

## Submucous resection of the nasal septum as an outpatient procedure

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### Abstract

We report our experience of submucous resection of the nasal septum under local anaesthesia as an outpatient procedure. We have audited 50 consecutive cases and compared the results with a similar group of patients in whom the operation was carried out in the usual way under general anaesthesia. We have found the procedure to be safe, effective and economically advantageous.

### Introduction

Deviation of the nasal septum is a common cause of nasal obstruction and corrective operations are among the most frequently performed in otolaryngology. Early attempts, most notably by von Langenbeck in 1843, removed the deflected septum, but had the disadvantage of creating a septal perforation. Submucosal removal of deviated bone and cartilage was reported in 1882 by Ingals and, in 1899, Killian presented a precise description of the submucous resection operation (Pirsig, 1982).

Submucous resection may be carried out under local or general anaesthesia. It is customary in the UK to carry out the operation under general anaesthesia and to pack the nose post-operatively with petroleum jelly, or bismuth and iodoform, impregnated gauze for 24 hours to prevent bleeding and haematoma formation.

Recent economic constraints within the National Health Service have provided the impetus for the investigation of procedures which would be suitable for day case surgery. Submucous resection has been included in the 'basket' of 20 common operations focused on in the recent Audit Commission review of day case surgery (Audit Commission Review, 1990). We were prompted to carry out this study by the increasing need to assess our utilization of resources and restrictions imposed on routine surgery by reductions in the number of available beds. The provision of efficacious treatment in the most cost effective way is clearly highly desirable.

We felt that general anaesthesia and hospital inpatient stay was perhaps not always necessary for submucous resection. Having already moved to performing submucous resection as a day case under general anaesthesia, and finding this method safe and effective, we proceeded to assess the feasibility of carrying out the operation under local anaesthetic. We report our experience of 50 such cases carried out in the outpatient department.

### Patients and methods

#### *Patients*

Patients were aged from 17 to 73 (mean 38, SD 14). Thirty-eight were male and 12 female. Coagulation disorders or cardiovascular disease were considered contraindications to day case surgery under local anaesthesia. Selection for local anaesthesia was otherwise determined by patient choice after a full explanation of the technique.

The 50 consecutive patients who had the operation carried out under general anaesthesia were drawn from the waiting list. It is emphasized that there was no attempt at randomization into local and general anaesthetic groups; the general anaesthetic group is intended for comparison but is not a true control group. The patients ranged in age from 19 to 57 (mean 34, SD 11). Thirty-one were male and 19 female. Following surgery, the nose was packed with petroleum jelly impregnated gauze and the packs removed the following day.

#### *Anaesthetic technique*

##### *Local*

The nose was sprayed and then packed with 5 per cent cocaine solution on cotton wool pledgets. If the septal deviation or coexistent nasal polyps precluded adequate positioning of the pledgets then a modification of Proetz's displacement method was used. The head was extended until the chin and ear were in the same vertical plane, and 1 ml of 5 per cent cocaine introduced into each nostril using an angled cannula. After five minutes the septum and columellar region were infiltrated with 2 per cent lignocaine and 1:80,000 adrenaline solution so as to raise the mucoperichondrium/mucoperiosteum. Particular attention should be paid to infiltration over the posterior part of the vomer. The operation was not started until an interval of at least 10 minutes had elapsed.

sed. Emergency resuscitation equipment was available. No sedation was used.

### General

Patients were premedicated with papaveretum and hyoscine and anaesthetized with intravenous thiopentone and inhaled isoflurane. Endotracheal intubation and a pharyngeal pack were used. Prior to operation the nasal mucosa was painted with 25 per cent cocaine paste and the septum infiltrated with 2 per cent lignocaine and 1:80,000 adrenaline.

### Operative technique

The local anaesthetic cases were carried out in a minor surgery theatre within the outpatient department. The operation was carried out under aseptic conditions using the same technique for both local and general anaesthetic cases. The septum was approached using a Killians or a hemitransfixion incision depending on the site of the deviation. The mucoperichondrium was elevated from the cartilage and the mucoperiosteum from the vomer and maxillary crest using blunt dissection. The perichondrium at the junction between cartilage and vomer was divided by sharp dissection. Bone and cartilage were resected using Janssen-Middleton forceps and an incision was made in the septal mucosa to prevent blood being trapped with consequent haematoma formation. Chlorhexidine cream was applied to the incision at the end of the operation. The nose was examined after one hour to ensure adequate haemostasis had been achieved. Nasal packing was not routinely employed in those cases done under local anaesthesia.

After the operation under local anaesthesia patients were asked to grade the effectiveness of the anaesthesia on a subjective scale of 1 to 4, a grading of 1 being painless, 2 slight discomfort, 3 moderate discomfort and 4 marked discomfort.

### Post-operative follow up

Patients were asked to attend for examination on the day after surgery to detect septal haematoma formation. They were then reassessed after one month. Those in whom the operation was carried out under general anaesthetic were examined the following day after removal of the pack and again reassessed after one month.

## Results

### Surgery carried out

A number of cases had other nasal conditions which were dealt with at the same time (Table I).

TABLE I  
DETAILS OF OPERATIONS IN ADDITION TO SUBMUCOUS RESECTION

Operation	Local anaesthetic	General anaesthetic
Nasal polypectomy	7	9
Antral washout	1	3
Intranasal antrostomy	0	3
Diathermy of turbinates	6	8
Turbinectomy	0	5

### Anaesthesia

The patients in whom the operation was done under local anaesthesia were asked to subjectively grade the anaesthesia as above. Thirty-eight (76 per cent) of the patients felt the procedure was completely painless (grade 1) and seven (14 per cent) slightly uncomfortable (grade 2); no information was available on five. The only part of the operation which appeared to cause any discomfort was resection of the posterior part of the vomer. It is interesting to compare this to the seven patients in whom nasal polypectomy was carried out at the same time. The polypectomy was graded by three as being slightly uncomfortable (grade 2) and by four as being moderately uncomfortable (grade 3).

### Results of surgery

At outpatient review after one month, patients were asked to subjectively grade the nasal airway patency as better, the same or worse than before the operation. All the cases in both groups had a subjective improvement in the airway.

### Complications

There were very few complications of surgery under local anaesthesia (Table II). One case of primary haemorrhage required packing and admission to hospital overnight but was discharged home the following day. A further patient bled from a mucosal tear and needed to stay in hospital for five hours after the operation, but was discharged home after this. A further six cases had minor bleeding, five from the lower end of the incision and one from a septal mucosal tear. All were easily controlled local pressure and silver nitrate cautery.

One patient from the local anaesthetic group developed local discomfort and returned to hospital two days after operation. This was felt to be due to local infection and resolved rapidly on antibiotic treatment. None of the cases developed a septal haematoma or perforation. One case had a residual deviation at follow-up. The patient needed subsequent surgery for recurrence of nasal polyps and the spur was removed at the same time.

One case from the general anaesthetic group required repacking for bleeding, two cases had a residual deviation and one case developed a septal perforation.

## Discussion

The principal areas of concern in performing submucous resection under local anaesthetic are patient acceptability, complications of the technique and its efficacy. The anaesthesia was satisfactory in all cases and, although the number was small, compared very favourably with nasal polypectomy, a procedure which is

TABLE II  
COMPLICATIONS OF SURGERY

Complication	Local anaesthetic	General anaesthetic
Haemorrhage	2	1
Infection	1	0
Residual deviation	1	2
Perforation	0	1

frequently carried out under local anaesthesia. Pre-operative explanation of the technique and description of the anaesthetic manoeuvres and surgical steps during the procedure was effective in allaying patient anxiety. This obviated any need for preoperative sedation. The anaesthetic technique itself was painless and the perpendicular plate of the ethmoid and vomer were well anaesthetized. In the few patients who complained of any discomfort, it was experienced on resection of a posterior vomerine spur. The discomfort was momentary and ceased when this part of the dissection was complete. None of the patients complained of postoperative pain.

Complications of the procedure were few. Any bleeding that occurred was usually from the site of the incision and stopped on local pressure and silver nitrate cauterization of the retrocolumellar vein. The case that required packing had a nasal polypectomy carried out at the same time and the site of the bleeding appeared to be from the lateral wall of the middle meatus. No further problems were encountered on removal of the pack. We did not find the routine use of nasal packs to be necessary, however a temporary pack while the patient was recovering from the procedure would be quite acceptable. Concern about the possible occurrence of septal haematoma appeared to be unfounded. The appearance of the local and general anaesthetic cases on the day after surgery was indistinguishable. Nonetheless the suggestion of using fibrin glue to appose the septal flaps after submucous resection is interesting and would be applicable in this context (Hayward and Mackay, 1987).

At review one month after the operation all patients reported an improvement in the nasal airway. We there-

fore feel that submucous resection under local anaesthesia is a well tolerated, safe and effective procedure.

The economic benefits of outpatient and day case surgery are clear from the costing (Table III) nearly three times as many patients could be treated for the same cost if the operation was carried out as an outpatient procedure or approximately twice as many as a day case under general anaesthesia. It has been estimated that if all District Health Authorities used day case facilities to the extent of the 25 per cent that use it most, an additional 186,000 patients could be treated in England and Wales every year at no additional cost (Audit Commission Report, 1990). Adult nasal surgery constitutes a substantial proportion of the case mix in otolaryngology and the increase in activity generated by day surgery would be expected to have a significant effect on waiting times for all types of otolaryngological surgery. There are additional advantages in terms of patient convenience. Patients are treated sooner and spend less time away from home. Since the surgery is a planned procedure carried out in a self contained unit a routine can be developed which closely matches the needs of the patients.

#### References

- Audit Commission Report (October 1990) A short cut to better services—Day surgery in England and Wales. *Annals of the Royal College of Surgeons*, **72**: Supplement.  
 Hayward, P. J., Mackay, I. S. (1987) Fibrin glue in nasal septal surgery. *Journal of Laryngology and Otology*, **101**: 133–138.  
 Pirsig, W. (1982) Septum deviation 1882: Beginning of systematic submucous septum surgery. *Laryngologie Rhinologie Otologie (Stuttgart)*, **61**: 547–551.

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TABLE III

ESTIMATED COSTS OF SURGERY: BASED ON SALARIES AND PRICES ON 31/3/90 AND ASSUMING 30 minutes theatre time and two outpatient visits

Inpatient	Day case	Outpatient
£518	£254	£178

**Key words:** Nasal septum; Nasal surgery