

Myringoplasty

Database Study

For partial fulfilment of Master Degree in
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الأذن والأنف والحنجرة

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Summary and Conclusion

Myringoplasty is a surgical technique used to restore the integrity of tympanic membrane and to improve hearing level. This procedure has undergone significant refinements over a period of time and now become an established procedure with rewarding results.

The objectives of myringoplasty are to make the ear dry and trouble free, to improve hearing, and to enable proper hearing aid usage.

Despite the high success rate and, the routine nature of myringoplasty, the effect of many influencing factors remains unresolved. These include the age of the patient, site of perforation; size of perforation, length of time the ear has been dry prior to surgery, the presence of infection at time of surgery.

Our study is in a form of Database to provide actual data of myringoplasty at otolaryngology department, faculty of medicine, Ain Shams University.

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Abbreviations

A-BG	Air Bone Gap
Pd	Predisposing
TM	Tympanic membrane

Introduction

Perforations of the tympanic membrane primarily result from middle-ear infections, trauma or iatrogenic causes. The literature suggests that up to 80 per cent of these perforations undergo spontaneous closure. **(Farrior, 1983)**

Myringoplasty is the term used to describe the surgical repair of a perforated tympanic membrane. The three principal indications for myringoplasty are: (1) recurrent otorrhoea, (2) desire to swim without having to waterproof the ear, and (3) to improve a conductive hearing loss resulting from a non-healing perforation of the tympanic membrane. **(Aggarwal et al., 2006)**

It is an operative procedure (type I tympanoplasty) used to restore the integrity of a perforated tympanic membrane. This assumes that the middle ear space, its mucosa, and the ossicular chain are free of active disease. Other types of tympanoplasties also imply reconstruction of the tympanic membrane and in addition deal with pathology in the

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middle ear cleft, such as chronic infection, cholesteatoma, or problems with the ossicular chain. **(Dornhoffer, 2003)**

The objectives of myringoplasty are to make the ear dry and trouble free, to improve hearing and to enable proper hearing aid usage. **(Vartiainen et al., 1985)**

Relative contraindications are less well defined: 1. Eustachian tube insufficiency or non-function; 2. the uncooperative patient; 3. the dead ear; 4. the better hearing or only hearing ear; 5. the elderly patient; 6. the young child; and 7. the repeated failure case. The otologic surgeon must exercise good clinical judgment in selecting patients for myringoplasty. **(Glasscock, 1976)**

Myringoplasty is considered the simplest reconstructive procedure of the middle ear. There are many variations and types of myringoplasties. In the past, these variations were categorized according to the types of tissue and the way the tissue was fixated in the middle ear. Currently, the types of

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myringoplasties are differentiated only by the fixation of the transplant, because a majority of ear surgeons use only fascia, perichondrium, or cartilage. **(Klacansky, 2009)**

Prior to surgery, careful history, complete head and neck examination including otomicroscopy, tuning fork tests, preoperative audiologic testing and medical treatment to achieve dry ear should be done. Finally the patient should give his or her informed consent for the operation and its potential risks. **(Karkanevatos et al., 2003)**

The percentage of successful healings after myringoplasties does not depend on the tissue used. More important is the condition of the middle ear at the time of the operation and the experience and skill of the surgeon. Regardless which type of tissue is used, 90% to 95% of good anatomical healing can be achieved. **(Klacansky, 2009)**

The mean graft take rate was 82.2%. When hearing improvement was the main indication for surgery it was

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improved in 67%. Most complications reported were minor in nature. **(Kotecha et al., 1999)**

The most important condition for a successful anatomical healing after a myringoplasty is the immobility of the transplant during the early stage of the healing process. **(Klacansky et al., 1998)**

Aim of the Work

Our study will be in a form of Database to provide actual data regarding myringoplasty at otolaryngology department, faculty of medicine, Ain Shams University at time of conducting this study; the success rate and different influencing factors on such operation; Reviewing the factors thought to determine the anatomical and functional success of myringoplasty.

Database is a set of information that is structured primarily to allow calculations and analysis to be undertaken; integrated data files organized and stored electronically in a uniform file structure that allows data elements to be manipulated, correlated, or extracted to satisfy diverse analytical and reporting needs.

Historical background:

The concept of a surgical repair of the tympanic membrane (TM) with a skin graft is usually credited to Berthold in 1878. **(Mudry, 2008)**

The first attempts to close a perforation of the tympanic membrane go back to the 17th century, when Banzer proposed the use of tissue (from pigs' bladders) stretched on an ivory tube and inserted into the ear canal. By 1800, several methods of temporary closure with artificial membranes had been proposed, and several materials came into use: silk, paper, and, rubber. **(Mancini et al., 1996)**

A controversy exists with respect to the priority of the first closure of a perforation with skin graft between Berthold and Ely. Berthold performed his first “myringoplastik” on August 1878. Ely mentions in his publication that he already performed his first attempt in June 1878. **(Mudry, 2008)**

Review of Literature

The basic concept of tympanoplasty type I is described as follows: “Practically rebuilds a normal middle ear; a tympanic membrane with both functions, sound-protection for the round window and the scala tympani, and sound pressure transformation over the ossicular chain to the scalavestibuli”. **(Wullstein, 1956)**

In 1952, the term “tympanoplastik” was used to describe the various surgical techniques of reconstruction of the tympanic membrane and the middle ear sound-conducting mechanism. **(Wullstein, 1952)**

In 1953, Wullstein defined the goal of tympanoplasty as follows: “Its goal is a surgical, mostly one-step reconstruction of hearing by creating a new tympanum for any kind of chronic otitis media and any kind of perforation of the eardrum and of damage to the conduction mechanism in the middle ear.” From this date, tympanoplasty type I found its place in otology. Numerous different materials were then used as grafts, and various surgical approaches were developed **(Mudry, 2008)**