History of EES and IWGEES.

Muaaz Tarabichi
I have nothing to disclose.

No, within the last 12 months I have not had any type of financial arrangement or affiliation with commercial interests related to the content of this continuing education activity that requires disclosure.
What is TEES?

Endoscope in Ear Surgery  
Observation  
Limited add on Dissection  
1992 TEES

Cohen’s Classification

Class I

Class 2A

Class 2B, Class 3

2019 WHAT DOES EES MEANS TO YOU
Gaining Access to Hidden Areas
1992: TEES: Cholesteatoma is not a Mastoid Disease……..

- Most cholesteatomas are manifestation of retraction pockets: tympanic cavity

- Most recurrences occur within the tympanic cavity and its extensions.

- The ear canal is the natural access point to the cholesteatoma.
Why the Mastoid
“Why not the canal”

• You can get there easily.

• You are using it as a conduit to other area.

• You can not use the ear canal because of the limitation of the microscope.
Wide postauricular access
Narrowest segment of the ear canal

Limited microscopic field of view

Wide endoscopic field of view
TEES: Rediscovering the Ear Canal

Wide Angle View of Endoscopes =

Wide Ear Canal Access to the Tympanic Cavity

THE BIRTHPLACE OF COM AND CHOLESTEATOMA
Dear Dr Tarabichi,

I am currently working as a specialist registrar in Otolaryngology in Bath, United Kingdom. I have a special interest in otology and endoscopy and was very interested to read the Karl Storz literature on your work involving the endoscopic removal of cholesteatoma.

I have always been intrigued by the application of endoscopy to otology and have recently embarked on research looking at the value of endoscopic oto-photography as well as the use of oto-endoscopy in the removal of impacted cerumen. Viewing the video clips of your work was inspirational. I believe that endoscopic otological surgery will form a significant part of the future of middle ear surgery and I would be very grateful if you would allow me to visit you and your Department some time in the future for a short while to learn more about your techniques.

As I am currently a trainee, it is not always clear exactly how much time I will be given to visit you, should you be happy to receive my visit. I would be very grateful if you would let me know whether you would consider allowing me to attend your Department as an educational ‘mini-fellowship’ for me to gain some more insight into the exciting work that you do. I would, of course, be happy to send a curriculum vitae should you wish.

Best wishes

Dr David Pothier MBChB MRCS DOHNS
Specialist Registrar in Otolaryngology
Dear prof. Tarabichi,

we are writing from the ENT department of Universitiiy Hospital of Modena. We already used the endoscopes in middle ear surgery combined with the traditional techniques in massive cholesteatomas, as is going to be reported in our article in press in J Otolaryngol (Presutti L, Marchioni D, Mattioli F, Villari D, Alicandri-Ciufelli M. Endoscopic management of acquired cholesteatoma: our experience. J Otolaryngol).

We are very interested in your exclusive endoscopic technique for management of attic cholesteatoma. In fact, inspired by your papers we started using a similar exclusive endoscopic technique for that kind of pathology, with very good results. We would really like to start a cooperation with you and your team for the development of further works and to popularize the use of endoscope in middle ear surgery. We are going to request a scholarship based on that kind of research for a young doctor that has just finished his residency.

We would like to know if you are interested in this international cooperation, and if you are available to allow us to visit your department on 2008, for meeting you and watching directly your surgeries, and eventually for planning all the details.

We look forward for your reply,

Kind regards

Daniele Marchioni, MD
Livio Presutti, MD
Alicandri-Ciufelli Matteo, MD

ENT department, Policlinico di Modena,
Via del Pozzo 71 41100 Modena
Italy
Dr Tarabichi,

I am a french Head and Neck Surgeon with a speciality in otology and Neck surgery, especially thyroid and parathyroid surgery. I am working in a Private Hospital in Grasse, South of France.

I think that the otoendoscopy is a valuable procedure in cholesteatoma and ear drum perforation surgery. That's why I use otoendoscopy a lot, particularly complementary to microscopy. Besides, I have worked with Pr Thomassin in Marseille, France during one and half year. I am actually writing a new paper about the value of the otoendoscopy in middle ear cholesteatoma surgery, to know if this procedure allows less residual disease.

The otoendoscopy is probably not used enough in the world, because a lot of otologists think that this procedure is not a real useful tool. But it really belongs to mini-invasive procedures for the future.

For all these reasons, I think that the creation of an International Society of Otoendoscopy would be a great tool to develop this procedure in the world. I would be really interested to help to this project.

I wanted to know your opinion about this great project.

Dear sincerelly

Dr Stephane AYACHE
Department of Head and Neck Surgery
Clinique du Palis
Grasse, France
The International Working Group on Endoscopic Ear Surgery
Status of Endoscopic Ear Surgery
1992 to 2006
The 9th International Conference on Cholesteatoma and Ear Surgery

WELCOME TO
NAGASAKI
JAPAN

June 3-7, 2012
Status of Endoscopic Ear Surgery
2006
International Working Group on Endoscopic Ear Surgery (IWGEES) is pleased to announce the 1st World Congress on Endoscopic Ear Surgery in Dubai, UAE.

As the President of the IWGEES, and in close collaboration with members of the working group, I have the pleasure to invite you to the 1st World Congress taking place in Dubai, the birthplace of endoscopic ear surgery.

Stephane Ayache, President, International Working Group on Endoscopic Ear Surgery, France

1st World Congress on Endoscopic Ear Surgery

19-21 April 2015
Marina Arena

ORGANISING COMMITTEE

Congress Co-chairmen

- Muaaz Tarabichi
  Congress Co-Chairman, Head of ENT Department, American Hospital Dubai, UAE

- Livio Presutti
  Congress Co-Chairman, Professor and Chairman, ENT Department, Medical School, Modena University, Italy

Chair of Scientific Committee

- Daniele Marchioni
  Chair of Scientific Committee, Department of ENT, University of Modena, Italy

Regional Coordinators

- South American Coordinator
- North American Coordinator
Boston in 2019    Japan in 2021
ARTICLES ON USE OF ENDOSCOPE IN EAR SURGERY

- DIAGNOSTIC USE OF ENDOSCOPE
- ENDOSCOPIC ASSISTED EAR SURGERY
- ENDOSCOPIC EAR SURGERY

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<td>18</td>
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<td>2001-2010</td>
<td>20</td>
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<tr>
<td>2011-2018</td>
<td>283</td>
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**Total: 283 articles**
USE OF ENDOSCOPE IN EAR SURGERY

- For inspection of residual disease: 44.70% (2010) vs. 50% (2018)
- Endoscopic assisted ear surgery: 23.40% (2010) vs. 53.50% (2018)
- EES for cholesteatoma: 14.90% (2010) vs. 53.50% (2018)
- Never used endoscope in ear surgery: 46.80% (2010) vs. 17.80% (2018)
EDUCATIONAL ACTIVITIES ATTENDED

<table>
<thead>
<tr>
<th>Activity</th>
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<th>2018 Survey</th>
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<td>Attended Educational Programme</td>
<td>19.10%</td>
<td>28.60%</td>
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<td>Attended Hands On Course</td>
<td>0%</td>
<td>7.10%</td>
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<tr>
<td>Attended Both Educational and Hands On Course</td>
<td>0%</td>
<td>50%</td>
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<tr>
<td>Not Attended Any Course</td>
<td>80.90%</td>
<td>14.30%</td>
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2019 What does EES mean to you?

Mike: See better, do more with less
Daniele: Working through anatomy and physiology.
Dan: Better ergonomic=surgeon safety=patient safety.
Brandon: Great for teaching anatomy and surgery.
Justin: Good light, good exposure.

Dave’s answer: When you see and do it, you know it.
What does TEES mean to you?

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1992 TEES

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Class 2B, Class 3

2019 Aligning Access with Disease Process
Chronic Ear Surgery as it Stands

• So far, Chronic Ear Surgery: Its all about treating the battle scars.
• We ignore underlying ventilation problems and hope they have gone away.
• Good hearing result = aerated middle ear
Visualization of the Eustachian Tube Lumen With Valsalva Computed Tomography

Muaaz Tarabichi, MD; Murtaza Najmi, MD

Objectives/Hypothesis: Assess the feasibility of using the Valsalva maneuver to visualize the cartilaginous eustachian tube lumen with computed tomography (CT) in subjects with no ear disease.

Study Design: Prospective case series study.

Methods: Thirty-eight consecutive patients undergoing CT of the sinuses for nose-related complaints with normal radiographic findings consented for a CT of the temporal bone while performing the Valsalva maneuver. Multiplanar reconstruction was performed along the axis of the tube. Images were assessed for visualization of the whole length of lumen of the tube, or partial visualization with ratio of visualized to nonvisualized segments.

Results: The Valsalva maneuver allowed visualization of the whole length of the tube in 27/76 (35%) ears examined. It consistently visualized the distal one-third of the cartilaginous tube in 71/76 (94%) ears. Paradoxical collapse of the eustachian tube was present in three ears along with evidence of poor Valsalva technique.

Conclusions: Valsalva CT consistently allows visualization of the lumen of the distal one-third of the eustachian tube in a majority of patients with no eustachian tube-related complaints. This technique might be helpful in localizing eustachian tube pathology in patients with obstructive tube symptoms.

Key Words: Cholesteatoma, chronic ear surgery, eustachian tube dysfunction, computed tomography, Valsalva, imaging of eustachian tube.
Aligning Access with the Disease Process:

• In terms of Ventilation: It is definitely counterintuitive physiologically to worry about mastoid.

• It’s a function of our surgical approach not disease: We usually do not fail in the mastoid.

• The mastoid is at best a temporary–transient buffering system for gas regulation.

• The Ultimate Fallacy of all : the Mastoid is the Eustachian tube twin system for ventilation.
The Eustachian Tube

It consists of two parts: the first solidly connected with the temporal bone, close to the tympanic cavity; the second soft, partly ligamentous, partly cartilaginous, directed towards the nasopharynx

—Bartholomeus Eustachius, Epistola de Auditus Organis (Examination of the Organ of Hearing), 1562, Rome
Editorial

The Eustachian Tube Redefined

*It consists of two parts: the first solidly connected with the temporal bone, close to
the tympanic cavity; the second soft, partly ligamentous, partly cartilaginous,
directed towards the nasopharynx*

—Bartholomeus Eustachius, *Epistola de Auditus Organis*
(Examination of the Organ of Hearing), 1562, Rome

Since its first description by Eustachius, the concept of the Eustachian tube as partly
bony structure has taken deep roots in our understanding of its anatomy, function, and
possible dysfunction. Microscopic and gross anatomical observations of the “bony
tube” have made a distinction between “the protympanum,” a tympanic cavity struc-
ture, and a more anterior and inaccessible “bony Eustachian tube.” Endoscopic obser-
vation of that area allows a very different view of anatomy and renders this distinction
arbitrary and irrelevant.

While the protympanum was once a difficult-to-access region of the middle ear, the
adoption of middle-ear endoscopes and angled instrumentation has made direct
viewing and access feasible. Indeed, by observing the protympanum from this
perspective, it is clear that the bony Eustachian tube and the protympanum are essen-
tially one and the same.

The Eustachian tube as viewed endoscopically does not have a bony portion. It is a
fibrous/cartilaginous structure that stretches from the nasopharynx to the most ante-
rior part of the tympanic cavity (the protympanum). Its two openings are strikingly
similar cufflike protrusions into the relevant space. This new understanding allows a
more clear and distinct anatomical description of an area that is increasingly acces-
sible for surgical interventions.
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Protympanic Segment of ET

- The most common Site of obstruction in chronic ears.


- Contains the Isthmus of the ET, just beyond the carotid canal.

- It is the end of ET that is closer to the recurrent middle ear infection site.
Site of Eustachian Tube Obstruction in Chronic Ear Disease

Muaaz Tarabichi, MD; Murtaza Najmi, MD

**Objective:** Assess the patency of the proximal and distal segments of the Eustachian tube in patients undergoing surgery for chronic ear disease.

**Study Design:** Case study with control group.

**Methods:** All consecutive patients presenting for surgery for chronic ear disease in our practice over 14 months underwent preoperative Valsalva computed tomography (CT), and an attempt was made intraoperatively using angled rigid scopes to evaluate obstruction of the protympanic segment of the Eustachian tube. Endoscopic examination of the same segment in 19 cadaver ears served as a control group.

**Results:** Preoperative Valsalva CT showed patency of the distal one-third of the Eustachian tube in 51 of 53 ears. Intraoperative endoscopy allowed visualization of the protympanic opening of the Eustachian tube in 31 of 53 ears; 21 of 31 ears showed obstruction of the protympanic opening of the Eustachian tube.

**Conclusion:** A clear obstruction was more likely to be present in the protympanic opening of the Eustachian tube in the patient population undergoing surgery for chronic ear disease than in the cadaver control group, and was equally likely to be present in the distal cartilaginous tube in patients as in the control population.

**Key Words:** Eustachian tube dysfunction, cholesteatoma, tympanic perforation, surgery for chronic ear disease, tympanic perforation.

**Level of Evidence:** 4.

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**INTRODUCTION**

Surgery for chronic ear disease has always centered on disease removal and restoration of hearing without paying much attention to the underlying Eustachian tube pathology. Much of the Eustachian tube lies out of reach of our traditional instruments; thus, it is always assumed that time and age have resolved its pathology.¹ Failures in surgery for chronic ear disease have been shown to correlate with persistent Eustachian tube dysfunction.² Preoperative surgery (CT) has been recently reported by our group as a method for visualizing the lumen of the distal one-third of the Eustachian tube.³ We have utilized both modalities to evaluate any identifiable anatomic obstruction in the Eustachian tube in patients undergoing ear surgery for chronic ear disease in our practice.

**MATERIALS AND METHODS**

Over 14 months, the eight patients undergoing chronic ear surgery in our practice were evaluated preoperatively with CT. All patients were found to have chronic ear disease, predominantly secretory otitis media, and had undergone a variety of prior procedures, including myringotomy and tube insertion. The preoperative CT scans were reviewed, and a decision was made to proceed with surgery. Intraoperative endoscopy was performed to visualize the protympanic opening of the Eustachian tube. The patency of the tube was recorded, and any obstruction identified was noted. The results of this study were compared to those of a control group of 19 cadaver ears that underwent endoscopic examination of the same segment.
Site of Eustachian Tube Obstruction in COM

- 53 consecutive chronic ears endoscopic procedures + Preoperative Valsalva CT.
- Control group of 19 cadaver ears for endoscopic findings of protympanum.
- Valsalva CT documented patency of distal 1/3rd of Eustachian tube in 51/53.
- Clear obstruction of protympanum in 21/31 COM ears as compared to consistent patency in controls.
Eustachian Tube Isthmus
Fig. 1. Valsalva computed tomography of the Eustachian tubes of a patient who presented with reperforation after an earlier right tympanostomy tube insertion.
We absolutely need to improve outcome of chronic ear surgery

Conclusion:

• Think Ventilation.
• Think about the “Isthmus”.
• Ignore (within reason) Mastoid.
• Try a different hammer.