A fifteen-year review of otologic surgery in Ibadan, Nigeria: problems and prospects

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ABSTRACT

Background: The goal of ear surgery is to eradicate active disease, prevent recurrence or complications and restore functional hearing. The aim of this paper is to review the indications, complications and benefits derived by the patient from otologic surgery.
Methods: A retrospective study of patients seen in the Department of Otorhinolaryngology, University College Hospital, Ibadan, in fifteen years.
Results: Ninety-six ear surgeries (46 males and 40 males) were performed during the period. Fifty of these were done within the last five years out of the 1,207 patients (4%) seen in the Outpatient clinic. The mean age was twelve years (SD = 15 years) with a range of 3 – 66 years. Mastoiditis and mastoid abscesses accounted for 49% and 35% respectively of the indications for surgery. The most common postoperative complication encountered was persistence of mastoidectomy cavity with chronic infection. Fifty-seven (95%) of mastoidectomy was done by the Consultant staff and three (5%)by the senior residents. Three (5%) out of the sixty patients who had mastoidectomy recovered functional hearing postoperatively while the rest were discharged with a dry or infected ear.
Conclusion: the otologic surgeries done were few and the exposure of the residents was inadequate thus recommended that there is urgent need for improvement in the skill of the surgeon through post-fellowship training in tympanoplasty or an increased exposure of the residents coupled with provision of adequate operating facilities.

Keywords: Otologic practice, Volume, Residents, Skill.

Introduction

The aim of otologic surgery is to eradicate active disease, prevent recurrence or complication and restore functional hearing. [1, 2] Chronic suppurative otitis media (C. S. O. M) is a common problem in the developing

countries including Nigeria where it is an important cause of conductive hearing loss and intracranial infections. [3, 4, 5] The complications of ear infections are the most common indications for otologic surgeries in the developing countries. [4, 5] The determinants of a successful otologic surgery are past experience, present knowledge and technical dexterity. [2]The purpose of this paper is to review the number of ear surgeries done over the last fifteen years, the indications, complications and the benefits (gain in hearing) to the patients.

Materials and Methods

This is a fifteen-year retrospective study of all the patients who had ear surgeries from the record of the Department of Otorhinolaryngology, University College Hospital, Ibadan through 1986 to 2000. The following data were retrieved from clinical files: Bio data, Clinical features, results of investigations, surgical procedures, operative findings, postoperative complications and postoperative pure tone audiometry.

Patients were grouped into social class using occupation according to the Office of the Population Censuses and Survey Classification of Occupation. [6]

i. Professionals
ii. Intermediate
iii. Skilled Workers
iv. Semi-skilled Workers
v. Unskilled Workers

Benefit derived from surgery by patient is scored as:

1. Minimum benefit - Patients discharged home with a wet/discharging mastoidectomy cavity after surgery.
2. Moderate benefit – patient discharged home with a dry ear after surgery.
3. Maximum benefit – patient discharged home with a reconstructed tympanum and improved hearing.

The data was analysed using simple statistical methods.

Results

A total of 96 ear surgeries were performed at the Department of Otorhinolaryngology, University College Hospital, Ibadan over the last 15 years. This involved 41 males and 40 females (m: f = 1:1) with a mean age of 12 years (SD = 15) ranging between 3 – 66 years. There are 70 (73%) patients from the low social class (iv &v), 12 (13%) from the middle class (iii & ii) and 14 (14%) from the high class (i).

The clinical diagnosis/indications for surgery were acute and chronic mastoiditis 55 (57%), mastoid abscesses 34 (35%) and others in Table 1. The plain radiograph of the mastoid revealed normal mastoid in 10 (10%), sclerosis of the mastoid air cells in 59 (61%), intracranial involvement in 19 (20%) and zygomaticotemporal extension in 9 (9%). The computerized tomography scan of the temporal bone in 8(8%) patients showed soft tissue shadow in the mastoid air cells and antrum in 4(4%) and bone destruction with intracranial extension in 6(6%) patients.

The microbiologic culture of the ears revealed *Pseudomonas aeruginosa* 13 (14%), *Klebsiella spp*11 (12%), *Proteus mirabilis* 9 (9%), *Escherichia coli* 9 (9%), *Staphylococcus aureus* 7 (7%), *Staphylococcus albus* 3(3%), *Haemophyllus influenza* 2(2%), no organisms

were cultured in 6(6%) patients and normal flora only was found in 4 (4%)patients.

The preoperative haematocrit was between 29% and 45% (mean=36%) and all the surgeries took place under General anaesthesia via orotracheal intubation. The procedures include Modified radical mastoidectomy 34(35%), cortical mastoidectomy 20 (21%) and others as in Table 2.

The removal of foreign body was done as a Day-case in 19(20%) patients while 7(7%) of them stayed for 2 days postoperatively. The duration of postoperative stay in the hospital among the mastoidectomy patients was average of 12 days with a range of 5-60 days.

All the removal of foreign bodies was performed by the resident doctors while 57 (95%) of the 60 mastoidectomies were done by the Specialist/Consultant staff and 3 (5%) by the senior registrar. The most frequent postoperative complication encountered was persistence of mastoidectomy cavity/chronic suppurative otitis media in 57 (60%); others are as in Table 3. The maximum benefit of return of functional hearing was found in 3 post-mastoidectomy patients (these patients had myringoplasty).

Table 1: Clinical diagnosis/indications for surgery

Clinical diagnosis	No. (%)
Mastoiditis	55 (49)
Mastoid Abscess	34 (35)
Foreign body in the ear	26 (27)
Middle ear polyp	18 (19)
Preauricular sinus infection	12 (12)
Meningitis	10 (10)
Lateral sinus thrombosis	4 (4)
Cholesteatoma	4 (4)

Table 2: Distribution of the surgical procedures

Surgical procedure	No. (%)
Modified radical mastoidectomy	34 (35)
Removal of foreign bodies	26 (27)
Cortical mastoidectomy	20 (21)
Transcanal polypectomy	6 (6)
Myringoplasty	3 (3)
Meatoplasty	1 (1)

Table 3:Ffrequency distribution of postoperative complications

Complication	No. (%) (n = 96)
Persistence of mastoidectomy cavity/chronic suppurative otitis media	57 (60)
Postauricular wound infection	6 (6)
Vertigo	4 (4)
Cerebrospinal fluid otorrhoea	2 (2)
Injury to lateral venous sinus	2 (2)
Salivary fistula	1 (1)
Facial nerve palsy	1 (1)
Atelectasis	1 (1)
Malaria fever	1 (1)

Discussion

The study showed that the complications of chronic suppurative otitis media (such as mastoiditis, mastoid abscess) are the common indicators for ear surgery in our practice. This is similar to the study of Brobby[4] and Okafor, [5] Pfaltz & Griesemer, [7] but contradicts the view

expressed in most standard textbooks.[1, 2] The reason is that most of our patients are from the low social class (iv and v) living in poor communities and are unable to afford the cost of healthcare. They only come to the hospital as a last resort when it is late.

The postoperative complication most commonly encountered was infection and persistence of mastoidectomy cavity. This was also reported by Ojala et al [8] who found only a slight difference between the bacteriology of the postoperatively infected ear and preoperative ear. The factors, which make eradication of infection difficult, include necrosis of the long process of incus, and tympanosclerosis, which serve as continuous medium for re- infection. [8, 9.] In the absence of a functioning otomicroscope for surgery, visualization was not optimal. Hence, residual necrotic tissues left in the ear may be responsible for persistence infection.

Accidental injury to the lateral venous sinus with severe haemorrhage was seen in one patient. This was due to the fact that a manual drill was used for the procedure making precision difficult. Among the patients who had removal of foreign body, 6 had perforation of the tympanic membrane with consequent chronic suppurative otitis media. This is similar to the finding of Ladapo, [10] who found that 20 (33%) of the patient had prior attempts at removal at home or referring hospital. In 4 out of 26(15%) cases, the foreign bodies were pushed through the tympanic membrane resulting in ossicular dislocation and marked conductive deafness.

Out of the 60-postmastoidectomy cases only 3 patients derived the maximum benefit of functional hearing on pure tone audiometry after surgery. These 3 patients had myringoplasty (in addition to masoidectomy). This further confirms the view of Palva et al [9] and Shelto et al[11] that the repair of the tympanic membrane is the standard operation for the minor sequelae of C.S.O.M. Shelton et al preferred a planned two staged operation.

It is noteworthy to mention that the number of surgery performed were very few. Within the last 5 years (1996-2000), 1,207 C.S.O. patients were seen in the O.R.L. clinic that had indications for surgery, while only 50 (4%) had operative procedures. Inevitably, this results in inadequate exposure of the residents to otologic surgery. Only 3 mastoidectomies were done by Senior Registrars in 15 years. It is thus recommended that there should be increased exposure of the trainee to otologic surgery. In addition, there should be a post-fellowship training in tympanoplasty, coupled with the provision of the needed facilities. In this way, our patients can have complete benefit from the ear surgeries and the conductive hearing loss can be reduced.

References

1. Ludman H. Complications of chronic suppurative otitis media. In: Ballantyne J, Groves J (Eds). Scott Brown's Disease of Ear, Nose, and Throat. The Ear. Butterworth. 1997: 264-291.
2. McGee T.M. Management of the totally disabled middle ear: Symposium on Otology surgery reassessment after 25 years. Laryngoscope 1979. 89:730-734.
3. Mukherjee DK, Mukherjee. K. Conductive deafness – A study in

depth. Nigerian Medical Journal 1978; 8: 355-358.
4. Brobby GW. The discharging ear in the tropics: A guide to diagnosis and management in the district hospital. Trop Doct 1992; 22: 10-13.
5. Okafor BC. The chronic discharging ear in Nigeria. J. Laryngol. Otol 1984; 98: 113-119.
6. Office of Population Census and Survey: Classification of Occupations HMSO, London, 1970.
7. Pfaltz CR, Griesemer C. Complications of acute middle ear infections: Ann Otol Rhinol Laryngo. 1984 (suppl. 12); 93: 133-137.
8. Ojala K, Surri M, Riihikemgas P. Sipila P. Comparison of Pre and Post-operative bacteriology of chronic ears. J Laryngol Otol 1981; 95: 1023-1029.
9. Ladapo AA. Danger of foreign bodies in the Ear. Nigerian Medical Journal 1984; 9: 120-122.
10. Palva T, Palva T, Palva A, Karja J. Myringoplasty. Ann Otol Rhinol Laryngol 1969; 78: 175-1080.
11. Shelton C, Sheehy JL. Tympanoplasty: Review of 400 Staged cases. Laryngoscope.1990; 100: 679-681.