger median percentage decrease (90%) in patients with a score of 50 or over than patients presenting with a score of less than 50 where the median percentage change was 74%. However, this was not quite significant on Wilcoxon testing of the raw data, $p > 0.05$.

Table 2 Changes in patients' pre- and postoperative nasal symptom score presenting with a score of less than 50.

| symptom | number of patients | median % change |
|-------------------|--------------------|-----------------|
| nasal obstruction | 22 | 90% |
| catarrh | 48 | 36% |
| facial pain | 34 | 35% |

Table 3. Changes in patients' pre- and postoperative nasal symptom score presenting with a score of 50 or greater.

| symptom | number of patients | median % change |
|-------------------|--------------------|-----------------|
| nasal obstruction | 38 | 74% |
| catarrh | 17 | 31% |
| facial pain | 26 | 30% |

DISCUSSION

From the above data it can be seen that septal surgery has a highly significant beneficial effect not only on nasal obstruction but also upon the often associated symptoms of catarrh and facial pain which, to our knowledge, have not been studied before. It is also of interest that patients who did complain of facial pain had clear sinus X-rays and that this clinical feature was improved by straightening the nasal septum, thus indicating that the deviated septum itself may be a factor in the development of the facial pain without concomitant X-ray evidence of sinusitis. Our clinical results appear to be slightly superior to the published results of rhinomanometric improvement following septal surgery (Broms et al., 1982; Jalowayski et al., 1983) and continue to support the role of septal surgery in the relief not only of nasal obstruction but also of catarrh, facial pain in the patient with a deviated septum.

Finally, we did not show any significant difference in the effects of surgery on those patients presenting with high scores or low scores, although there was a definite trend for patients presenting with a higher nasal obstruction to have better results than those presenting with a lower score.

REFERENCES

1. Barr GS. The effect of submucous resection of the nasal septum on mucociliary transport and nasal airway. *Clin Otolaryngol* 1989; 14: 127-130.
2. Broms P, Jonson B, Malm L. Rhinomanometry. A pre- and postoperative evaluation in functional septoplasty. *Acta Otolaryngol (Stockh)* 1982; 94: 523-524.
3. Fjermedal O, Saunte C, Pedersen S. Septoplasty and/or submucous resection. *J Lar Otol* 1988; 102: 796-798.
4. Holmstrom M, Kumlien J. A clinical follow up of septal surgery with special attention to the value of preoperative rhinomanometric examination in the decision concerning operation. *Clin Otolaryngol* 1988; 13: 115-120.

5. Jalowayski A, Yuh Y, Koziol J, Davidson T. Surgery for nasal obstruction. Evaluation by rhinomanometry. *Laryngoscope* 1983; 93: 341-345.
6. 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: 231-234.
7. Peacock MR. Submucous resection of the nasal septum. *J Lar Otol* 1981; 95: 341-356.

R.J. Sanderson, F.R.C.S.
Dept. of O.R.L.
Lauriston Building
The Royal Infirmary
Edinburgh EH3 9EN
United Kingdom