

Comprehensive and clinical anatomy of the middle ear

Samia A Fawaz

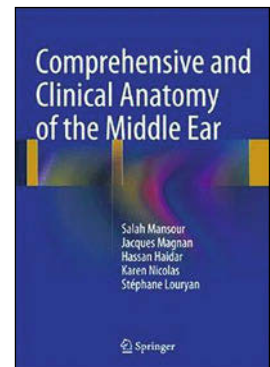
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Introduction

There are various difficulties in mastering otologic surgeries; one of them is the complexity of the anatomy of the middle ear, and also a lack of understanding of the anatomy and embryology due to an absence of good textbooks for reference.

The authors focus on a complete, up-to-date coverage of the anatomy of the middle ear, so as to enable the reader undergoing surgical training to find and understand both essential and advanced information; it is also intended to provide insights into the clinical decisions and surgical approaches.

Professor Mansour works in the Lebanese University Hospital, Sacre Coeur ORL, Chirurgie Cervico-Faciale, France, and guides and controls the writing of the book, and shares his enthusiasm with the other authors. Professor Magnan, who is an eminent otologist and neurotologist, works in the University Aix-Marseille Hôpital Nord ORL, Chirurgie Cervico-Faciale, Marseille, France; he has repeatedly reassured the other authors in case of difficulties. Dr Haidar also works in the ORL Hôpital Nord ORL, Chirurgie Cervico-Faciale, Marseille, France; he is the junior author, who started the writing of the textbook with the help of Dr Nicolas. Dr Nicolas works in the Department of Radiology, Lebanese University and Middle East Institute of Health, and has contributed to this work by retaining a wide coverage of images enabling the otologist to understand computed tomographic (CT) scan with excellent identification of the normal anatomic details of the middle ear as well as its pathological conditions. They have also had the cooperation of Professor Louryan, who is a professor in Laboratoire d'Anatomie, Biomécanique et Organogénèse, Université Libre de Bruxelles, Faculté de Médecine, Brussels, Belgium, and has contributed a comprehensive knowledge of the

middle-ear embryology, which permits useful exploration of the relationship with congenital malformations and their interpretation.

In this paper, I have focused on the contents of this book that are useful for otolaryngologists who are going to perform otologic surgery, as although most of the clinical and surgical otologic books describe the anatomy and the embryology of the temporal bone and the middle ear, they do so with limited details, unlike this book, because comprehensive knowledge and detailed anatomy is the key to success in the management of middle-ear disorders.

Review

This book is organized into seven chapters covering the anatomical environment of the middle ear, its walls, contents and compartments, the mastoid, the facial nerve, and the Eustachian tube. Subchapters and subdivisions sequentially report and illustrate the related embryology and anatomy, as well as the relevant clinical applications and radiological findings.

First, the embryology of the temporal bone and its perinatal changes have been presented, followed by its postnatal changes, and finally a description of the anatomy of the temporal bone. The detailed description is accompanied by photos of cadaveric dissection and skull specimens, schematic drawings, and CT images, with three-dimensional reformation in some figures. The authors have focused on explaining some important clinical pearls, on embryological and anatomical bases.

They have also presented a very well-illustrated surgical anatomy of the middle-ear cavity: they start with a detailed description of the embryology, followed by the anatomy of each wall separately, accompanied by a lot of schematic illustrations and clinical otoscopic photos

and CT images, with important clinical implications of the detailed anatomy and surgical applications.

A lot of details about middle-ear contents, especially the auditory ossicles, middle-ear articulations, middle-ear muscles, middle-ear nerves, middle-ear vessels, and middle-ear mucosal folds, from the embryological and anatomical point of view have been provided, in addition to a detailed description of its clinical and surgical applications, with special emphasis on the various congenital anomalies of these contents, which I think is very important to be detailed in such a manner, as it is deficient in other otologic books.

The authors have described the middle-ear compartments in chapter 4, with the objective to present a detailed and exhaustive description of these compartments, their relationships, and their connections to improve the understanding of the pathophysiology of inflammatory and cholesteatomatous middle-ear diseases, by dividing it into five compartments, and describing several anatomic-functional units inside or even beyond the traditional division of the compartments.

Also, this chapter has a comprehensive table (Figure 1) illustrating the embryological origin of the different spaces, recesses, and pouches of the tubotympanic zone, which, to my mind, is the most comprehensive illustration for this issue up till now. In addition, there is another table illustrating the organization of the different compartments of the attic, focusing on its clinical implications.

Figure 1 shows the embryologic origin of the different tubotympanic spaces and recesses.

The mastoid embryology and anatomy have been explained with numerous color pictures and helpful

figures, with inclusion of carefully selected CT scans, which assist in the reading of the normal anatomy, concentrating on the clinical and surgical implications.

I agree with the authors who state that the ingenious pathway of the facial nerve through the middle ear and the mastoid adds to the complexity and refinement of middle-ear microsurgery. Thus, a thorough knowledge of the facial nerve anatomy along with its multiple landmarks is essential for an accurate, safe, and effective surgical intervention in the middle ear, which has been fulfilled in chapter 6, in addition to the various clinical applications and surgical pearls.

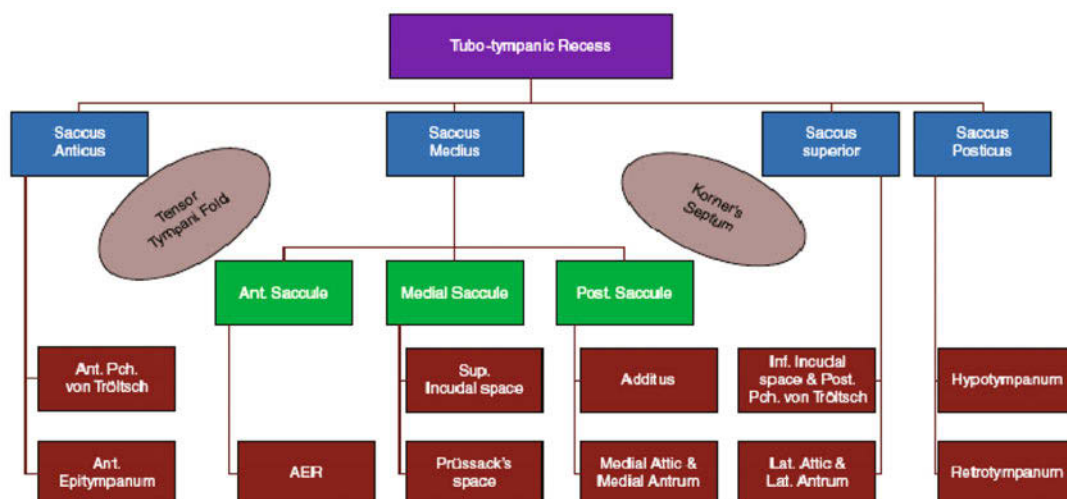
The Eustachian tube, as a part of a system of contiguous organs, including the nose, the middle ear, and the mastoid air cells, is a very important component of this book, and has been described in full detail, with hints on its development, illustration of the muscles acting on it, and its clinical applications.

Although the title of this book is the surgical anatomy of the middle ear, and it was precisely fulfilled, but I was hoping to find a chapter concerning the gross anatomy of the inner ear to make this book an excellent reference book for the anatomy of the ear as a whole.

Conclusion

I think the authors succeeded in presenting in detail new knowledge of the middle ear and the temporal bone embryology and anatomy, which had a significant impact on the understanding of middle-ear functions, pathogenesis, and management of different pathologies, and applicable surgical pearls.

Figure 1



showed the embryologic origin of the different tubotympanic spaces and recesses

I am convinced that this book is satisfactory for basic understanding of the developmental anatomy, which is necessary to anticipate the various anatomical situations

encountered during ear surgery. It could be an excellent reference for the otologist, and so this book has achieved its goals and to my mind it deserves to be read.