

ORIGINAL ARTICLE

ROLE OF PREOPERATIVE OTOENDOSCOPY IN CHRONIC SUPPURATIVE OTITIS MEDIA: A CLINICAL STUDY

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ABSTRACT:

Introduction: This study is taken up to evaluate the role of preoperative otoendoscopy in patients with chronic otitis media. To evaluate preoperatively extent of disease, ossicular continuity and integrity. **Method:** The study included 40 patients of chronic suppurative otitis media who were preoperatively assessed with otoendoscope. We compared the Otoendoscopic preoperative findings and Otomicroscopic intra operative findings. We utilized two different angled otoendoscopes 2.7 mm with 0° and 30° views. Patients with age less than 15 and more than 60 were excluded. **Results:** In 23 cases (73%) out of 32 cases with conductive hearing loss, we could visualize intact ossicular chain by otoendoscopy, thus hearing loss could be attributed to perforated drum. **Conclusion:** Otoendoscopy has a role as an adjunct to Otomicroscopy in otological practice. Otoendoscopy reliably predicts the status of ossicles which can equip the surgeon preoperatively to give the best possible result in otological surgery.

Key words: Otoendoscopy, otomicroscopy, chronic suppurative otitis media.

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INTRODUCTION

Otoendoscopy has revolutionized the diagnosis and treatment of various conditions of ear. Early knowledge of the extent of damage goes a long way in planning the surgical treatment to be employed in tackling a particular condition. The use of rigid endoscopes provides a large field of view which is of excellent resolution and fidelity. It helps us to visualize and extrapolate findings of middle ear structures previously accessible at surgical table only. Otoendoscopy also gives better visualization of depth of retraction pockets, fluid level due to middle ear effusion, movements of ear drum as compared to conventional otoscopy.⁽¹⁾

It can be performed on out patient basis with little inconvenience to patients and with minimal risk. Moving the endoscope forward creates the magnifying effect, making structural details more easily identifiable. Otoendoscopy accesses the inaccessible “sees round corners”⁽²⁾ and therefore increases control of hidden disease. A 30-degree otoendoscope is passed through the perforated drum to visualize ossicular

integrity and continuity, the status of middle ear mucosa, Eustachian tube orifice, round window niche and cholesteatoma of middle ear. Video otoendoscopic images can be used as a teaching tool, for medicolegal purpose and counseling patients regarding their disease and line of management.

MATERIALS AND METHOD

The study included 40 patients of chronic suppurative otitis media who were preoperatively assessed with otoendoscope. We compared the Otoendoscopic preoperative findings and Otomicroscopic intra operative findings. We utilized two different angled otoendoscopes 2.7 mm with 0° and 30° views.

The exclusion criteria:

1. Patients with age less than 15 and more than 60 were excluded.

The comparative tables are made according to the patient's otoendoscopic findings and patients with findings in agreement of intraoperative findings.

RESULTS

The following are the results of prospective study conducted on 40 patients

Table 1: Age Distribution

S. No	Age	No. of Cases	Percentage
1.	15 – 20 yrs	8	20
2.	21-30 yrs	15	37.5
3.	31-40yrs	10	25
4.	41-50yrs	3	7.5
5.	51-60yrs	4	10
6.	Total (n=40)	40	100

Most commonly the patients were in their 2nd and 3rd decade.

Table 2: Distribution of ear involved

Ear involved	No. of cases	Percentage
Right	10	25
Left	16	40
Both	14	35

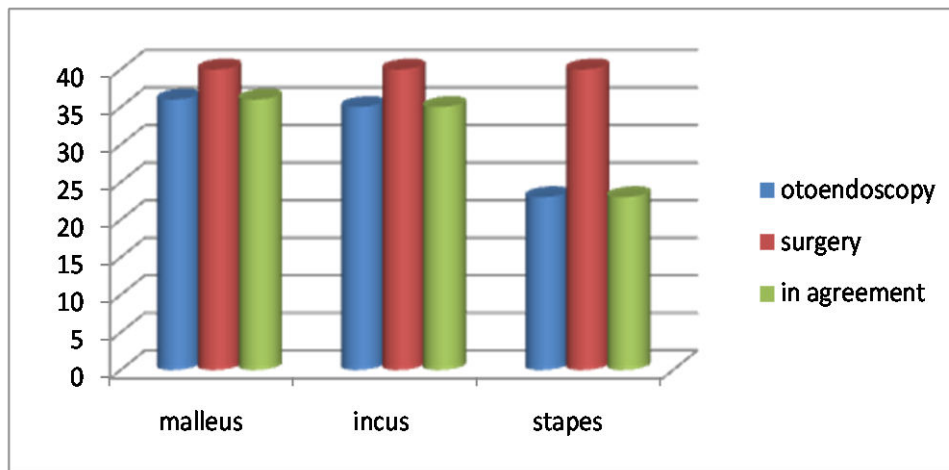
Table 3: Distribution by pre-operative hearing loss (Pure Tone Audiometry)

Type of hearing loss	No .of patients	Percentage
Conductive	32	80%
Sensorineural	1	2.5%
Mixed	7	17.5%

Table 4: Correlation of otoendoscopy and operative findings

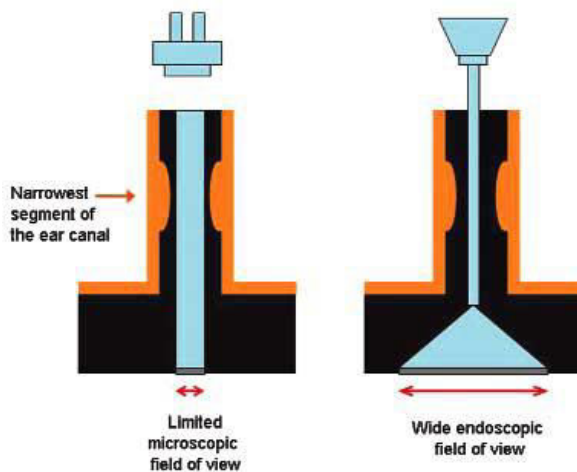
Correlation	Otoendoscopy	Operative microscopy	Cases in Agreement
Epitympanum	11	24	11
Mesotympanum	14	24	14
Hypotympanum	5	12	5
Promontory	14	21	14
Chorda tympani	2	24	2
Round window	3	6	3
Eustachian tube	3	4	3
Bony canal wall	11	13	11
Foot plate area	28	40	28
Facial recess	3	18	3
Sinus tympani	4	18	4
Facial canal		3	

Table 5: Ossicular involvement



DISCUSSION:

Better optics, magnification, illumination at the projected site and its ability to look beyond the perforation give otoendoscopy a definite edge over conventional otoscopy. 30-degree otoendoscope can be passed through the perforation to visualize status of ossicles, Eustachian tube orifice and inspect middle ear mucosa. Sculerati N, Charles DB⁽¹⁾ found in their study that otoendoscopy gives better visualization of retraction pockets. The use of the endoscope enables the surgeon to visualize past the shaft of larger surgical instruments, such as drills and curettes and allows better visualization of structures that are parallel to the axis of the microscope.



Otoendoscopes have many proven advantages over the Microscope, including wider angle of view, better visualization of structures that are parallel to the axis of the microscope, visualization of hidden structures such as the sinus tympani and anterior epitympanic recess, and the ability to visualize beyond the shaft of larger surgical instruments. On the other hand, several disadvantages of endoscopes include loss of depth of perception and binocular vision, the inevitable one-handed surgical technique involved, the need of a bloodless field (hence meticulous attention to hemostasis is essential), fogging and smearing of the tip of the endoscope, the mandatory need for reliable physician training and the cost of equipment involved.

The benefits of microscopy include magnification, illumination (allowing one to see fluid or sac through a intact translucent drum), binocular depth perception (useful for evaluating extent of retraction pockets) and the ability to suction, debride and probe.

In 23 cases (73%) out of 32 cases with conductive hearing loss, we could visualize intact ossicular chain by otoendoscopy, thus hearing loss could be attributed to perforated drum. 11 cases with incudostapedial joint and incus erosion seen on otoendoscopy correlated well with moderate conductive hearing loss and intraoperative findings. The long and lenticular process was the most common necrosed ossicle in our study. Tos⁽³⁾ in a review of ossicle disease in 1,150 ears with chronic otitis media; the anvil (incus), stirrup (stapes) and hammer (malleus) were shown to be more frequently affected by inflammation in that order. Palomar et al⁽⁴⁾ has shown that the anvil was involved in 100% of ears where the ossicular chain was damaged.

CONCLUSION:

The advantages of multi-angle light scattering, spatial illumination and amplification of local operative field allows otoendoscopy to be used as adjunct to otomicroscopy in otological practice. Preoperative otoendoscopy enables us to convincingly predict the nature of disease, depth of retraction pockets, Status of ossicles which can equip the surgeon preoperatively to give the best possible result in otological surgery. Otoendoscopy has a role as an adjunct to Otomicroscopy in otological practice.

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