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Nasal adhesions

by

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Introduction

A prospective study was performed to determine the incidence of adhesions following nasal surgery. We have been unable to find any other published data on this subject in the literature.

Materials and methods

Sixty consecutive patients admitted to one ENT unit for intranasal surgery over a 4-month period between June 1985 and September 1985 were entered in the study, with the exception of patients having rhinoplasty or septoplasty *via* an external approach. The operations performed are shown in Table I. (The table excludes 6 patients who failed to attend follow-up appointments as requested (see below)). Some patients had antral washouts in addition to the main procedure specified in the table. Trimming of inferior turbinates was done by the 'radical' method (Martinez *et al.* 1983). All the patients were operated on by one or other of the authors. All patients except two had haemostatic nasal packs inserted at operation (either Bismuth Iodoform and Paraffin Paste (BIPP) on half-inch ribbon gauze or Xeroform), remaining *in situ* for 24 to 48 hours. No patient had any other form of nasal splint inserted.

Patients were seen in the outpatient department two weeks post-operatively. At this visit the nose was examined but crusts were not removed, no nasal toilet was performed, and adhesions were left undisturbed. This policy was adopted to assess whether early adhesions ever resolve spontaneously and also whether later adhesions ever formed if the nasal cavities had been clear at the 2-week stage. Patients complaining of persistent nasal obstruction at 2 weeks were simply advised to use steam inhalations.

Patients were seen a second time six weeks post-operatively. At this visit any crusts or exudate were removed and the nose assessed for the presence or absence of adhesions.

Results

Six patients did not attend follow-up at both 2 and 6 weeks, so 54 patients were available for analysis.

One patient (following trimming of the inferior turbinates) appeared to have adhesions bilaterally at 2 weeks but these had resolved at 6 weeks.

Six other patients (11 per cent) had adhesions at 6 weeks. Their operations are shown in Table II. Five of these patients had adhesions visible at 2 weeks; the sixth patient had mucosal oedema and exudate, with mucosal apposition between septum and lateral wall. Two of these six patients had had a secondary haemorrhage requiring re-admission to hospital (in fact these were the only 2 such patients in the whole series of 60). One of the patients required nasal balloon tamponade to arrest the secondary haemorrhage; the other stopped bleeding with bedrest and antibiotics.

Apart from the 6 patients with adhesions at 6 weeks, who all had visible abnormality at 2 weeks, 21 other patients had abnormalities at 2 weeks, as shown in Table III, but were clear at 6 weeks. Thus if the nose was abnormal at 2

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TABLE I
NUMBER OF OPERATIONS PERFORMED

Operation	Number available for analysis
Submucous resection of septum (S.M.R.)	3
S.M.R.+Trimming inferior turbinates (I.T.'s)	8
S.M.R.+Submucosal diathermy to I.T.'s	1
S.M.R.+Bilateral antrostomies+ Trimming I.T.'s	2
Bilateral antrostomies	2
Bilateral antrostomies+Trimming I.T.'s	6
Polypectomy	11
Polypectomy+Trimming I.T.'s	2
Polypectomy+Bilateral antrostomies+ Trimming I.T.'s	1
Trimming I.T.'s	16
Submucosal diathermy to I.T.'s	2
	54

TABLE II
DETAILS OF THE 6 PATIENTS WITH ADHESIONS AT 6 WEEKS

Operation	Type of pack	Adhesions
S.M.R.+Trimming I.T.'s	BIPP	Unilateral
S.M.R.+Trimming I.T.'s	Xeroform	Bilateral
Bilat. antrostomies+ Trimming I.T.'s	BIPP	Unilateral
Bilat. antrostomies+ Trimming I.T.'s	Xeroform	Unilateral
Polypectomy+Trimming I.T.'s	Xeroform	Unilateral
Trimming I.T.'s	Xeroform	Unilateral

TABLE III
PATIENTS WITH ABNORMALITY AT 2 WEEKS BUT NORMAL AT 6 WEEKS

Abnormality	
Marked mucosal oedema±exudate	7
Dry crusting	12
Crusting+oedema or exudate	2
	21

weeks there was a 6/27 or 22 per cent chance of there being established adhesions at 6 weeks, whereas no patient with a clear nose at 2 weeks had adhesions at 6 weeks.

Twenty-six (48 per cent) patients had a clear nose at both 2 weeks and 6 weeks.

Discussion

The incidence of nasal adhesions following surgery has not, to our knowledge, been studied before, and there has been no scientific evaluation of the possible aetiological factors In this study, 11 per cent of patients developed established adhesions. Every patient developing adhesions had had radical trimming of inferior turbinates. Five out of the six patients had had another procedure as well as the trimming of turbinates.

Possible aetiological factors for the development of adhesions include: (a) synchronous surgery to septum and lateral wall; (b) mucosal trauma to septum and lateral wall from the speculum; (c) extensive nasal surgery; and (d) trauma from the packs or splints.

Many surgeons use nasal splints to prevent adhesions following extensive surgery and/or synchronous surgery to septum and lateral wall. The use of splints with their associated disadvantages (risk of displacement, discomfort, increased crusting, secondary infection, painful removal) is not easy to justify without objective evidence as to their effectiveness. In this study 5 out of 20 (25 per cent) patients having more than one procedure performed developed adhesions, whereas only 1 out of 34 (3 per cent) patients having a single procedure developed adhesions. Two out of eleven (18 per cent) patients having synchronous surgery to septum and lateral wall developed adhesions, compared with 4 out of 43 (9 per cent) having surgery confined to septum or confined to lateral wall. These figures support the idea that adhesions are more common with extensive surgery or synchronous surgery to septum and lateral wall.

The incidence of mucosal trauma from a Killian's speculum is hard to assess, and only in limited nasal surgery can the use of this kind of speculum be avoided.

The use of different nasal packs was not

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studied in a properly randomised fashion; nevertheless, it was our impression that this was not a significant factor.

The possibility that early fibrinous adhesions may disappear spontaneously has to be considered. This certainly happens within the abdomen following surgery (Jackson, 1952), where fibrinous adhesions develop specifically as a response to local ischaemia, providing a new blood supply within the granulation tissue of the adhesion. Whether these fibrinous adhesions resolve or develop into permanent fibrous bands depends mainly on the degree of local tissue trauma and ischaemia; inflammation due to foreign material, such as glove powder, is another factor. In our series there was one patient who appeared to have adhesions that disappeared spontaneously.

Questions that remain to be answered include: (1) whether nasal toilet in the first two weeks after surgery leads to less adhesion formation; (2) the place of intranasal splints; and (3) the place of post-operative systemic or topical decongestants. We intend to carry out further studies along these lines.

Conclusion

Adhesions developed after 11 per cent of intranasal procedures, without use being made of either intranasal splints or early outpatient cleaning and decrusting of the nose. The adhesions were more likely to occur after an extensive operation or after synchronous surgery to septum and lateral wall.

References

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