

International Society of History of Otorhinolaryngology

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Introduction

Otological diseases have always existed but have been appreciated in very different ways throughout time and place. As part of an ongoing project, the question arose of what was the status of Otology in the era, called late antiquity¹, 200 to ~600 CE, from the Roman Empire's Crisis of the Third Century² (c. 235 – 284) to, in the East, the period of early Islam (7th – 9th centuries), following the Muslim conquests in the mid-7th century? A systematic search and analysis using fifteen (15) search words of the translations of original source material for this period was accomplished.

Late antiquity is considered as a time of little intellectual and scholarly advancement and social, political, military upheaval. There were little advances in what we consider Europe. There is the tradition of Saint Cadoc³, 497 - 580 CE, from Wales who was believed to be able to prevent or restore hearing loss. A number of shrines throughout Wales and Brittany were dedicated to him. These were usually found near water, the sea or a spring. An example is found in the Church of St. Cado in the Etel estuary in Southern Brittany which is called the 'bed of St. Cado', a large stone structure with a small cavity on one side in which the supplicant squeezes his or head into and presses the afflicted ear against the bed. Other interventions were pouring water, honey, etc. into the afflicted ear and offering the appropriate prayers⁴. This appears to be representative of status of Otology in much of western Europe.

Examination of the source material of the near east, Persia, present day Iran found a different story for Otology. It must be noted that there is scholarly difference in opinion concerning the actual location of these events⁵⁻⁸ but not their substance. The most consistent of these histories concerns the academic activities carried out in the city of Gondishapur⁹. This was located in Khuzestan province in south western Iran near the present towns of Teppeh – ye -She and Teppeh – ye – Khākestar. The site has been inhabited since pre historic times and has a number of different names. It was rebuilt after Shapur I defeated the Byzantine Emperor Valerian and conquered Antioch at the end of the 3rd CE. It was called Veh-AZ-Andev-Shapur which in Palavi meant 'Shapur better than Antioch'⁵. Subsequently it was changed to Gondishapur or Gundishapur. It is called Jundishapur in Arabic and Beth Lapat in Syriac. Shapur II who reign from 309 to 379 CE made Gondishapur his capital which made the city a center for science, culture and silk production. Gondishapur appears to have been functional until the 13th CE and is now ruins.

The Sasanian Empire¹⁰, Persia, was the dominant military, economic and cultural force in the western and middle eastern worlds from the beginning of the 3rd CE until the conquest of the Muslim Arabs in the 7th CE. As part of a Roman – Persian peace treaty the Emperor Aurelian gave his daughter to be Shapur I's wife. Two physicians accompanied her to Persia and brought with them Hippocratic Medicine to the Orient¹¹. Shapur II expanded Sasanian Empire and established the educational center – the academy – in Gondishapur. The academy was unique in that it had two faculties, Philosophy and Medicine, but Medicine was not taught but a person acquired their skills through apprenticeship and usually the skills were passed on from father to son, it was a family business. The school at Gondishapur had formal instruction and required examination for certification as a physician^{7,12}. Education was carried out in a hospital setting which has been noted to be the model for present day academic medical centers^{12,13}. The medical faculty was continually enriched in the Hippocratic and Galenic traditions by the arrival of Greek and Roman physicians following their expulsion from the west. These came from Antioch and Istanbul in 263 CE, from Edessa in 489 CE and from Athens in 531 CE¹¹. The medical knowledge from India was acquired as noted by the Persian Emperor Chosrau who reigned from 531 to 579 CE sent the physician Burcoe to India and he returned with knowledge of Indian Medicine. The medical school became the depository which preserved all of Western and Eastern Medicine.

No information was found concerning any aspect of Otology in the medical sections of the Cambridge History of Iran volumes 1 and 2^{14,15}. There is the assumption that the teaching of Hippocrates and Galen were taught. The medical school at Gondishapur had access to and translations of the Indian texts and it can be assumed that these were part of curriculum for the education of the physicians.

One of these was the Shruta Samhita¹⁶, an ancient Sanskrit text on Medicine and Surgery, and an important treatise to survive from the ancient world. The Compendium of Suśruta is one of the foundational texts of Indian traditional Medicine and is of historical importance because it includes historically unique chapters describing surgical training, instruments and procedures. It was compiled in the first millennium BCE and the current text dates from the 6th CE. A number of the search words were found to be associated text. Deafness was caused when one of the body humors – Kapham – stuffs the sound-carrying channels of the ears. Otitis The disease caused a piercing pain in the region of the cheek bones, head, temples, and neck gives rise to a sort of aching pain in the tympanum. The local hearing loss, deranged and saturated with the body humor – Kapham – stuffing the nerves which conduct of the sound of speech, produces complete ad in some cases partial loss of the power of speech e.g. Muka (dumbness), Minmina (nasal voice) and Gad-gada (indistinct speech). There were twenty-eight (28) different forms of ear disease noted including tinnitus, otalgia, otorrhea, pruritus, vermin infestation, fetor, four (4) types of polyps and cysts, seven (7) kinds of tumor and four (4) types of swellings.

There was a variety of interventions which included ear drops for deafness which consisted of oil with goat's milk, different herbal and other potions, use of powders and diet. Vermin was removed with the help of a probe or by cutting with a horn.

There is an extensive section, fourteen (14) pages, devoted to the care of the pinna including the ear lobe. Lobules of the ears of infants are usually pierced for protecting it from evil influences of malignant stars and sprits and also for ornamentation -ear rings. There are specific surgical instructions for ear piercing which included a good light, a quite the child, do the right one first and then the left second. Also make sure that there are no bad omens. If there was bleeding, infection and/or pain then the surgeon was in the wrong place. If there was swelling or pain, then remove the lint dressing and apply ointments.

There is a description of plastic surgery to the ear lobe caused either from malformation or trauma.

“The process called Ganda Karna consists of slicing off a patch of healthy flesh from one of the regions of the cheeks and adhering it to one of the severed lobes of the ears which is more elongated on its anterior side than the other. In case of extremely short lobes the flesh should be cut off from both the cheeks and adhered to them, the process known as Áharyaya. The lobes of the ears which have been completely severed from their roots are called Pithopamas. The process known as the Nirvedhima should be resorted to in such cases by piercing the two Putrikás (Tragus and Anti Tragus) of the ears”. The ten (10) other procedures are listed.

Total pinna reconstruction

“A surgeon well versed in the knowledge of surgery (Shástras) slice of a patch of flesh from the cheek of a person devoid of ear lobes in a manner so as to have one of its ends attached to its former seas (cheek). Then the part, where the artificial ear lobe is to be made, should be slightly scarified (with a knife), and the living flesh, full of blood and sliced off as previously directed, should be adhesioned to it (so as to resemble a natural ear lobe in shape).”

The postoperative care is detailed with the use of bandages and ointments.

Here, in the 6th CE in Gondishapur, is the detailed description of a pedicle cheek flap for the reconstruction of the pinna.

The procedure is only described but not illustrated. Surgical illustration, although quite crude in an occasional medieval manuscript, does not appear until the 16th CE¹⁷. There is no mention or illustration of a pedicle cheek flap for pinna reconstruction in four (4) significant surgical illustrated texts of the 16th¹⁸⁻²⁰ and 17th CE²¹. The classical plastic surgical text of Tagliacozzi¹⁹ of 1597 CE description in chapter 20 On the restoration of mutilated ears states: “In short the, this procedure consists of dissecting a graft, engrafting it, treating it, and shaping it. We do not take this graft from the upper arm but from the area behind the ear... The time, attention, and diligence we use in delineating, treating, freeing and engrafting the skin flap are not required here, as the entire graft is excised and engrafted onto the wound immediately after the surgeon outlines it.”

In so far as can be determined the knowledge and technique of the cheek pedicle flap for pinna restoration did not become part of the western medical armamentarium.

Conclusion

During the period of late antiquity, the medical knowledge of both the East and West were taught preserved in Persia, most likely in the city of Gondishapur. For the first time an Academy – University – had two separate faculties, the traditional Faculty of Philosophy and Religion and the new Faculty of Medicine. The Medical Faculty initiated study of East and Western medical texts, practical – bed side - learning in the hospital, required emanations and had students from diverse backgrounds. Amongst the knowledge available was that of a pedicle cheek flap for pinna reconstruction which was not incorporated into the western medical cannon.

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