Endoscopic Trans-canal Cartilage Tympanoplasty

Nabil GALAL Prof, Dr, Khaled HARHASH Prof, Dr, Ahmed EL BATAWI Dr, Ahmed ABDELWARITH

Department of Otorhinolaryngology, Kasr Alaini Hospitals, Faculty of Medicine, Cairo University.

Introduction:
The Tympanic Membrane (TM) plays an important role in the physiology and the pathophysiology of chronic inflammatory middle ear diseases. The TM perforations significantly impair the quality of life for millions of patients. In 1953, the Zeiss operating microscope became available commercially, but right from the start, we were faced with the drawback of unobservable blind angles in the middle ear. Consequently, increased use of the endoscope for surgical procedures under complex anatomical conditions has found broad acceptance. In this way, the endoscope has now developed from a simple diagnostic tool into an indespensable aid for ear surgery (1).

Aim of the study:
We discuss in this study the opportunity of using the endoscopy not only as a cheaper alternative to the microscope, but also a superior and more effective tool in managing cases of CSOM (safe type) in certain conditions, regarding the field of vision, operation time, graft take rate, hearing and cosmetic results.

Material and methods:
Doing Trans-canal Endoscopic Butterfly or underlay Cartilage Tympanoplasty for 25 patients having a central perforation of any size with excluding the following criteria:
1- The age of the patient is below 12 or above 60. 2-Subtotal or total perforation. 3-Marginal perforation. 4- The perforation is wet or dry for less than 3 weeks. 5- The presence of otitis externa. 6- The presence of cholesteatoma. 7- The air bone gap is not matching with the size of the perforation.
The technique is done completely endoscopic trans-canal trans-perforation after doing good refreshment to the perforation edges then harvesting the tragal cartilage graft with preserving the perichondrium on the graft. Two methods were used:
1- The butterfly method: after incising and Deeping a gutter between both surfaces of the graft, it is being placed through the perforation like a grommit tube with under layer (cartilage proper) passing through the perforation to cover the medial surface of the drum and the upper layer (cartilage and perichondrium) which is still attached to the under layer of the graft, being spread to cover the lateral surface of the drum (sandwich-like).

Results:
Mean operations time was 20 minutes with (23/25) complete healed perforation. The 2 failure cases were diabetic with superimposed fungal infection. Better visualization of the surgical field in all angles with the endoscope comparing to the standard surgical microscope. Hearing improvement was noticed more with the underlay method than the butterfly method due to the more graft thickness in the later one. Better cosmetic results & lesser morbidity than the ordinary post auricular approach.

Conclusions:
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References: