



Post Operative Study of Different Problems in C.S.O.M With Cholesteatoma

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ABSTRACT

Cholesteatoma is sac in middle ear, which is lined by keratinizing stratified squamous epithelium containing desquamated epithelium as keratin debris.

KEYWORDS

Introduction: "Cholesteatoma is a three dimensional epidermal and connective tissue structure, usually in the form of a sac and frequently conforming to the architecture of various spaces of middle ear, attic and mastoid. This structure has the capacity for progressive and independent growth at the expense of underlying bone and has a tendency to recur after removal." Cholesteatoma are of two types- Congenital Cholesteatoma and Acquired Cholesteatoma. (1) 'Congenital Cholesteatoma' is defined as an 'embryological cell rest of epithelial tissue in the ear without tympanic membrane perforation and without a history of ear infection. Cholesteatoma has property to destroy the adjacent bone and ossicular chain, exposure of membranous labyrinth, exposure of facial nerve and dura, infection of mastoid and intracranial spaces. The following complications and emergencies can arise in a case of Cholesteatoma: (i) Only conductive hearing loss. (ii) Conductive and sensorineural hearing loss. (iii) Facial Paralysis. (iv) Intratemporal infection. (v) Intracranial infection. (vi) Brain herniation.

In some cases, when surgery is poorly performed in inexperienced hands or even in some cases in spite of properly performed, some kind of morbidity may develop to the patient. The most serious complication and the cause of many malpractice suits is facial nerve paralysis. Perichondritis of the auricle, caused by pseudomonas recognised by the red, tender and thickening of the auricle may develop. Accidental tear of dura or sigmoid sinus during an open cavity operation may also develop. Sometimes there is recurrence of Cholesteatoma in a healed cavity covered by a muscle fascia graft or when healing of cavity by epidermization. Sometimes there is stenosis of external auditory meatus (meatal stenosis) and recurrent discharging cavity (Weeping Cavity).

This study is undertaken to evaluate the different post operative problems in chronic suppurative otitis media with cholesteatoma.

AIMS AND OBJECTIVES: Chronic suppurative otitis media with cholesteatoma is a major cause of deafness and much other morbidity all over the world. (2) The incidence of chronic suppurative otitis media with cholesteatoma leading to many impending complications is very high. Most of the cases after operation result in smooth recovery of the patients. But in some cases unwanted problems occurs. The aim of this study

is evaluation of those problems as follows:

Evaluation of hearing status, both pre-operatively and post operatively.

Presence of Post-operative dry cavity or discharging open mastoid cavity

Presence or absence of facial nerve paralysis.

Intracranial complications like meningitis or encephalitis or both.

Incidence of post aural fistula.

Presence of residual cholesteatoma.

Incidence of recurrent cholesteatoma.

Incidence of meatal stenosis.

This paper is mainly concerned with cholesteatoma and its different problems in flow-up period so before doing surgery in cholesteatomatous ear, following surgical goals should be remembered in the mind. (i) Treat complications. (ii) Remove the disease tissue (iii) Obtain a dry ear (iv) Preserve normal anatomy (v) Improve hearing.

MATERIALS AND METHODS: The present study entitled "Post operative study of different problems in chronic suppurative otitis media with cholesteatoma" was carried out in the department of Otorhinolaryngology, MGM Medical College & LSK Hospital Kishanganj Bihar over a period of one year from May 2012 to May 2013.

All cases of chronic suppurative otitis media with suspected cholesteatoma were selected from the ENT out patients department of this institution. There were 65 patients of which 31 was male and 34 was female with age ranging from 6 years to 70 years included in the present study. The selected cases were :

Attic perforation

Poster superior marginal perforation

Aural Polyp.

All patients were subjected to detailed history taking, clinical examination and proper preoperative investigation including audio logical assessment and findings recorded in separate proforma prepared at the outset.

RESULTS AND ANALYSISIn my present study I have chosen 65 patients from ENT out patients department who subsequently became admitted and underwent operation. After operation patient underwent follow up and results of observation are tabulated as followed:

**TABLE-I
PATIENTS HAVING DIFFERENT TYPE OF PRE OPERATIVE COMPLICATION**

SL.NO	COMPLICA-TIONS	NO.OF PATIENTS	% OF TOTAL	OVERALL % OF COMPLI-CATION
01.	Facial Paralysis	4	6.15	38.46
02.	Intracranial complications	13	20	
03.	Post aural fistula	8	12.3	

**TABLE-II
PER-OPERATIVE FINDINGS OF DIFFERENT PATHOLOGY**

SL. NO.	TYPE OF OPERATION	NO. OF CASES	% OF TOTAL
1	Extensive cholesteatoma	31	47.6
2	Limited cholesteatoma	24	36.9
3	Aural polyp	10	15.38

**TABLE-III
DIFFERENT POST OPERATIVE COMPLICATIONS AFTER 1 MONTH**

SL. NO.	POST OPERATIVE COMPLICATIONS	NO. OF PATIENTS	%
1	Facial nerve abnormality	8	12.6
2	Meatal stenosis	8	12.6
3	Perichondritis	5	7.93
4	Intracranial complications	0	0
5	Post aural fistula	3	4.76
6	Recurrent cholesteatoma	8	12.6

**TABLE-IV
DIFFERENT POST OPERATIVE COMPLICATIONS AFTER 3 MONTHS**

SL. NO.	POST OPERATIVE COMPLICATIONS	NO. OF PATIENTS	%
1	Facial nerve abnormality	3	5.0
2	Meatal stenosis	8	13.33
3	Perichondritis	0	0
4	Intracranial complications	0	0
5	Post aural fistula	0	0
6	Recurrent cholesteatoma	5	8.33

**TABLE-V
DIFFERENT POST OPERATIVE COMPLICATIONS AFTER 6 MONTHS**

SL. NO.	POST OPERATIVE COMPLICATIONS	NO. OF PATIENTS	%
1	Facial nerve abnormality	0	0
2	Meatal stenosis	7	12.28
3	Perichondritis	0	0
4	Intracranial complications	0	0
5	Post aural fistula	0	0
6	Recurrent cholesteatoma	10	17.54

DISCUSSION:It is found that maximum numbers of patients were in the age group of 11- 20 years, followed by in the age group of 21- 30 years. (1)There was large number of patients were in the paediatric age group. Again after the age of 30 years, number of patients operated for chronic suppurative otitis media with cholesteatoma began to reduce.

Pre-operative complications :In this study among the 65 selected patients, pre-operatively 4 patients had facial nerve palsy & 13 patients had different intracranial complications in the form of meningitis, brain abscess, labyrinthitis etc. and 8 patients had post aural fistula. Site of fistula was the external auditory canal in 90% cases and Facial nerve was eroded in 66% of cases.

Site of perforation

(3)In this study among the 65patients selected for study, 31 patients i.e. 47.69% had attic perforation, 20 patients, that is 30.76% had post superior marginal perforation and rest 14 patients that is 21.5% had aural polyp. As this study mainly concerned with chronic suppurative otitis media with cholesteatoma, so mainly the cases with high probability of cholesteatoma in the middle ear have been chosen. As most of the cases with attic perforation are associated with cholesteatoma, so most of the cases of attic perforation have been chosen for this study. Post-superior marginal perforation is one kind of unsafe otitis media and many times associated with cholesteatoma, so these cases are also included in the study.

Types of operations performed (4)Patients with chronic suppurative otitis media with cholesteatoma were treated with mainly four types of operations. Among the 65 cases treated 24 patients that is 36.9% cases were treated with radical mastoidectomy, 25 patients that is 38.4% cases were treated by inside-out mastoidectomy, and 11 patients that is 16.9% cases were treated by modified radical mastoidectomy, 5 patients that are 7.6% cases were treated with intact canal wall mastoidectomy with tympanoplasty operation.Radical mastoidectomy and inside out mastoidectomy were the most commonly performed operation.

Per-operative findings of different pathology: In the present study among the 65 cases of chronic suppurative otitis media with cholesteatoma, 31 cases that is 47.6% cases had extensive cholesteatoma in the middle ear cleft, 24 cases that is 36.9% cases had limited cholesteatoma and 10 cases i.e. 15.38% cases had aural polyp.

In this study among the 65 selected cases, 20 patients i.e. 30% had mild deafness (in the range of 26-40dB), 37 patients i.e. 56.9% had moderate deafness (in the range of 41 to 55dB) and 8 patients i.e. 12.3% had severe deafness (in the range of 56 to 70 dB).

(5)In cases of cholesteatoma cause of hearing loss are perforation of tympanic membrane, erosion of malleus and incus leading to ossicular chain discontinuity, labyrinthine fistula, destruction of foot plate of stapes etc.

Situation of post operative mastoid cavity:After operation patients were advised to attend follow- up clinic at the end of first month, third month and sixth months. From this study it

has been seen that after one month 30 patients i.e. 47.6% had moist cavity, 33 patients i.e. 52.38% had dry cavity. After 3 months 10 patients i.e. 16.66% had moist cavity, 42 patients i.e. 70% had dry cavity and 8 patients i.e. 13.33% had moist cavity filled up with debris and wax. At the end of 6 months 11 patients i.e. 19.2% had moist cavity, 38 patients i.e. 66.66% had dry cavity and 8 patients 14.3% had debris and wax in mastoid cavity.

From this study it is clear that after 3 months of surgery around 70% of cases had dry well epithelised mastoid cavity. Prevalence of moist cavity had grossly diminished from 47.6% after 1 month to 16.66%. But at the end of 6 months slight increased in moist cavity prevalence may be due to increased accumulation of debris and wax on the mastoid cavity as self cleaning property of the operated mastoid cavity is lost. This accumulated debris and wax secondarily become infected and leads to moist cavity. At the end of 3rd and 6th months 13.33% and 14.3% of mastoid cavities were filled up with debris and wax. This explains the need for suction clearance of the mastoid cavity after canal wall down mastoidectomy every six monthly.

Condition of Facial nerve after operation :At the end of one month after operation, 8 patients i.e. 12.6% of patient had varying degree of Facial nerve paralysis ranging from Gr-I to Gr-V according to House-Brack- Mann grading system. But when the same patients were examined at the end month, Only 3 patients i.e. 5.0% had Facial paralysis. At the end of six month, no patient had facial nerve paralysis. It may be explained by the fact that, if there is no complete trans-section of facial nerve, regeneration of the damaged facial nerve occurs and in varying time regeneration is completed in between 3 to 9 months. The patients who had facial nerve paralysis during operation, some were underwent facial nerve decompression surgery and found that in most of the cases, there is some degree of injury to second genu of facial nerve, followed by vertical portion of facial nerve and horizontal portion of facial nerve. No patients had complete trans-section of facial nerve. These entire patients with facial nerve paralysis were treated postoperatively with oral Prednisolone for 9 days. The common causes of facial nerve injury during cholesteatoma surgery are 1) when epitympanic recess filled with granulation tissue or cholesteatoma, the situation of the nerve or existence of its bony canal cannot be made out, 2) Nerve is in danger near its second genu, 3) while taking down facial ridge.

Meatal stenosis :At the end of one month 8 patients i.e. 12.6% had meatal stenosis, at the end of three month prevalence was 13.33% and at the end of sixth month prevalence was 12.28%. This high incidence of meatal stenosis leads to inability of inspecting mastoid and middle ear cavity properly during follow-up and subsequently collection of epithelial deposits, wax etc leading to secondary infection and pus formation.

Perichondritis:During follow up at the end of one month 5 patients i.e. 7.93% had perichondritis. These patients were treated vigorously with antibiotics and incision drainage of perichondrial abscess. Subsequent follow up at the end of third and sixth month, no patients had perichondritis.

Intracranial complications after operation :No patients after operation during follow-up at the end of, third and sixth month developed any kind of intracranial complications.

Post aural fistula :During Follow- up at the end of first month 3 patients i.e. 4.76% patients had post aural fistula. But with vigorous medical and surgical treatment, subsequent visit at the end of third month and sixth month, no patients had post aural fistula.

Recurrent cholesteatoma:All the patients underwent different types of operation for cholesteatoma, looked for any recurrent cholesteatoma by otoscopy examination and examination un-

der microscope. During follow up period, at the end of first month 8 patients i.e. 12.6% had recurrent cholesteatoma, at the end of third month 5 patients i.e. 8.33 % of had recurrent cholesteatoma and at the end of sixth month 10 patients i.e. 17.54 % had recurrent cholesteatoma.

Cases lost during follow-up :In this study, it has been found that, at the end of 1 month 2 patients i.e. 3.07% did not turn up for follow up. Their figure goes up successive to 5 patients i.e. 7.6% at the end of third month and 8 patients i.e. 12.3% at the end of sixth month and overall loss in follow-up period is 23.07 %.

Result of the study

(1)Most of the patients were in the age group 11-20 yrs

Overall preoperative complication rate 38.4 % (facial paralysis = 6.01%, intra cranial complications = 20%, post aural fistula = 12.3%.

In the type of pathology: - attic perforation 47.69%, post superior marginal perforation 30.76% and aural polyp 21.5%.

Different types of operation performed: Radical mastoidectomy 36.9%, Modified radical mastoidectomy 16.9%, Inside out mastoidectomy 38.4% and intact canal wall mastoidectomy with Tympanoplasty 7.6%.

Different types of pathology: Extensive cholesteatoma – 47.6%, Limited cholesteatoma 36.9% and aural polyp 15.38%.

Post operative dry cavity: 52.38% at one month, 70% at three month and 66.66% at six month.

Postoperative facial nerve paralysis: 12.6% at one month, 5% at three month and 0% at six month.

Meatal stenosis: 12.6% at one month, 13.33% at three month and 12.28% at sixth month.

Perichondritis: 7.93% at one month, 0% at three month and 0% at sixth month.

No intracranial complication detected in post operative period.

Post aural fistula: 4.76% at one month, 0% at three month and 0% at sixth month.

Recurrent cholesteatoma: 12.6% at one month, 8.33% at three month and 17.54% at sixth month.

CONCLUSIONS:It must be kept in the mind that as the study was conducted within a short period of time and with a few number of cases, with a relatively short period of follow-up, with a limited scope for more sophisticated investigations, a definite and strong conclusion can hardly be drawn from the observations through the overall conclusion derived from this study:

Various complications are possible from cholesteatoma and cholesteatoma surgery. The most feared complication is facial nerve paralysis. The incidence of permanent facial nerve injury following cholesteatoma surgery is not entirely certain but appears to be approximately 1% or less. Incidence probably is considered less 1% in the hands of experienced otologists who performed the operation regularly, controversy exists about whether facial nerve monitoring helps reduce the risk of facial nerve injury.

A 1-2% chance of total neuro-sensory hearing loss is associated with cholesteatoma removal. A cholesteatoma that has reduced a labyrinthine fistula or that lies directly over the footplate is more likely to produce permanent neuro-sensory loss.

Many patients have alteration of taste on the anterior ipsilateral

eral tongue for weeks after an otologic procedure. However, this condition usually resolves within a few months after surgery.

In approximately 10-15% of patients graft fails and a permanent TM perforation follows tympano-mastoidectomy for removal of cholesteatoma. Such operation frequently can be eliminated by surgical treatment.

Depending on the procedure, approximately 5-30% of operations are unsuccessful, and cholesteatoma persistence or recurrence manifests at some point in the post operative period.

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