The Ear, Nose and Throat in Islamic Medicine

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Summary

In this article, The treatments of ear, nose and throat diseases are pointed out in the Islamic world and the books of various Islamic authors on this topic are stressed.

Key Words: Islamic Medicine, History of Medicine, Middle Ages

It is a good practice to unroll the pages of the past to discover the successive steps by which the existing state of things has been brought. This statement is confirmed by **Charles Cumston** (1926) who said that we can never be in fully possession of a science until we know the history of its development (1).

The Islamic civilization started at the seventh century and progressed rapidly in a relatively short time.

The Quran- the holy book of moslims- mentioned the ears and the sense of hearing several times and stressed its importance for learning, understanding and the development of mental capabilities (2).

It also mentioned the larynx and the respiratory distress that may be fatal in cases of severe exhaustion (2).

The nose, mouth, face and ears received good hygienic care, as they should be washed several times daily in the process of ablution before the regular prayers.

There are several sayings by **Prophet Mohammed** to care about the ear, nose and throat and to use medications for their troubles. In this respect he encouraged the use of local antiseptics, the hot and cold fomentations and the occasional use of venisection, cupping and thermocautery (3).

During the subsequent centuries at the time of the Omayads and Abbasids dynasties, nearly more than one thousand eminent physicians led the progress of medicine in the main capitals of the Islamic world, Baghdad, Damascus, Cairo, Alexandria, Kairouan, Cordoba, Seville and Valencia.

The ear, nose and throat diseases and their management were taken care of by the general physicians, the surgeons and pediatricians.

By their good thinking and high skilful medical practice, they added new discoveries, inventions and information to the anatomy and physiology of the ear, nose and throat. They discovered new diseases and new lines of medical and surgical treatment. All that have documented in several large medical books of their own work, that remained the essential references for many centuries all over the ancient world (4).

Anatomy and Physiology of the Ear, Nose and Throat:

The previous knowledge of the anatomy and physiology of the ear, nose and throat was limited and the way of hearing and phonation was unknown.

Credit goes to **Rhazes** (850-923), **Avicenna** (980-1036), **Ali Ibn Abbas** (.....-994), **Abdol Latif El-Baghdady** (1161-1242), **Ibn El- Baladi** (.....-971), **Avinzoar** (1092-1162), **Abulcasis** (936-1013) and **Ibn El- Nafis** (1210-1288) for the detailed description of the anatomy and physiology of the ear, nose and throat. They devoted complete chapters in their medical books for that purpose. The books are **El Hawy** by **Rhazes**, the **Canon** by **Avicenna**, **Al Kitab El-Malaky** by **Ali Ibn Abbas**, the **Compendium in Medicine** by **El-Baghdady**, the **care of Pregnants, Infants and Children** by **Ibn El Baladi**, **El-Tayseer** by **Avinzoar**, **El-Tassrif** by **Abulcasis** and **El-Shamel fi Sinaat El-Tibb** by **Ibn El-Nafis** (6, 7, 8, 9, 10, 11, 12).

The anatomy of the ear received good description by **Avicenna**. The auricle has a funnel shape to collect sound waves, the external auditory canal has a narrow curved passage to protect the ear drum and to keep the external ear warm. This shows the importance of using warm ear drops in therapy. The drum is a thin membrane that responds to sound vibrations (6, 7). **Ali Ibn Abbas** (11) **El-Baghdady** (13) and **Ibn El-Nafis** were the pioneers who corrected the wrong belief of a single common nerve to the ear and face and proved that there are two separate cranial nerves for them. Avicenna was also the first who explained hearing as reception of sound waves on the ear drum (7).

The anatomy of the pharynx and larynx received detailed description by **Avicenna**. He described cartilages, ligaments, joints and the small muscles of the larynx, and identified their role in performing the different laryngeal functions (7).

Ibn Sidah, the eminent scientist and linguist of the tenth century, wrote a large text book, **"Al-Mokhassus"**, on speech and singing. He described the characters, degrees and types of human voice. He added new scientific terms to describe the voice intonation, rhythm, humming, repetition, and resonance. He differentiated between nice tone voice, husky and melancholic voice (17).

Further phonetic studies were given by **El-Faraby** (878-950), the great Arab philosopher of the tenth century in his large valuable book **"The Great Musician"** (18). More significant additions were found in the writings of Safa Brothers, a group of Arab philosophers who wrote a large collection of treatises on speech and other subjects They explained the sound, the speech and the language (21). Their studies are considered the summit of purely scientific feat, and forms the bases of the present phonetic science (18, 28).

The Ear, Nose and Throat diseases:

At the middle ages there were no available equipment or tools for the diagnosis of diseases. The Arab physicians by their good observation and clinical skill were able to diagnose most of the known diseases of the ear, nose and throat.

As early as the nineth century a complete documentation of the diagnosis and management of the diseases was available and large numbers of text books were put and became the main references for many centuries.

Rhazes (850-923) devoted a medical book to deal with diseases of the teeth, ear, nose and throat, beside complete chapters in his large voluminous book **"El-Hawi"**. He used to examine patients under direct sunlight or by the use of reflecting mirrors, using special specula for the ear and nose and tongue depressors for the mouth and throat (4).

He described the inflammatory diseases of the external and middle ear and enumerated their complications, beside the description of the other diseases of the nose, mouth, pharynx and larynx (23).

He was the first to describe seasonal rhinorrhea and gave its causes, beside the study of different forms of common cold. He was also the first to differentiate measles from smallpox and corrected the wrong belief of being one disease (22, 25).

He identified alcohol and was the first physician who used it as a good antiseptic.

In surgery he has new additions and discoveries. He has the credit of being the first physician who used the general inhalation anesthesia in the form of the anaesthetic sponge. A sponge immersed in a solution of opium, hyocyamus, mandragora and loisleuria for inhalation before any surgery (10). He used catgut in surgical practice for the first time. He used to sterilise the instruments in a fresh liquid of bile. He devised new surgical instruments used in his surgical practice. The most admirable device was his invention of the knotted rope for the removal of nasal and nasophayngeal swellings. It is a thin rope with multiple knots, passed through the nose to the mouth and moved in and out, having the same action as the present Gigli saw (25).

Avicenna (980-1036) was one of the leading Islamic physicians he collected and synthesised much of the earlier work adding to it at the same time. His major medical text book **"The Canon"** became one of the main references in medieval time. It presents a monumental contribution not only to medieval medicine but also to the universal history of professional medicine of all times. It was preferred over the previous medical works of **Hippocrates**, **Galen** and **Rhazes** in teaching in eastern and Western Universities.

His study of diseases and their management partly borrowed from antiquity and partly developed from his own empirical observation and practice are still alive in the traditional medicine in the far east countries.

In his large encyclopedia of medicine, El-Canoon, he devoted complete chapters for the anatomy, physiology and diseases of the ear, nose and throat (7).

For the diagnosis of the E.N.T. diseases he used reflecting mirrors, special specula and the use of finger palpation to differentiate between different swellings. His high skill in palpation enabled him to diagnose oral, pharyngeal and laryngeal diseases with great accuracy. He could differentiate between benign and malignant lesions and was able to diagnose vocal cord paralysis without any light visualisation (7).

He gave detailed information about the ear, nose and throat symptoms as deafness, tinnitus, vertigo, rhinorrhea, hoarseness, dysphagia and stridor.He enumerated the known causes of deafness and tinnitus and enumerated at least five types of tinnitus and referred for the first time to the oto-toxic deafness and tinnitus (5).

He devised new tools and instruments for the examination and diagnosis of diseases. He described a new way for evaluating the level of hearing by a free field voice test. He devised also for the first time a new curved metal tube made of silver of or gold passed orally to the larynx to save suffocating patients. However, some historians have wrongly attributed the performance of the first endotracheal intubation to **Mac Ewan** and **Eisenmenger** in 1847 (16).

He used to perform his surgical operations under general inhalation anaesthesia by the anaesthetic sponge, and to sterilise the instruments in fresh liquid of bile and devised new instruments for surgery of the ear, nose and throat (19).

Ibn El-Baladi (.....-971) was an eminent pediatrician during the tenth century, who wrote complete chapters on diseases of the ear, nose and throat in his large medical book **"Care of Pregnants, Infants and Children"** (8). He discussed in details the congenital, traumatic, inflammatory and neoplastic diseases of these organs (8).

Avinzoar (1092-1162), a great physician of Andalucia, who lived in Seville during the 12 th century. He wrote a large medical book **"El-Tayseer"**, in which he fully discussed diseases of the ear, nose and throat.

He was the first Arab physician who protested the humour theory of Hippocrates, he denied the four humours of the body and confirmed the presence of one body liquid which is the blood (12, 24).

He was the first who gave a real scientific etiology of the inflammatory diseases of the ear, clearly discussed causes of stridor and gave a correct description of the tracheostomy operation for suffocating patients (12).

Abulcasis (936-1013) whose full name is **Abol-Kasem El-Zahrawy**, the great surgeon of the 11th century, who is honourably considered the Father of Arab and European surgery. His large medical text book, **"El-Tassreef"**, is the first classic reference of his time. The thirtieth volume of this book is devoted to general surgery in which surgery of the ear, nose and throat is described in detail (6, 9).

His great fame as an eminent surgeon made historians to consider him of equal standard to **Hippocrates** and has even exceeded his reputation as his surgical techniques have flourished all over the world until the 18 th. century and persisted in a modified may in our present surgery (10, 19).

He devised about 200 new surgical instruments as knifes, curettes, retractors, spoons, sounds, hooks, rods and specula (26).

In his surgical practice he adopted the Arab innovations and additions as the use of the anaesthetic sponge for inhalation anaesthesia, the use of ice locally for surface anasthesia, the sterilization of the instruments in a fresh solution of bile. As **Avicenna** and **Ali Ibn Abbas**, he used to ligate bleeding vessels at operations which is a new Arab addition (10, 19, 26).

Abulcasis revolutionized thermo-cautery as he devised many new cauterising tools for the different purposes and used them in treatment of many diseases. This rational proper use of thermo-cautery convinced historians to consider him the real inventor of thermo-cautery (9).

The Islamic medical history comprises many other eminent examples of great physicians, who added important innovations and discoveries to the

field of the ear, nose and throat. Those who can be mentioned with great respect are **Ali Ibn Abbas El-Magoussy** (?-994) and his large text book, **Al-Kitab El-Malaky**, **Ibn El-Gazzar** (899-979) and his medical book **Zad El-Mosafer**, **Abdel-Lateef El-Baghdady** and his **Compendium of Medicine**, and **Ibn El-Nafis** (1210-1288) and his large medical book, **El-Shamel Fi Sinnaat El-Tibb**.

Conclusions

Islamic medicine is characterised by good personal experience and high clinical observation away from mythologies and legends.

The ear, nose and throat exemplifies the participation of Islamic medicine and the contribution of the great Arab physicians in the study of anatomy, physiology and diseases of these organs.

The Arab addition, discoveries and innovations were very helpful in the progress of medicine. They were all quoted by the European physicians and helped in the rapid appearance of the European renaissance.

A final word that deserves to be mentioned is that declared by the European physician De Boer who said "Medicine was absent till Hippocrates created, dead till Galen revived, dispersed till Rhazes collected, deficient till Avicenna completed (19).

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