Aural Polyps: Safe or Unsafe Disease?

Thomas Prasannaraj, MS, Narajit S. De, MS, and Indira Narasimhan, MS

Purpose: To determine whether a case of inflammatory aural polyp constitutes a safe or unsafe disease and to arrive at the most suitable treatment option.
Design: Prospective study. Follow-up period of 6 months.
Setting: Hospitalized treatment in a tertiary medical college hospital that provides care for a predominantly rural population.
Patients: All patients treated for aural polyp, having a postoperative histopathological diagnosis of inflammatory aural polyp. Most patients (72%) belonged to the lower middle class.
Results: Forty-two patients treated during a 4-year-period were analyzed. Eleven cases were treated by simple aural polypectomy, of which 78% had either recurrence or persistent disease. Out of 31 patients who underwent mastoid exploration, 52% had extensive disease of the mastoid air-cell system and 35% had an underlying cholesteatoma. Six percent had persistent discharge. The disease was often associated with complications (19%).
Conclusions: The presence of an aural polyp signifies well-established disease of the middle ear cleft with a greater potential for complications and often obscures an underlying cholesteatoma. We propose that all cases of aural polyps should be considered as unsafe disease and subjected to a formal mastoid exploration.

Inflammatory aural polyps are a known manifestation of tubotympanic as well as atticoantral disease. However, investigation into the underlying disease causing an aural polyp is often hampered when the polyp itself obscures the tympanic membrane.[1] Consequently, the nature and extent of underlying disease is unpredictable, whether the disease is safe or unsafe is in question, and a standardized management strategy is lacking. This study attempts to determine whether a case of aural polyp constitutes a safe or unsafe disease, irrespective of an underlying cholesteatoma and to arrive at the most suitable treatment option.

MATERIALS AND METHODS

This is a prospective study of all cases of aural polyp that were treated between November 1997 and October 2001 in a medical college hospital that provides care for a predominantly rural population, farmer community. This 4-year study includes only those cases (42 patients) with a postoperative histopathological diagnosis of inflammatory aural polyp. Cases in which the polyp did not arise from the middle ear were excluded. Patients below 15 years of age and those who had undergone previous ear surgery were also excluded.

The data collected include demographic variables, presenting symptoms, clinical findings (otoscopy and examination under the microscope), clinical diagnosis, radiologic and audiometric studies, treatment(s), final diagnosis, and subsequent follow-up for a minimum period of 6 months.

Two treatment options were exercised: simple aural polypectomy and mastoid exploration. Aural polypectomy alone was done in those patients wherein the polyp emerged through a central perforation and obscured less than 50% of the drumhead. A formal mastoid exploration was performed in those patients in whom an aural polyp was associated with one or more of the following features: (1) polyp obscuring more than 50% of the tympanic membrane, (2) polyp emerging through an attic perforation, (3) cholesteatoma, and (4) complications of chronic suppurative otitis media (CSOM). Radiographic findings where not considered in the treatment option selection criteria.

RESULTS

Demographics

Of the 42 patients, the youngest was 17 years and the oldest was 60 years; most (34%)

From the Department of ENT and Head & Neck Surgery, R. L. Jalappa Hospital and Research Center, Sri Devaraj Urs Medical College, Karnataka, India.
Address correspondence to: Thomas Prasannaraj, MS, 29-A, Davis Rd, Cooke Town, Bangalore-560084, India.

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TABLE 1. Otoscopy and Examination Under the Microscope

Clinical Findings		No.	%
Area of tympanic membrane obscured	100%	27	64
	>50%	4	9
	<50%	11	26
Central perforation		11	26
Attic perforation		4	9
Cholesteatoma		5	12

belonged to the age group of 21 to 30 years, and the mean age was 30 years. Twenty-seven (64%) patients were men and 15 (36%) were women. The right ear was affected in 23 (55%) patients and the left ear in 19 (45%). Most patients (72%) belonged to the lower middle class.

Presenting Symptoms

The predominant symptom in all but 1 patient was otorrhea; the duration of this symptom varied from 15 days to 20 years with an average of 6 years. In addition to otorrhea, 11 (26%) complained of otalgia, 16 (38%) had experienced aural bleed, 9 (21%) complained of mass in the ear, and 21 (50%) felt a diminished hearing acuity.

Clinical Findings

A mobile solitary polyp arising from the middle ear was found in all cases, of which 27 (64%) obscured the tympanic membrane completely. A polyp emerging through an attic perforation could be identified in 4 patients, and a cholesteatoma could be seen in 5 cases (Table 1). A clinical diagnosis of CSOM with aural polyp was made in 37 (88%) cases and the remaining 5(12%) as CSOM with aural polyp with cholesteatoma.

Audiometric Findings

Conductive hearing loss was recorded in all but 1 patient who had a dead labyrinth. The degree of hearing loss varied from 20dB to 55 dB, the average being 45 dB.

TABLE 2. Comparison of Radiographic Findings and Operative Findings With Respect to Cholesteatoma

Radiographic Findings	No. of Cases	Cholesteatoma Found at Surgery
Normal study	10	2
Sclerotic changes	20	7
Sclerosis with bone erosion	12	2

Radiologic Findings

Lateral oblique views of the mastoids revealed sclerotic changes in 20 (48%) patients and sclerosis with bone erosion in 12 (28%) patients. However, when compared with operative findings, there was no correlation in 53% of the cases (Table 2).

Operative Findings

In all patients, the polyp originated from the middle ear, of which 28 (67%) emerged through a central perforation (Table 3). Out of the 31 patients whose mastoids were explored, 11 (35%) had a cholesteatoma (contrary to a clinical diagnosis of 5 cases), and 16 (52%) had extensive mucosal disease involving the mastoid air-cell system. In the remaining 4 patients, the disease was limited to the middle ear.

Treatment(s)

In 11 (26%) cases, a simple aural polypectomy was done followed by gentamicin with hydrocortisone ear drops for 10 days. Mastoid exploration was performed in 31 (74%) patients. For uncomplicated disease and without cholesteatoma, a canal-wall up procedure was done, and for those associated with complications and/or cholesteatoma, a canal-wall down mastoidectomy was performed. During

TABLE 3. Incidence of Cholesteatoma in Association With Aural Polyp

Type of Perforation	No. of Cases	Cholesteatoma Found at Surgery (%)
Central	28	2 (7)
Attic	6	4 (67)
Postero-superior marginal	2	1 (50)
Total perforation	6	4 (67)

a follow-up period of 6 months, it was observed that in 3 out of 11 polypectomies the ear became dry and suitable for myringoplasty.

However, polyp recurred in 2 (22%) and otorrhea persisted in 6 (55%) patients, a failure rate of 78%. Out of the 31 patients treated by a mastoidectomy, 2 (6%) had persistent ear discharge beyond 6 months after surgery and none had recurrence of polyp.

Complications

In 8 (19%) patients, aural polyp was associated with complications. Five patients had a mastoid abscess, 1 had a mastoid fistula, 1 had facial nerve palsy, and another had multiple complications including chronic labyrinthitis, sequestration of the cochlea, extradural abscess, and temporal lobe abscess. Out of the 11 patients with cholesteatoma, 3 (27%) were associated with complications, whereas another 5 out of 31 (16%) patients had complications even in the absence of a cholesteatoma.

DISCUSSION

A case of aural polyp is more often than not a clinical dilemma. It is uncertain whether the condition is safe or unsafe. Only when associated with a cholesteatoma is the condition considered to be unsafe.[2] However, irrespective of an underlying cholesteatoma, an aural polyp adds a new dimension to middle ear disease, making the condition susceptible to complications, persistence, or recurrence when treated conservatively. It also makes the extent and nature of underlying disease unpredictable, and studies undertaken to predict an underlying cholesteatoma have achieved limited success.

In this study, the demographics and duration of symptoms were of little significance, and so were the clinical findings and audiometric results. Although clinical examination and examination under the microscope are said to be the best available methods of predicting a cholesteatoma,[3] in our study a polyp obscured the entire tympanic membrane in 64% of the patients. Thus, precluding recognition of the type of defect in the drumhead and the nature of underlying disease, consequently, an underlying cholesteatoma was missed in 6 of 11 (55%) cases.

Radiologic evidence of sclerosis with bone erosion usually indicates the presence of a cholesteatoma. However, this radiographic finding was not associated with a cholesteatoma at surgery in 83% of the patients. Likewise, the absence of bone erosion on radiograph did not exclude a cholesteatoma in 30%. Similar high incidences of false-positive and false-negative radiologic findings have been reported.[1,4]

Histologic examination of aural polyps is said to provide about 70% to 80% predictability of an underlying cholesteatoma.[5] However, other studies have reported that histologic examination is nonspecific and an unreliable predictor of cholesteatoma with high rates of false-positive results.[3,6,7]

Regarding the treatment options for aural polyps, a conservative approach has been suggested when there is no clinical suspicion of cholesteatoma, neoplasia, and inner ear or intracranial pathology.[8] However, patient compliance can be a problem when this treatment option is chosen. Browning et al[9] (1988) report that a greater than 70% patient compliance is required, and, even then, the failure rate was 50%.

Rhys Williams et al[1] (1989) reported a 73% success rate of rendering tubotympanic disease inactive after aural polypectomy and a 50% success rate for atticoantral disease. In our study, only 3 out of 11 simple polypectomies in patients with tubotympanic disease were rendered inactive—a success rate of 27%. Similarly, the success rate reported by Veitch et al[10] (1988) is 33% after aural polypectomy alone.

It may be argued that the nature of the disease could be better defined after an aural polypectomy, and, at this point, a decision to explore the mastoid could be made. However, in our study, a high rate of persistent disease (55%), recurrence (22%), hidden cholesteatoma (16%), extensively diseased mastoid even in the absence of a cholesteatoma (52%), and complications (19%) suggest a more radical approach to treat this condition.

CONCLUSIONS

An aural polyp signifies active mucosal disease and adds a large surface area of diseased mucosa to the middle ear cleft. It produces

mechanical obstruction to drainage from the middle ear cleft, and it often harbors a cholesteatoma and/or extensive mastoid disease. Complications occur frequently, irrespective of a cholesteatoma. We also found that a high incidence of recurrence or persistent mucosal disease after aural polypectomy. We, therefore, propose that all cases of aural polyps should be considered as unsafe disease and subjected to a formal mastoid exploration.

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