

Letter to the Editor

Canalotympanoplasty: Nomenclature of the Surgical Procedure for Correcting Congenital Aural Atresia

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I have read the recent article “International Consensus Recommendations on Microtia, Aural Atresia and Functional Ear Reconstruction” by Zhang et al¹ with great interest. This article is a landmark paper that contains essential information for specialists caring for patients with microtia and/or aural atresia.

Although the authors’ points were very clear and informative, there seems to be 1 concern regarding the nomenclature of the surgical procedure performed to reconstruct the ear canal and middle ear. In the article, the authors use the word “canaloplasty” to denote the surgical procedure of 1) removing the atretic plate, 2) liberating the ossicular chain, 3) reconstructing the tympanic membrane, and 4) skin grafting to make a new canal.¹ I have also recently published a paper analyzing the hearing outcomes of this surgical procedure using the same term (“canaloplasty”).² However, after a careful review of the medical terminology used in various ear operations and reconstructive operations for other parts of the body, I have noticed that “canaloplasty” is not appropriate. The main goal of this surgical procedure (hearing gain) is primarily affected by reconstructing the tympanic membrane and middle ear ossicular chain, not the canal. The term “canaloplasty” is problematic since it only reflects half of the procedure. It is recommended that a term for a surgical procedure should contain its key concept.

Other authors have alternatively used the terms “atresioplasty” and “meatoplasty” to refer to the same or similar surgical procedure. “Meatoplasty” is only one part of canaloplasty, since it implies correcting the outer part of the ear canal. Meanwhile, “atresioplasty” is a misnomer since it implies making atresia. The correct concept is resolving (removing) the atresia, not making it. For instance, “fistuloplasty” is a procedure that relieves the narrowing or blockage of a fistula (not removing the fistula).³ As another example, “rhinoplasty” refers to a surgical procedure that reconstructs or changes the shape of the nose (not removing the nose).⁴ Thus, it would seem that “atresioplasty” is not in line with the general principles of medical terminology.

CONCEPT OF CANALOTYMPANOPLASTY

☐ Canaloplasty

- Meatoplasty of the cartilaginous and/or soft tissue external auditory canal
- Reconstructing or widening the bony external auditory canal

☐ Tympanoplasty

- Reconstructing or modifying the tympanic membrane
- Liberating or reconnecting the middle ear ossicular chain

Considering these points, I would like to propose the term “canalotympanoplasty.” Tympanoplasty usually refers to the reconstruction of the tympanic membrane and middle ear ossicular chain. For instance, tympanomastoidectomy is the combination of tympanoplasty (reconstruction of the tympanic membrane and middle ear ossicular chain) and mastoidectomy (exenteration of the inflamed bony air cells of the mastoid cavity and attic).⁵ Canaloplasty may refer to the reconstruction of the external auditory canal, which is composed of the cartilaginous canal (including soft tissue) and the bony canal.

“Canalotympanoplasty” seems to imply both concepts in a brief format that is similar to the current nomenclature for middle ear surgery.

Not using a correct or accurate name for a surgical procedure may cause confusion. I hope that this term can clearly convey the key concept of the surgical procedure and facilitate communication among clinicians and researchers.

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Author's Response

Altmann¹ divided congenital aural atresia (CAA) into 3 types based on anatomical and pathological observation. Schuknecht² divided CAA into 4 types based on surgical observation. Congenital aural stenosis (CAS) was classified as CAA in the above 2 studies. The etyma “atresia” means an abnormal condition in which a normal opening or tube in the body is closed or absent, and the etyma “stenosis” means abnormal narrowing of a bodily canal or passageway. In this consensus, CAA and CAS were 2 different statuses and cannot be used interchangeably.³ For the reason of differences in understanding, the nomenclature of the surgical procedure for CAA and CAS was not unified.

Meatoplasty, canaloplasty, atresioplasty, and tympanoplasty were often used for surgical procedures. Meatoplasty implies mainly correcting the outer part of the ear canal. Canaloplasty implies correcting the whole ear canal including the bony part. Atresioplasty was a common saying, which implies reconstructing the ear canal and hearing ability. Tympanoplasty implies reconstructing the tympanic membrane and ossicular chain.

Unified nomenclatures were needed for these surgeries. Canalotympanoplasty implies both canaloplasty and tympanoplasty in a brief format. But there is still an open question. The etyma “plasty” implies changing the shape. The CAS patient has a narrow ear canal, thus canalotympanoplasty was logical for CAS. However, “plasty” was










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not an ideal etymon for CAA surgery, due to the absence of ear canal, which the surgical procedures were canal reconstruction and tympanoplasty. The more proper nomenclature could be discussed.

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