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COMPARING THE EFFECTIVENESS OF TOTAL AND PARTIAL PROSTHESES IN HEARING RECOVERY

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ABSTRACT: Reconstructive ear surgery is a series of surgical procedures designed to restore the shape and function of the outer ear that has been damaged by trauma, congenital defects, or disease. Ossiculoplasty is a surgical procedure performed to improve hearing by reconstructing the chain of auditory ossicles destroyed as a result of trauma to the middle ear or its inflammatory and destructive diseases. Several factors must be considered when selecting materials for ossicular chain reconstruction, such as safety, biocompatibility, effective sound transmission, and cost of the prosthesis. In addition, middle ear prostheses should be reliable and technically simple. Sometimes the anatomical stability of the prosthesis does not give the expected result and this leads to reoperation can bring. Fixation of ordinary prostheses and defects in the adjustment of prostheses according to the condition of each ear.It is important to choose the most suitable type. Different material and design for replacement of damaged cochlea biosynthetic prostheses are used.

KEYWORDS: Reconstructive surgery, ossiculoplasty, malleus, incus, stapes, partial ossicular prosthesis (PORP), total ossicular prosthesis(TORP), chronic otitis media, tympanic membrane.

INTRODUCTION

A procedure known as ossiculoplasty is used to restore or improve the transmission of sound waves from the eardrum to the inner ear. Ossiculoplasty is a procedure that can help patients suffering from hearing loss to restore some or all of their hearing. During the surgery, a special material is used to help restore the structure of the ear bone and improve the transmission of sound to the inner ear. This procedure can be very effective in treating a number of ear conditions and can significantly improve the quality of life of patients. Ossiculoplasty is a procedure that can help patients suffering from hearing loss to restore some or all of their hearing. During the surgery, a special material is used to help restore the structure of the ear bone and improve the transmission of sound to the inner ear. This procedure can be very effective in treating a number of ear conditions and can significantly improve the quality of life of patients.

The choice of the ossiculoplasty option depends mainly on the preservation of the elements of the sound-conducting chain, their mobility and is determined mainly by the preservation of the stapes and, to a lesser extent, the malleus. If the stapes is preserved, a partial ossicular prosthesis

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is used. In the absence of stapes superstructures and the presence of a mobile base of the stapes, a complete ossicular prosthesis is used. The choice of material used to reconstruct the sound-conducting apparatus of the middle ear depends on the type of ossicular chain defect, as well as the experience of the surgeon. Currently, ossiculoplasty often uses industrially produced prostheses made of biologically inert materials: polymers, ceramics, metals.

RESULTS

In the practice of partial ossiculoplasty (PORP - partial ossicular reconstruction prosthesis), the prosthesis is attached to the head of the auditory bone. In total ossiculoplasty (TORP - total ossicular reconstruction prosthesis), the prosthesis is attached to the base of the ear bone. Partial ossiculoplasty is usually minor and used in case of injury. These prostheses connect the tympanic membrane to the tympanic membrane. Partial ossiculoplasty is often used in chronic otitis media, traumatic auditory ossicles and congenital ossicular malformations. Total prostheses provide a complete replacement of the ossicular chain, connecting the tympanic membrane with the base of the tympanic membrane. Total ossiculoplasty is usually used in cases of otosclerosis, extensive bone destruction, and revision ossiculoplasty. Installing the prosthesis directly on the base of the shoe has several acoustic-mechanical advantages. Natural autografts made of bone or bone are inexpensive and give good results in restoring hearing, but the operation takes a long time. Prostheses made of titanium or Teflon are technically simple and the operation time does not last long, but the price of these prostheses is expensive. Simple and relatively expensive permanent prostheses also have several disadvantages. For example, when a partial prosthesis is used, as a result of scar changes, dystrophic, atrophic or mechanical effects, the leg may break or the leg may come out of the head. This is the restoration of hearing after the operation has a negative effect and the patient has to be operated again.

CONCLUSION

The choice of the optimal option of the operation is of great importance for the restoration of hearing in patients after reconstructive operations in the middle ear and the smooth operation of the operation. This study aims to improve the effectiveness of surgical treatment of patients with middle ear pathologies by conducting a comparative description of ossiculoplasty methods. In ossiculoplasty, the choice between total prosthesis and partial ossicular replacement prosthesis (PORP) depends on the specific condition of the ossicular chain and the surgical goals. Here's why a total prosthesis might be preferred in some cases:

Severe Ossicular Chain Damage: Total prostheses are often used when there is extensive damage to the ossicular chain, making it impossible to preserve any part of the existing ossicles. A total prosthesis can replace the entire chain, which is crucial for restoring hearing in such cases. Improved Function: A total prosthesis can provide a more reliable and consistent hearing outcome in cases where the ossicular chain is completely absent or non-functional. It directly connects the tympanic membrane to the oval window, bypassing any damaged ossicles. - Simplicity in Design: The design of a total prosthesis can sometimes be simpler and more robust compared to a PORP, particularly in complex cases where the remnants of the ossicular chain may be difficult to work with or repair. Greater Stability: In certain cases, a total prosthesis may offer better mechanical stability, reducing the risk of dislocation or failure compared to a PORP,

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especially if the existing ossicles are fragile or deformed. Predictable Outcomes: For patients with extensive ossicular chain damage, total prostheses can provide more predictable and favorable hearing outcomes by ensuring a continuous sound pathway from the tympanic membrane to the inner ear.

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