RESEARCHING SCIENTIFIC SOURCES ON OTITIS MEDIA

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Annotation: Before the modern era of antibiotics, otitis media was very often accompanied by deleterious consequences, as the following quote from Hippocrates shows: ‘Acute earache with prolonged fever is to be feared, for there is a danger that a person may fall into delirium, followed by death’. Surgical treatment of chronic otitis media probably dates back to antiquity, as drainage of abscesses by military surgeons and other specialists, was common. However, little evidence of this has survived. The history of chronic ear disease is well covered in the works of Milstein and Briggs.

Recorded drainage of the mastoid process dates from Rolian (1671) and then Petit (1774). The pain of the procedure probably required little more than a puncture or short incision. Drainage would have included a proportion of cholesteatoma cases; These were undoubtedly worse than non-cholesteatoma cases, but the earliest sources did not distinguish between cholesteatoma or chronic infectious conditions until the recognition of cholesteatoma in the 19th century. The modern era of mastoid surgery began with Wilde's postauricular incision and drainage (1853). Without anesthesia, these were likely to have been quick but excruciating procedures of the time. Before Lister and the advent of the antiseptic technique, many suffered from surgical sepsis and its consequences.

Advances in other fields (pathology, microbiology, anesthesia, and antiseptic technique) allowed for more sophisticated cortical mastoidectomy techniques. In 1873, Schwarze and Eisell were the first to publish an article describing the mastoidectomy procedure, including the use of a chisel and hammer to remove bone. They also postulated clear indications for performing mastoidectomy, including active infection and hearing loss, as well as tinnitus, for which surgical treatment was controversial. Despite this progress, cholesteatoma continued to cause problems until the underlying pathology became better understood; Thus, mastoidectomy procedures of this era were mainly used to allow pus to escape to the outside.

With a better understanding of cholesteatoma and chronic otitis media came the surgical goal of exteriorizing the sac, and with it the development of ‘open’ ear surgery in the form of the radical mastoidectomy procedures of Küster, von

Bergmann, and Saufahl, and then Stacke (1888-90), in which the posterior wall of the canal was removed to allow drainage through the external canal. Subsequently, modified radical techniques aimed at preserving hearing by retaining some elements of the tympanic membrane appeared in the work of Bryant, Heath, and Bondy (1904-1910). Variants of the radical and modified radical mastoidectomy techniques are still in use today. Despite the advantages of preventing serious morbidity and mortality associated with cholesteatoma, 'canal wall' (CWD) procedures have caused significant alterations to normal anatomy. The resultant carious symptomatology was often due to a deficiency in another key function: epithelial migration. Split-skin (Thiersch) and full-thickness (Wolfe) grafts failed to correct cavity problems; They were not self-cleansing and were prone to chronic cutaneous degeneration. Canal wall surgery continued to be the standard until the middle of the twentieth century, but gradually became more advanced with the advent of the operating microscope by Holmgren in 1923 and electric drills.

This improvement triggered the next phase of ear surgery, which was aimed at full restoration of ear function. This began with Jansen's introduction of 'combined approach' surgery (CWU) in 1958. This surgery, also called intact canal wall (ICW) surgery, was aimed at maintaining both anatomy and function. Simultaneously developed at several US centers by surgeons such as Sheehy and Jaco, CWU surgery was designed to avoid the aforementioned cavity problems, but it was quickly recognized that CWU surgery had its own problems of residual and recurrent cholesteatoma. In addition, continued dysfunction of the eustachian tube often resulted in an inability to achieve aeration of the middle ear space. Because of these shortcomings, the procedure was controversial from the beginning. The principle of staged surgery has alleviated some of these concerns and led to wider acceptance. However, despite the improved results, some surgeons remained skeptical and returned to CWD procedures. The debate between CWU and CWD procedures continues today. In the 1950s, Zollner and Wollstein introduced the concept of tympanoplasty, which not only considered reconstruction of the tympanic membrane using skin grafts but also developed the 'plastic technique' of shaping the external auditory canal. This initial concept of tympanoplasty was based on the principles of overlay with skin grafts. This technique was later refined by Sheehy into a form still used by some surgeons today as an overlay or 'side graft' tympanoplasty. Further developments in tympanoplasty would explore the utility of other graft materials. In 1958, Hans Heermann pioneered temporalis fascia as a grafting material, allowing the graft to be placed medial to the tympanic membrane in a substrate technique. With the success of tympanoplasty came the reconstruction of the auditory ossicles to

further restore the middle ear mechanism. Initially, various metal and plastic implants were used. The results were promising, but poor long-term results were achieved against the background of implant extrusion. Auditory ossicle autotransplantation was the next step in the development of auditory ossicle reconstruction. The removed auditory ossicles were reshaped and reinserted to restore continuity. Incus transposition is a popular technique that is still used today, although preparing the graft for reimplantation is often cumbersome and time-consuming. In search of a simpler technique and improved results, Janecke and Shea reintroduced the use of alloplastic materials in 1975 in the form of biocompatible prostheses (partial ear prosthesis [PORP] and total ear prosthesis [TORP]). Extrusion rates decreased when cartilage grafts were placed lateral to the prostheses. The materials used for prostheses have undergone many changes over the past few decades. Still driven by advances in technology and other areas of medicine, otologic surgery continues to evolve today. Hybrid tympanomastoid surgical techniques, which consist of removing a portion of the canal wall to dissect the cholesteatoma followed by replacement or reconstruction to obtain CWU anatomy, are rapidly advancing. Cavity obliteration techniques for CWD mastoidectomy have also advanced to minimize many of the negative factors associated with an open cavity. The use of rigid fiber optic endoscopes is an example of an innovation that has begun to serve as an adjuvant to CWU and mastoidectomy-sparing techniques. Advances in imaging, especially MRI, have made it possible to avoid repeat surgery. Tissue engineering offers the potential for reliable tympanic membrane reconstruction with a simple office-based procedure. Возможно, наиболее важной хирургической целью, относящейся к хроническому уху, которое остается неуловимым, является коррекция дисфункциональной евстахиевой трубы; Тем не менее, работа в этом направлении продолжается. В следующем столетии, вероятно, будут разработаны новые стратегии и продолжаются инновации существующих методов для улучшения результатов хронической хирургии уха.

Prevalence studies have shown that chronic middle ear disease is particularly prevalent in low- and middle-income countries where access to health care and resources for prevention and treatment is limited. In these settings, prevalence can be as high as 4-11%, with children disproportionately affected. However, chronic middle ear disease is not unique to resource-limited countries and can be seen in populations worldwide.

Considering the above, the following conclusion can be reached: Chronic middle ear diseases have a significant impact on individuals and populations. These conditions can lead to hearing loss that can have a profound impact on communication, education, and overall quality of life. In children, hearing loss due

to chronic middle ear disease can lead to speech and language delays, learning difficulties, and social isolation. In adults, hearing loss can affect employment opportunities and contribute to mental health problems such as depression and anxiety.

LITERATURE

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