The Journal of Laryngology and Otology
August 1992, Vol. **106,** pp. 695–696

Nasal polpectomy: should antral washout be a routine?

MARQUE DOWELL, AHMES L. PAHOR

Abstract

Seventy patients with nasal polyps were studied. Forty-seven of these had pre-operative sinus radiographs and all seventy patients had antral washouts at the time of nasal polypectomy. One hundred and seventeen antral aspirates were sent for culture and microscopy. The naked eye appearance of aspirates were turbid in 34 patients. Bacteria were cultured from 15 of the specimens in 10 patients.

It was concluded that antral washout should be recommended in all patients who have nasal polypectomy and that there is no need for sinus radiographs in those patients who have uncomplicated nasal polyps.

Introduction

Nasal polyps are one of the most common lesions encountered in the nose. There are still many unanswered questions concerning their incidence, pathogenesis and treatment. The most common theories put forward to explain their formation are infection and allergy (Dawes *et al.*, 1989). Slavin (1988) concludes that infection is the likely pathogenesis of nasal polyps on the basis that nasal polyposis in allergic rhinitis is uncommon. However, in one study the possibility of an allergy to commensal bacteria was cited as the underlying cause (Dawes *et al.*, 1989).

Most nasal polyps arise from the ethmoid sinuses which have ostia of only one to two millimetres in diameter, making them susceptible to occlusion by mucosal oedema or the growth of polypoidal granulation tissue (Slavin, 1988). Chronic sinus infection may develop as a result of impaired drainage and aeration of the ethmoid sinuses. Chronic irritation associated with sinus infection may then encourage polypoidal changes in the mucosal lining. This further interferes with the proper drainage of the sinuses and a vicious cycle of infection and nasal polyposis is set up.

It has been shown by many authors that radiological changes of antral mucosa are not entirely reliable in the diagnosis of sinusitis (Pahor, 1978; Croft *et al.*, 1991).

The aim of our study is to determine whether antral washout should be carried out routinely in all cases of nasal polypectomy and also the incidence of sinus infection both on radiological and washout examination.

Method

A retrospective study of 78 unselected patients who underwent transnasal polypectomy and antral washout for simple nasal polyps was carried out during the period 1979–1990 under the care of one surgeon (A.L.P.) at Dudley Road Hospital, Birmingham.

Sinus washouts were performed on all; however, the results were recorded only in 70 patients. The technique used was similar to that as described by Ritter (1977) via the inferior meatus and was done at the time of polypectomy. Antral washings and aspirates were collected and sent for microscopy and aerobic culture.

The results were recorded as (a) no growth or (b) an organism was identified. The macroscopic appearance was noted at the time of surgery to be clear/mucus, turbid and mucopus/pus. Only those washings which were turbid or mucopurulent/pus were considered indicative of sinus infection.

Forty-seven of those 70 patients included in our study had sinus radiographs a few months prior to surgery. This time interval between X-ray and surgery was determined by the period spent on the waiting list; in only a few cases was this as much as twelve months.

Results

The total number of patients who underwent nasal polypectomy was 78. All patients had an antral washout at the time of surgery, but eight of these had not been recorded and, though presumed clear, were excluded from the study.

The age of patients in this study ranged from 14 to 78 years with a mean age of 42.5 years. There was 2.5:1 male-female ratio which is similar to that found by others (Martin, 1967; Brown, 1969; Schenck, 1974; Moloney, 1977; Majumdar and Bull, 1982).

The naked eye appearance of aspirates were turbid, mucopus/pus in 34 of our patients (48 per cent), the remaining 36 were clear. Material from 48 of these cases were submitted for aerobic culture for 24 hours. For various reasons, culture of the remaining 22 cases were not recorded. Twenty-eight of the 48 cases submitted for culture were turbid, purulent or mucopurulent. Organisms were cultured in eight of these cases (28 per cent). Of the 20 specimens which were clear two grew organisms cultured in the clear aspirates and these were Streptococcus. Those cultured in the turbid aspirates are shown in Table I.

ENT Department, Dudley Road Hospital, Dudley Road, Birmingham.
Accepted for publication: 15 April 1992

TABLE I
ORGANISMS CULTURED FROM ANTRAL WASHOUTS

Bacteriological culture	Number of patients
Haemophilus influenza	3
Strep. milleri	2
Enterobacter. sp.	1
Branhamella catarrhalis mixed growth	1
(skin commensals)	1
Total	8

TABLE II
SINUS RADIOGRAPH APPEARANCE IN RELATION TO ANTRAL WASHOUT

Sinus radiograph appearance	Antral washout	
	turbid	Clear
Abnormal	22	21
Normal	0	4
Total	22	25

In those 47 patients who had sinus radiographs in the months prior to surgery, 91 per cent (43) showed abnormalities in the sinuses (ranging from mucosal thickening to complete opacification) particularly in the ethmoids and maxillary antra. Twenty-one of these did not correlate with the findings on naked eye appearance of the aspirate (Table II). This gives a 49 per cent false positive rate. Four cases (9 per cent) showed normal sinus radiographs and this correlated well with findings at antral washout.

Discussion

It is recognized (Melen *et al.*, 1986) that mechanical or mucosal factors, i.e. nasal polyposis, deviated nasal septum or allergic rhinitis which interfere with proper drainage and aeration of the paranasal sinuses, are likely to increase the risk of a long-standing inflammatory process occurring in the sinuses. The role of bacteria in the pathogenesis of nasal polyposis is still not settled, however, many authors have admitted the association between nasal polyposis and antral infection (Patterson, 1944; Darrough, 1947; Taillens, 1953; Fox, 1956; Sanders, 1972).

In our study, 48 per cent of the patients with nasal polyps had macroscopic evidence of maxillary sinusitis. Majumdar and Bull (1982) found that in a total of 115 patients with nasal polyps, 64 per cent had co-existing sinusitis with pus or mucopus in one or both antra.

Despite surgical treatment there is still a high recurrence rate and 34 per cent of our patients had undergone previous nasal polypectomy prior to presentation.

A 49 per cent false positive diagnostic rate of sinusitis on plain sinus radiography puts the usefulness of this investigation in grave doubt. This criticism has also been levelled by other authors (Vourinen *et al.*, 1962; Axelson *et al.*, 1970; Watt Boulsen and Karle, 1977). Croft *et al.* (1991) demonstrated a 35 per cent false positive diagnostic rate in a study of 49 patients who had sinus radiographs followed by antroscopy.

Conclusion

Antral washout should be carried out routinely in patients who undergo nasal polypectomy as there is a strong association between nasal polyps and sinusitis.

Plain sinus radiographs are of little value in the diagnosis and management of uncomplicated nasal polyps and are therefore unnecessary.

References

Axelson, A., Grebelius, N., Chidekel, N. (1970) The correlation between the radiological examination and the investigation findings in maxillary sinusitis. *Acta Otolaryngologica*, **69:** 302–306.

Brown, G. A. (1969). Nasal polyposis. *Postgraduate Medical Journal*, **45:** 680–683.

Croft, C. B., Whittet, H. B., Fisher, E. W., Lloyd, G. A. S., Wright, A. (1991) Polytomographic radiology in the diagnosis and management of maxillary antral disease as determined by antroscopy. *Clinical Otolaryngology*, **16:** 62–69.

Darrough, L. E. (1947). Nasal allergy associated with sinus disease. *Texas State Journal of Medicine*, **43:** 285–287.

Dawes, P., Bates, G., Watson, D., Lewis, D., Lowe, D., Drake Lee, A. B. (1989) The role of bacterial infection of the maxillary sinus in nasal polyps. *Clinical Otolaryngology*, **14:** 447–450.

Fox , S. L. (1956) Nasal polyps in relation to nasal sinusitis. *Ear, Nose and Throat Monthly*, **35:** 492–496.

Majumdar, B., Bull, P. D. (1982) The incidence and bacteriology of maxillary sinusitis in nasal polyposis. *Journal of Laryngology and Otology*, **96:** 937–941.

Maloney, J. R. (1977) Nasal polyps, nasal polypectomy, asthma and aspirin sensitivity; their association in 445 cases in nasal polyps. *Journal of Laryngology and Otology*, **91:** 837–846.

Martin, J. A. M. (1967) Disease of the ear, nose and throat in tropical Africa; A Uganda Survey. *Journal of Laryngology and Otology*, **81:** 1079–1098.

Melen, I., Lindahl, L., Andreasson, L., Rundcrantz, H. (1986) Chronic Maxillary Sinusitis: Definition, Diagnosis and Relation to Dental Infections and Nasal Polyposis. *Acta Otolaryngologica* (Stockholm), **101:** 320–327.

Pahor, A. L. (1978) Antral lavage in children. *Ear, Nose and Throat Journal*, **57:** 451–454.

Patterson, N. (1944) Chronic sinusitis with polypi; a radical external operation. *Lancet*, **1:** 558–560.

Ritter, F. N. (1977) A clinical and anatomical study of the various techniques of irrigation of the maxillary sinus. *Laryngoscope*, **87:** 215–223.

Sanders, S. H. (1972) Management of total nasal blockage by polyps of allergic and infectious origin. *Annals of Otology, Rhinology and Laryngology*, **81:** 566–577.

Schenck, N. L. (1974) Nasal polypectomy in the aspirin-sensitive asthmatic. *Transactions of the American Academy of Ophthalmology and Otolaryngology*, **78:** 109–119.

Slavin, R. G. (1988) Sinusitis in adults and its relation to allergic rhinitis, asthma and nasal polyps. *Journal of Allergy and Clinical Immunology*, **82:** 950–956.

Vourinen, P., Kaupilla, A., Pilkkinen, E. K. (1962) Comparison of results of röentgen examination and puncture irrigation of the maxillary sinuses. *Journal of Laryngology and Otology*, **76:** 359–363.

Watt Boulsen, S., Karle, A. (1977) The clinical use of radiological examination of the maxillary sinuses. *Clinical Otolaryngology*, **2:** 41–43.

Address for correspondence:
Ahmes L. Pahor,
Consultant ENT Surgeon,
Dudley Road Hospital,
Dudley Road,
Birmingham B18 7QH.

Key words: Nasal Polyps; Maxillary sinus