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# OTORHINOLARYNGOLOGY

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## Introduction

Medicine is rapidly developing. Yearly new methods of diagnostics, prophylaxis and treatment appear. Due to this fact the textbooks that already exist are going out of date practically every 3—5 years, which makes it necessary to create new ones containing recent data about achievements in specific fields of medicine and current methodical approaches meeting the requirements of the European Credit Transfer System Program and curriculum.

This book was first published in 2009 as an otorhinolaryngology textbook for students of higher medical educational establishments. This republication is supplemented with modern data about the newest achievements in the field of otorhinolaryngology and contains updated information on the most important problems of diagnostics and treatment of ENT diseases. In addition, self-study questions, topical tests, the technique of ENT organs examination, topics for individual student work have been added.

In this edition modern methods of investigating the functional state of the ENT organs, the latest data on etiology and pathogenesis of ear, nose and throat diseases have been added, the clinical course of diseases and data about changes in local and systemic immunity, modern methods of conservative and surgical treatment of ENT diseases are given.

The authors hope that this textbook will help students to learn the course of otorhinolaryngology and aid doctors in mastering the required level of treatment of patients with ear, throat and nose pathology.

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## Chapter 1

# **GENERAL DESCRIPTION AND HISTORY OF OTORHINOLARYNGOLOGY**

Otorhinolaryngology is a clinical discipline, which studies the morphology, physiology and pathology of the ear, upper respiratory tracts and adjacent areas. The term is derived from four Greek words: *otos* — ear, *rhinos* — nose, *laryngos* — larynx, and *logos* — studies. The first letters of the words marking the main branches of the specialty form the abbreviation ORL or LOR (in English-speaking countries — ENT).

Otorhinolaryngology studies the normal and pathological state of most analyzers: auditory, vestibular, olfactory, and gustatory. Disorders in analyzers activity decrease occupational capability and working capacity causing depression of the patient.

It should be noted that otorhinolaryngology is a surgical specialty, which encompasses a wide range of operations: on the ear, nose cavity, paranasal sinuses, pharynx, larynx, and trachea.

Development of otorhinolaryngology as a separate discipline began in the middle of the 19<sup>th</sup> century. Before that, the treatment of a small number of known ear diseases was taught in the course of surgery, and of diseases of the upper respiratory tract — in the course of therapy. Anatomical and topographical unity of the ear, throat and nose, their physiological correlation and practical application of endoscopy methods in ENT research were the reasons for ENT diseases integration.



It is important to know the main stages of otorhinolaryngology development. In 1841 German doctor F. Hoffmann suggested to examine deep areas of the ear, nose and throat using a mirror without a small round part of amalgam in the center. Later, Doctor A. F. Troeltsch created a frontal reflector on its basis. In 1854 M. Garcia, a Spanish singer and one of the most prominent teachers of singing, professor of the Paris Conservatoire and Royal Academy of Music in London (Fig. 1), offered the indirect laryngoscopy method. By means of using a laryngeal mirror M. Garcia studied the physiology of singer's voice. In a year this method was introduced into practice. Then the methods of postnasal (1859), anterior, and middle rhinoscopy were offered. Later direct methods were developed: esophagoscopy (Kussmaul, 1868), direct laryngoscopy (Kirsten, 1894), bronchoscopy (Killian, 1897), respiratory bronchoscopy (Fridel, 1956), fibrobronchoscopy (Ikeda, 1969). Otosurgery was founded by German doctor I. Schwartz, who offered mastoid process trepanation (anthrotomy) in his work in 1873. Puncture of the maxillary sinus through the inferior nasal meatus was first performed and described by M. Schmidt in 1888. American G. W. Caldwell in 1893 and Frenchman H. Luc in 1897 independently worked out the method of radical surgical intervention in chronic maxillary sinusitis.

In Ukraine, due to privat-docent courses at several universities, otorhinolaryngology was popularized and introduced into medical practice and education. At the medical department of Kyiv St. Volodymyr University some ENT diseases were mentioned during lectures on surgery, therapy, and other disciplines. So, in 1860—1862 the first lectures on larynx diseases were given by Doctor of Medicine, Associate Professor of obstetrics I. Lazarevych (the name of the academic course was *Diseases of the Respiratory Tract and Its Parts and Larynx Lesions*) and lectures on ear diseases were given by Professor Yu. Shymanovsky in a course on theoretical and operative surgery. From 1864 to 1866 L. Marovsky lectured a privat-docent course on rhinology and laryngology, in 1864 he was elected an Associate Professor of diagnostics and laryngoscopy. His works were *About Croup Treatment*, *About Deafness Reasons*, etc. From 1871 to 1880 M. Uspensky lectured

a privat-docent course on otiatrics, and then from 1882 to 1884 N. Zhuk delivered the course *Throat Diseases*.

Mykola Volkovych (1858—1928; Fig. 2), a surgeon and otorhinolaryngologist, professor and academician, was the first in Ukraine to begin a systematic lecture course on otorhinolaryngology. From 1889 to 1903 he conducted an elective course on otorhinolaryngology at the medical department of Kyiv St. Volodymyr University. He was among those who first paid proper attention to the study of upper respiratory tract scleroma and took an active part in the study of the etiology, pathogenesis and treatment of this disease. The scientist also introduced a surgical direction in otorhinolaryngology development. He performed operations on the paranasal sinuses and mastoid process. He was the first in Russia to publish a report on two examples of larynx extirpation in case of cancer and develop surgical treatment of chronic larynx stenoses.

Otorhinolaryngology was also developing in Odessa, Kharkiv and other cities of Ukraine. In 1921 otorhinolaryngology became a required subject of medical departments of universities, which was very important for the development of the specialty.

The otorhinolaryngology department of the Kyiv Medical Institute was originated in 1922, when Oleksandr Puchkovsky became the head of the department. He graduated from the Petersburg Military Medical Academy. The scientist made a great contribution to the development of otorhinolaryngology in Odesa. O. Puchkovsky was a prominent Ukrainian scientist researching scleroma, tuberculosis of the upper respiratory tracts, ENT oncology, reconstructive surgery. The Kharkiv otorhinolaryngology department was founded by Professor S. Surukchi (1922), in Dnipropetrovsk — by Professor S. Kompaneyets (1921), in Lviv — by Professor A. Yurash (1908).

The appearance of fundamental works since the 1920—1930s was a considerable contribution to the development of otorhinolaryngology in Ukraine. S. Kompaneyets, O. Puchkovsky and O. Kolomyichenko studied the questions of diagnostics and treatment of purulent otitis and concomitant intracranial complications. M. Horshak founded a school of head and neck oncology. G. Trombitsky, M. Pitenko and S. Kompaneyets investigated the

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