

INTRODUCTION

Historical background

The history of myringoplasty and tympanoplasty type I is a delightful chapter in the development of otologic surgery (*Albert Mudry, 2008*).

Myringoplasty is a well-known operation to all ENT surgeons. The first recorded attempt at myringoplasty was by **Marcus Banzer** in 1640. The first surgical closure using autograft (a full thickness free skin graft) was performed by **Berthold** in 1878 and he introduced the word 'Myringoplasty'. **Wulstein and Zoellner** popularized myringoplasty technique in 1951 and with improved optics and microsurgery it is still practiced in modern days (*U. Chalishazar, 2005*).

From its first controversial description in 1878 to its actual foundation in 1952, different otologists, mostly German, participated in its development (*Albert Mudry, 2008*).

Tympanoplasty operations are classified according to **Wullstein** into five types:

Type 1: Or myringoplasty, is simple closure of the tympanic membrane perforation without reconstructing the ossicular chain.

Type 2: is any kind of ossicular reconstruction involving the malleus, the incus, or both. The stapes head is intact.

Type 3: involves putting the tympanic membrane graft over the head of the stapes.

Type 4: occurs when the stapes head is absent but the footplate is present. The stapes footplate is exteriorized to the mastoid cavity, and the graft is placed over the rest of the middle ear cavity,

including the round window; hence, the phase difference is maintained.

Type 5: is also called the fenestration operation. It involves making a fenestra in the lateral semicircular canal and then putting a graft over it. This is not often performed today. (*P. Weiskopf et al., 2006*).

Anatomy of tympanic membrane

The tympanic membrane (TM) separates the delicate structures of the middle and inner ear from the external environment. The TM consists of three layers: an outer ectodermal layer composed of keratinizing squamous epithelium, an intermediate mesodermal fibrous layer and an inner endodermal mucosal layer. The membrane is approximately 130 μm thick with the outer squamous layer measuring about 30 μm , the lamina propria about 100 μm and the mucosal layer is 1 μm or less (*Heung-Yeup Lee et al., 2009*).

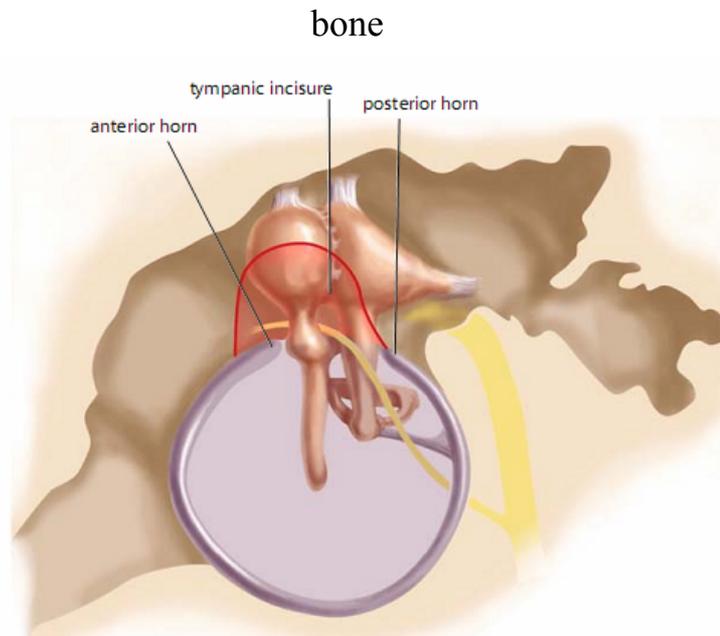


Fig. (1): *The tympanic membrane, which forms the lateral wall of the middle ear, stretches out into the tympanic sulcus, a groove in the concavity of the tympanic ring (Alexander Rauchfuss, 2006).*

In this sketch the tympanic membrane is removed. The tympanic ring is an incomplete circle. Between its anterior and posterior horn there is the tympanic incisura, also called the incisura Rivini. The chorda tympani arises from the facial nerve in the facial canal. It ascends at an acute angle into the tympanic cavity. The chorda crosses the tympanum, passing between the long crus of the incus and the manubrium of the malleus (*Alexander Rauchfuss, 2006*).