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Brief History of the Otorhinolaryngology

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Nose, throat and ears have intrigued human kind since immemorial times. Greek, Hindu and Byzantine physicians already practiced treatment and surgeries on the nose, throat and ears. In the XX century, clinical and surgical innovations were incorporated thanks to new anesthetic techniques, antibiotics and radiology being added to the technology.

To show the development of this science along time, acknowledging important personalities in otology, rhinology and laryngology by means of a literature review [1].

Otology

In one of the best-known scientific documents, Ebers's scrolls, from Egypt, there are descriptions of battle wounds on temporal bones, and how they affected hearing and speech. In the Egyptian pharmacopeia, from approximately 1,500 B.C., there is a chapter called: "Medications for the hard of hearing ear ", where one may find treatment for tinnitus, dizziness and hypocusia.

In Greece, physicians and philosophers concocted primitive anatomical studies and theories, in an attempt to explain diseases and how our bodies worked. Alcmaeon of Croton, a physician considered the father of neuroanatomical, imagined that hearing happened thanks to air movements that penetrated the ear and hit the brain in a specific site which was responsible for hearing. He thought that hearing was the result of a concussion that altered the position of the brain, making these airways hit another region [2].

Empedocles, Greek philosopher, known for numbering the four basic elements (fire, air, earth and water), was the first to describe the cochlea. He called the structure "κοχλος", the name of a seashell found in the Mediterranean region. However, his discovery intrigued him more for the perfect and singular shape of that anatomical structure than its function or relation with hearing.

With merely empirical treatments, Hippocrates, was also interested in otology, however himself and his disciples were more concerned with the relations ear infections had with other organs, especially the brain and tonsils.

Aristotle, one of the best-known Greek philosophers, even without anatomical knowledge, created a theory on hearing. He believed there was a resonating space within the inner ear, which vibrated in response to sound. Pure air was implanted in the ear as the person was born, and congenitally deaf people did not have this air implanted there. As time passes, people would lose this pure air, thus reducing hearing [3].

During the Roman Empire, medicine used Greek knowledge and many of their teachings, and incorporated new discoveries. Cornelius Celsius, in the 1st century A.D., was the first to describe a tonsillectomy, doing it with his own fingers, and some new treatment options for tinnitus, foreign bodies in the outer ear canal and surgeries for external ear canal atresias.

Galeno, personal physician of the Roman Emperor Marcus Aurelius, dissected the ears of dogs and monkeys. Even without a microscope, he was able to dissect the inner ear and called the structure he found "Creta Labyrinth", admitting his ignorance as to the functioning of such organ.

After the fall of the Roman Empire, very little was added to the existing medical knowledge on otology in the Middle Ages. It was only in the XVI century, during the renascence, that paintings and sculptures helped in anatomical studies, from people like Leonardo da Vinci, Michelangelo, Eustachio, Fallopius, amongst others.

During this period, Berengario de Capri and Ingrassia from Naples - Italy, described the malleus, the incus and the stapes. Eustachio accurately described for the first time the tensor tympani muscle, identified the corda tympani as a nerve and not as a blood vessel, and the structure that has his name, the tube, described in the paper "De Auditus Organis", where he even divides it in bony and cartilaginous parts [4].

Versalio, in 1543, described the oval and round windows, and also the malleus and the incus. Fallopius, from the famous medical school of Padua, discovered and explored the facial nerve canal. It was he who described and named the tympanum, for its similarity with a drum. In the paper "De morbo gallico" he described the high intensity tinnitus that may happen in advanced syphilis stages.

Fabrizi, the most known of Fallopius's students, published the hearing theory, which merged Aristotle's idea with a new concept of auditory nerve stimulation. Fabrizi also described for the first time, proper methods for otological surgery lighting, with devices used to guide the sun light or that from candles.

Anatomical studies of the ear continued during the XVII century. Riolanos, in 1649, described the technique used to do a simple mastoidectomy. The French architect and physician Perrault, in his paper "Debruit" developed the theory that the cochlea was the true hearing organ. He described that the cochlear membrane vibrated under high noises, and it could degenerate as the person aged.

Under the ruling of Luis XIV, Du Verney, personal physician of the French royal family, published the elegant "Traite de lorgane de loute" with impressive drawings of the inner ear anatomical structures and also stated that sound was not transmitted by air in direct contact with the round window, but rather by the ossicular chain, directly on the oval window. He proposed a theory of cochlear resonance, even before Helmholtz did. Unfortunately, his theory was based on the inverse pattern that we use today. Comparing the thickness of the spiral sheet with the thinning from base to apex, he proposed that the base would

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receive low frequency sounds and the apex the high frequency sounds. Du Verney also described the cholesteatomatous otitis media [5].

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Conflict of interest

None

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