

## HISTORY OF ONCOLOGY

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# Views on ocular cancer in arabo-islamic medicine and the leading influence of the ancient Greek medicine

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## Summary

In the ophthalmological treatises of the medieval Arabo-Islamic physicians such as al-Mawsili (9<sup>th</sup> - 10<sup>th</sup> century), al-Kahhal (ca. 940-1010), Haly Abbas (10<sup>th</sup> century) and al Sadili (14<sup>th</sup> century) we may find references about ocular cancer, focusing on eyelid tumors and cancerous ulcers of the cornea. These references are similar to the anal-

ogous ones of ancient Greek physicians as these are preserved in the medical texts of the most famous Byzantine doctors, indicating the influence of ancient Greek medicine in the Arabo-Islamic one.

**Key words:** ocular cancer, history of ophthalmology, arabo-islamic physicians, ancient Greek medicine

## Introduction

In the medieval period the Arab-Islamic world developed an important medical tradition leading in several discoveries and innovations. The medieval Arabo-Islamic medicine finds its roots in the Hellenistic culture but it does not just repeat the Graeco-Roman ideas; it goes further in developing a distinctive medical tradition. Translations of ancient Greek medical texts into Arabic transmitted the Hellenistic thought to philosophers and scientists. Furthermore, these Arabic texts were translated into Latin passing the knowledge in the Christian West [1,2].

However, the influence of the ancient Greek medicine remains dominant as it was the base of the arabo-islamic medical education. These influences can be detected in all fields of medical science including the concepts on ocular cancer.

## Ocular cancer in ancient Greek medical literature

Although ancient Greek physicians were very interested in cancer and devoted many and long medical treatises in order to describe, explain and teach several types of cancer, the surviving references concerning ocular cancer are very few and come to us from indirect sources [3]. This fact is not easily explained. We could think that the lack of numerous references about this special type of cancer is due to its rare appearance or we could place the hypothesis that the majority of the manuscripts on ocular tumours were lost [4]. This second hypothesis is supported by the fact that several treatises about ocular pathologies written by important ancient Greek physicians such as Galen (130 - 201) [5], Soranus of Ephesus (98-



**Figure 1.** Oribasius (ca. 325-403 AD) who identified tissue necrosis in uterine cancer.

138) and Aretaeus of Cappadocia (2<sup>nd</sup> century AD) have been lost [6]. It is very probable that in these lost books there would have been special chapters devoted to eye cancer. Nevertheless, the general view, which was repeated many times in ancient Greek medical texts, that cancer can be found in every organ, is an indication that physicians were also concerned about ocular cancer.

Specific references about eye cancer are found in the medical texts of the most famous Byzantine physicians, who in their turn preserved the knowledge of the past. Oribasius (ca. 325-403 AD) saved the views of Rufus of Ephesus (1<sup>st</sup> -2<sup>nd</sup> century AD) concerning eyelid cancer [7] and Aetius of Amida (ca. 502-575) preserved the views of the eye specialist Demosthenes Philalethes (1<sup>st</sup> century AD) on cancerous ulcers found in the dark spot of the eyeball, meaning probably iris and cornea [8]. Ocular ulcers were considered cancerous and they were described as painful and difficult to treat. It is pointed that they may appear mostly in elderly and they could provoke pain not only in the eye area but also in the head. An analogous

description can be seen in the reference of Paul of Aegina (ca. 625-690 AD) about corneal cancer [9], where all the symptoms described above are repeated mentioning also the severe pain and the incurable of the condition. Similar references are also found in the writings of Joannes Actuarius (ca. 1275 - ca.1328) [10].

## Ocular cancer in Medieval Arabo-Islamic medical literature

Of all the branches of Arabian medicine the most studied was ophthalmology. The oculist in the days of the caliphs was an honoured member of the medical profession and occupied a unique place in the society. Arabo-islamic ophthalmologists showed impressive skills in the treatment of trachoma, trichiasis, entropion and cataract and provided a detailed description of eye anatomy and affections [11] (Figure 1). Furthermore their descriptive drawings and original forms of the surgical instruments passed on to surgeons in the West contributing in the development of current ophthalmology. However in their manuscripts sparse passages on ocular cancer are found mentioning the redness of the eye, the varicose-like appearance of the ophthalmic vessels, the burning sensation, the severity of the pain and the constitutional symptoms [11].

Abu'l-Qûsim Ammar ibn Ali al-Mawsili (ca. 9<sup>th</sup>-10<sup>th</sup> century), known as al-Mawsili or in the West under his Latinized name Canamusali, in his book on ophthalmology entitled: "The Select Work on the Treatment of the Eye" wrote about the incurable and painful ocular cancer [12].

In his turn, Alī ibn Īsā al-Kahhal (ca. 940-1010), surnamed al-Kahhal (meaning the oculist) and known with his Latinized name Jesu Occulist, in his famous ophthalmological treatise: "Note-book of the Oculists", described eyelid cancer as a disease that was mainly affected the elderly and was incurable [13].

‘Ali ibn al-‘Abbas al-Majusi (died 982-994), also known as Masoudi, or as Haly Abbas, in his famous book "Kamil al-San’aa al-Tibbiya" (The complete art of medicine) translated by Constantine the African in the 11<sup>th</sup> century, he mentioned the corneal cancer and ulcers [2].

Sadaqa ibn Ibrahim al Sadili (ca. 14<sup>th</sup> century), the author of the last Arabian treatise on the eye entitled: "Oculistic aids for diseases of the visual apparatus", pointed out that ocular cancer can be detected in every place of the eye but especially on the cornea [11].

## Discussion

The information concerning eye cancer found in ancient Greek medical literature remained unchanged in the Medieval Arabo-Islamic one. The Greek idea that ocular cancer can occur in every place of the eyeball but mainly on the cornea, was adopted by Medieval Arabo-Islamic physicians who also repeated that this type of cancer was ulcerous, painful and mainly incurable. Eyelid cancer was the second type of ocular cancer found in the Arabo-Islamic medical texts as it was earlier in the Greek ones. Arabo-Islamic physicians did not argue the concept of cancer therefore they espoused the Greek view about the disease stating that cancer was a disease where tumors and ulcers can be present. Hence the descriptions of ancient Greek and Medieval Arab physicians about ocular cancer do not comply with the doctrines of

modern medicine about the disease [14].

## Conclusion

The numerous treatises on eye anatomy, physiology, pathology and optics written by Arabo-Islamic physicians show their surprising and unexampled interest on ophthalmology. Nevertheless, despite the discoveries and innovations introduced mainly in the field of ocular surgery, these physicians followed the doctrines of ancient Greek ones regarding the anatomy and the pathology of the eyeball. Galen influenced the Arabo-Islamic physicians especially in ocular anatomy, while the Greek ideas on ocular pathology interfused Medieval Arabic medical literature. This phenomenon was repeated in the case of ocular cancer, where Arabo-Islamic physicians did not challenged ancient Greek perception on the subject.

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