

**Conclusion:** Our results indicate that ossiculoplasty provide stable and excellent hearing improvement in patients with otitis media with or without cholesteatoma. Results with PORP was better than those with TORP. Several influential factors affected the outcomes of ossiculoplasty.

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## Complications in Chronic ear surgery (R746)

**ID: 746.1**

### Management of large tegmen defects and meningoencephalic herniation following Cholesteatoma surgery

Presenting Author: **Mohamed Badr-El-Dine**

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*Learning Objectives:*

**Objective:** The purpose of this presentation is to highlight the importance of tegmen defects that may result following cholesteatoma and mastoid surgery and emphasize the technical details for their reconstruction.

**Introduction:** Despite marked decline in the incidence of complications of CSOM, life-threatening complications still exist. The presence of thinning or dehiscence of the tegmen tympani or mastoidium is fairly common in CSOM especially after mastoidectomy, but only small portion of patients will demonstrate meningo/encephaloceles and CSF leakage.

**Objective:** The purpose of this presentation is to highlight the importance of tegmen defects that may result following cholesteatoma and mastoid surgery and emphasize the technical details for their reconstruction.

**Methods:** Fourteen patients operated for surgical repair of tegmen defects associated with different degrees of meningoencephalic herniation. Surgical approaches: 1) transmastoid; 2) middle cranial fossa; and 3) combination of both approaches. The choice of approach depends on size and site of the defect, hearing level, and surgeon experience. Small tegmen defects can be managed efficiently through the mastoid approach, while large defects require combined MCF and mastoidectomy. Following extradural dissection and encephalocele reduction or resection, we use a multilayer closure for direct repair of the dural and bony cranial base defects. Concave calvarial bone cut from the temporal craniotomy flap provides excellent material for reconstruction without any impingement on ossicular chain.

**Results:** All patients underwent surgical reconstruction of their tegmen defects without significant intraoperative or postoperative complications. All patients exhibited normal facial function postoperatively. None of our cases required lumbar drain placement.

**Conclusion:** Combined MCF and mastoidectomy approach proved effective to repair tegmen and dural defects. Surgical

repair prevents progression and meningitis. Advantages of this technique are the control of the floor of the MCF and reconstruct large-size bony defects even those located anteriorly without disrupting the ossicular chain.

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## Complications in Chronic ear surgery (R746)

**ID: 746.2**

### Labyrinthine fistulas management in chronic middle ear surgery

Presenting Author: **Manuel Jesús Manrique Rodríguez**

Manuel Jesús Manrique Rodríguez

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*Learning Objectives:* Summary abstract presentation in the conference: "Complications in chronic ear surgery".

One possible complication during cholesteatoma chronic middle ear surgery is labyrinthine fistula.

In this conference titled: "Complications in chronic ear surgery" a definition and classification of labyrinthine fistulas will be showed. Then, key aspects will be addressed such as: pre-surgical diagnosis and intraoperative management.

During first section we will focus on symptoms and physical signs suspicious of a labyrinthine fistula. Additionally, special attention will be given to pre-surgical radiological testing. Such evaluation should be mandatory in order to prevent auditory and vestibular complications during surgery.

During second section attention will be addressed to surgical treatment, showing an algorithm depending on cholesteatoma location, etiology and severity of the disease.

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## Complications in Chronic ear surgery (R746)

**ID: 746.3**

### How to avoid the complications of temporal bone surgery

Presenting Author: **David Andrew Moffat**

David Andrew Moffat

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*Learning Objectives:* To teach all of the factors that increase the risk of complications of surgery to the temporal bone.

This presentation is based on the importance of the development of good and safe technique in the surgical management of patients with temporal bone disease in order to minimise the risk of complications. An outline of the principles of surgery in chronic suppurative otitis media is followed by a demonstration of the anatomy of the temporal bone by comparing a coronal cadaveric section with the corresponding coronal CT scan. The importance of temporal bone dissection, supervision and training, high resolution imaging and

facial nerve monitoring in helping to avoid complications is discussed.

The careful auditing of the surgeon's own results and their utilisation in obtaining informed consent, intellectual honesty and the ability to know when not operate are then presented. The reasons for failure to obtain a dry ear, the unsatisfactory mastoid cavity and sites where bone removal may be inadequate are considered. The preoperative discussion with the patient and the risk of specific complications and how to avoid them are outlined. Finally newer techniques such as the use of the laser and endoscopy are discussed in relation to reducing risk.

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## Mastoidectomy: How I do it (2) (V747)

**ID: 747.1**

### Long term comparison of hearing results of LASER facilitated ossicular preservation versus ossiculoplasty in cholesteatoma surgery using a patient oriented outcome measure

Presenting Author: **John Hamilton**

John Hamilton

Gloucestershire Hospitals NHS Trust

*Learning Objectives:* To establish how ossicular preservation with the 'gold standard' for hearing treatment in cholesteatoma surgery. To compare the resilience of these techniques over a five year period.

*Intro:* This study compares the long term usefulness to patients of two different techniques of hearing reconstruction after cholesteatoma surgery: reconstruction using ossicular prosthesis on top of an intact, mobile stapes versus LASER facilitated ossicular chain preservation.

*Method:* At the end of surgery, ears with an intact ossicular chain were allocated to one group. Ears with a disrupted chain and an intact stapes superstructure onto which an ossiculoplasty had been performed were placed in the second group. All ears had primary cholesteatoma surgery using an intact canal wall technique with the use of a fibre-guided LASER.

Hearing after surgery was assessed with the Belfast rules of thumb. Audiograms were performed annually after surgery until the patient was discharged from regular follow-up or defaulted from follow-up.

The two sets of Belfast scores were assessed using survival analysis. The two groups were compared with the log-rank test.

Cox's model was used to investigate confounding influences.

*Results:* 80 ears with intact chains and 69 with an intact stapes and ossiculoplasty were included.

By five years, 76 per cent of patients with intact chains retained normal hearing, whilst 56 per cent in reconstructed ears.

Log-rank analysis gives  $\chi^2 = 10.6$ ,  $n = 1$ ,  $p = 0.001$ .

The intact ossicular chain (odds ratio: 2.78, CI 1.51–5.07,  $p = 0.001$ ) and lower bone conduction hearing threshold (odds ratio: 1.1 per decibel, CI 1.07–1.13,  $p < 0.001$ ) predicted the likelihood of maintaining socially useful hearing. A weaker effect of younger age (odds ratio 1.02, CI 1.00–1.04,  $p = 0.04$ ) increasing the likelihood of loss of useful hearing was also detected.

*Conclusions:* Whenever the presentation permits, LASER facilitated preservation of the intact ossicular chain provides more durable useful hearing for our patients than 'gold standard' ossiculoplasty.

There is a gradual deterioration in outcomes in both groups which is more marked in the ossiculoplasty group.

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## Mastoidectomy: How I do it (2) (V747)

**ID: 747.2**

### Bone Obliteration technique in recidivistic cholesteatoma

Presenting Author: **Manoj M P**

M P Manoj

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*Learning Objectives:* Video presentation on the technique of using bone pate and Cortical bone chips for reconstructing the cavity in recidivistic cholesteatoma.

*Introduction:* Recidivistic cholesteatoma presents a serious surgical challenge. The demands to the surgical team is high- we are supposed to remove disease, improve hearing and give a dry, self cleansing ear. At our institute where we deal with a large amount of recidivistic cholesteatomas, the bone obliteration technique with scar tissue graft has helped us to give a fair result to most of our patients. The video demonstration is designed to give a step by step demonstration of the technique used in over a hundred cases over the past four years.

*Methods:* The case series is from a tertiary care otologic center in South India, all operated by a single surgeon, under general anesthesia. Standard post auricular method is adopted, with harvesting of the scar tissue graft initially, bone chips from the cortical bone and collection of bone pate by an indigenously developed apparatus. After a complete canal wall down mastoidectomy and removal of disease, the cavity is obliterated with bone pate mixed with antibiotic solution, and covered with the cortical bone chip carefully harvested. The middle ear is reconstructed with cartilage and grafted over with the dried and thinned out scar tissue. Ossiculoplasty is either performed at the same sitting or staged according to the disease.

*Results:* We have achieved the objectives of a dry, self cleansing mastoid cavity in a large majority of cases with acceptable hearing. Hearing results have been poor where the stapes superstructure was absent where staged ossiculoplasty was often performed. The number of post operative visits also were minimal with this technique.