ORIGINAL ARTICLE

An Analytical Investigation of Causes and Methods of Eye Neoplasm Ttreatment in Islamic Civilization

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Abstract

The eye and its treatments and surgeries used to be taken as a profession in ophthalmology during old Islamic civilization, just as surgery which used to be a completely independent branch of medicine. A glance on numerous works done and written on the eye and its treatments during Islamic era illustrates the fact that Islamic physicians knew most of eye diseases, and posed some theories about the eye and its diseases in theirs books.

The present study tries to scrutinize on Muslim physicians' ideas about Eye Neoplasm, its causes and treatment and to compare them with modern medicine. This is a descriptive-analytic library research aiming at highlighting Muslim physicians' perceptions of Eye Neoplasm and their suggested treatments. The results showed theories of Eye Neoplasm posed by Muslims and also their suggested treatments were of totally scientific bases and in accordance with modern medicine sources and methods.

Key words: Eye Neoplasms, Islam, Medicine, Physicians

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Introduction

The main medical fields in which Muslim physicians were so adroit were eye surgery, diseases and ways to cure them[1]. Muslim physicians had many investigations on eye diseases in different places at different time periods. Muslim scientists knew the variety of eye diseases, including cataracts, tumor, hyphema (bleeding in the eye), pterygium, strabismic, ophthalmia, stye, conjunctivitis, and scabies and prescribed herbal remedies, drugs and even surgeries for their treatment. Eye neoplasm is one of these diseases found in Muslim physicians' books.

This study is going to analyze Muslim physicians' ideas about causes and treatments of eye neoplasm. The main aims of the study are as below:

- To explain medical treatments used by Muslim physicians for eye neoplasm,
- To illustrate Muslim physicians' perspectives on modern medicine about eye neoplasm

A thorough study through the Internet search engines ended in two main valuable sources including "*Researches of Principles and techniques of eye surgery in Islamic Medicine*" by S. Mahyar Shariat Panahi and "*An investigation of the theory evolution in Muslim Scholars Works*" " by Yusuf Beygbabapoor, which is mostly about eye surgery. None of the available sources were directly about eye neoplasm treatment. This is a descriptive-analytic library study, and most of the sources were old hand-written books by original authors on traditional medicine.

Eye neoplasm disease in modern medicine

Eye neoplasm and the loss of sight are among the most horrific conditions imaginable. Eye neoplasm involves ocular tumors, which can be either benign or malignant[2].

Among eye diseases, diagnosis of ocular tumors is important because, in addition to the inelegant appearance, it causes visual impairment and, even in most cases, complete visual loss, and rapid dissemination to other organs such as the brain, the eye bowl, sinuses and even distant organs in many cases, accelerating the death of the patients. These tumors are divided into intraocular and ocular types[3].

Eye neoplasm has different types and can affect various parts of conjunctival sphere, eyelids, eye glands, and orbit[4]. The most common malignant intraocular tumors are divided into two groups, called melanoma and retinoblastoma[5]. Reti-

1- Elgood, 1992: 68.
2- Barbosa, 2014: 224- 226.
3- Daneshgar, 1975: 242.
4- Voogan, 1996: 271-272.
5- Finger, 1999: 983-996.

noblastoma is the most common intraocular tumor in children with an incidence of one in 15,000 live births and begins with the retina which is the inner and light sensitive layer of the eye. The eye melanoma is also created in the uvea, including the choroid, the ciliary body, and iris, causing a tumor in this area[6], which amounts to approximately ¾ new cases per million[7].

Symptoms of eye neoplasm in modern medicine

Ocular tumors have different symptoms, including glaucoma, phacoemulsification and cataracts, which are considered as complications of intraocular tumors. Leukocoria (white pupillary reflex), leukemia, conjunctivitis, cat's eye amaurosis, scintillating scotoma, floater, blurred vision, visual impairment, and increased eye pressure are also other symptoms of eye tumors[8, 9].

Prevention and treatment of eye neoplasm in modern medicine

Medical prevention is a branch of medical science aimed at maintaining and improving the health of general population. The medical history of modern prevention dates back to the eighteenth century when it was recognized as a distinct branch of public health; more interestingly, preventive medicine was established even before the recognition of living pathogen[10].

Various therapeutic strategies have been proposed for the treatment of eye neoplasm and its various tumors. Early diagnosis and timely recognition will prevent accurate tumors from causing disturbances and vision loss in patients. Of these treatment strategies is chemotherapy method, by which the tumor can be destroyed or the size of the primary tumor can be reduced[11, 12]. Other treatments include surgery, eye drainage and radiation therapy with external radiography for larger tumors and cryotherapy, laser therapy, and plaque radiotherapy for smaller tumors[13-16].

Early diagnosis of tumors based on signs and symptoms of possible vision problems is important in the course of treatment; given that in some cases, vision problems are the first clinical symptoms[17].

Eye neoplasm causes from Muslim physicians' point of view

Neoplasm is discussed in Islamic medicine in the context of

6- Kincaid, 1998: 299- 309.
7- Barbosa, 2014: 224- 226.
8- Daneshgar, 1975: 242.
9- Voogan, 1996: 271-272.
10- Hatami, 2006: 918.
11- Naseripour, 2009: 187.
12- Shields, 1997: 2101- 2111.
13- Roatry, 1988: 1983- 1987.
14- Shokrani, 2009: 114.
15- Olyaie, 2015: 2-11.
16- Shields, 1990: 20-26.
17- Daneshgar, 1975: 245.

oncology and is classified into hard inflammation solid tumor and cold inflammation[18]. It is elaborated on based on Akhlat and their changes. The organs of the human body are formed and fed from four main substances, called "Akhlat". They are sauda, safra, balgham, and damavi. Human beings need a certain amount of these materials to maintain their health. Any of these akhlat going outside of its ordinary amount, leads to illness in people[19].

Muslim physicians, classified eye neoplasm as types of cornea diseases, which mostly appears as a tumor in superficial cells of cornea[20-30]. Rhazes also wrote in his book *Al HaVi* that the cause of the onset of eye neoplasm is an inflammation out of phlegm. He believed it is a terminal illness, and neoplasm in the eye grows in the layers of the eye that always have pain and tensions, redness and hole in the curvature of the cornea[31]. Cornea neoplasm is a very rare disorder; however, if happens, it spreads fast and annihilates the eye[32].

Muslim physicians names another eye disease as eye inflation which is of four types, one of which is cancerous and its substance is a dark colored thick liguid and its sympthoms are not accompanied with pain[33, 34]. Is disease is mostly seen in females[35, 36]. It spreads in eye lids and eyebrows and is prevalent in winters[37]. So eye neoplasm can take the whole or parts of cornea[38].

Symptoms of eye neoplasm based on Muslim physicians' perspectives

Muslim scientists mentioned the symptoms for eye neoplasm that are related to the degree of disease progression. In the medical sources, it includes the symptoms of an individual who suffers from an eye neoplasm as eye pain, vasculitis in the eye veins, severe burning in the head, especially when the patient moves, reddening in the layers of the eye, anorexia, and annoyance from any sort of heat[39-41]. Rhazes noted Honayn ibn Ishagh as saying that other symptoms of the disease would be the pain caused by using kohl by the patient, and it is useless as a treatment[42].

Ismaeil Jorjani in the book *Zakhireye Kharazm shahi*, also pointed to symptoms of eye neoplasm such extreme pain which is still unbearable even after using strong drugs and redness of the eye veins. He also believed that the treatment of this disease is difficult, and believed no drug is effective because there is no hope of recovery from neoplasm[43]. Hemavi said that in this eye disease, the eye and eyelids inflate

18- Jorgani, 1966: 555.
19- Avicenna, 1989: 40.
20- Ghafghi, 1987: 408.
21- Hunayn, 1928: 135.
22- Kashkory, 1984: 47.
23- Hakim, 2004: 156.
24- Hemavi, 1407: 365.
25- Hariri, 1979: 67- 68.
26- Kahal, 2008: 245.
27- Baghdadi, 1983: 109.
28- Haly Abbas, 1997: 224-226.
29- Samarghandi, 2013: 56.
30- Samraei, 2010: 134.
31- Rhazes, 2014: 98.
32- Jorjani, 2012: 187.
33- Jorgani, 2012: 277.
34- Shah, 2008. 214.
35- Ibn Hashem, 1984: 174.
36- Haly Abbas, 2008: 377.
37- Zahravi, 2004: 433, 434.
38- Hemavi, 1407: 370.
39- Haly Abbas, 1997: 224-226.
40- Avicenna, n.d.: 349.
41- Nazem Jahan, 2008: 349.
42- Rhazes, 2014: 103.
43- Jorgani, 2012: 257.

and much flesh is produced on upper lips of eye lids, and eye lids cannot close due to inflation and infection[44]. Jorjani Yamani said this problem leads to fainting and headache in patient[45]. So, in view of most of Muslim physicians, eye neoplasm symptoms are the same.

Prevention and treatment of eye neoplasm from the perspective of Muslim physicians

The priority of prevention to treatment is an accepted principle in all schools of medicine, and each school, based on its principles, it provides specific ways and means for maintaining health and preventing diseases. Physicians of Islamic civilization were devoted to this subject and provided more practical solutions for maintaining health[46].

The solutions practiced by medical practitioners in Islamic civilization on eye neoplasm treatment included adopting a method. Generally, these methods were based on herbal therapies, which were presented in special forms of medicine, occasionally in the form of oral medicine, sometimes in the form of supplements, fasd, and sometimes in the form of suppositories.

One of suggested treatments for eye neoplasm is using a healthy food program. There are many nutritional prescriptions for the prevention and treatment of eye neoplasm s amost of Muslim physicians believe having special foods can increase visual power and avoid eye darkness and visual impairment and clean body blood. Foods with high nutritional value of this type included lamb meat[47], milk[48], wheat[49], moss green, squash, spinach, almond oil[50], and different types of juice[51]. The patients also must avoid having sour and salty foods and try to balance their taste[52].

Using different types of fasd can also be used in the treatment or prevention of diseases. Traditional physicians believed patients with eye neoplasm symptoms need fasd as soon as viewing symptoms, and the body should be cleaned from acid materials in their blood. This way we can stop the spread of neoplasm[53, 54].

Meanwhile, drug based treatment methods have been given special attention and are recommended. Among them, Avicenna presented a pharmaceutical version for treating some of the causes of eye diseases. In *The Canon of Medicine*, he mentioned that suppository made from egg white and yellow sweet clover (melilotus officinalis) and some saffron, white suppository, any suppository made from starch and Sepidab

44- Hemavi, 1407: 371.
45- Jorjani, 2012: 187.
46- Naseri, 2016: 61.
47- Kahal, 2008: 245.
48- Rhazes, 2014: 134.
49- Ibn Hba allah, 2000: 81.
50- Jorjani, 2012: 186.
51- Haly Abbas, 1997: 224-226.
52- Jorjani, 2012: 363.
53- Ibid.
54- Kermani, 2015: 165.

and Arabic gum and opium, any softening and sedative drug, Samardion suppository, Ma'mun suppository, and Ghirouti paste (a mixture of egg yolk and flower oil) can all be useful[55]. Accordingly, it is clear that Islamic Medicine physicians aimed to treat neoplasm with these anti-cancer herbs.

Rhazes considered eye neoplasm a terminal illness, and he thought the pain in the eye is more severe than that of any other organ in the body and believed this pain is somewhat relieved with medication, but that the use of medications can lead to extreme pain[56]. Rhazes accurately introduced the recommended method in each diagnosed case and presented several different drugs. One of the treatments used by Rhazes is the use of obstruent drugs, melting drugs, dropping fenugreek juice, temperament cleansing, drying drugs, use of eggs' white and pouring softening suppositories in the eye, hydrotherapy, enema, and blood cleansing and body massage[57]. Baqdadi also proposed different drugs to cure eye pain, one of which was using suppository[58]. Physicians of Islamic civilization used gum and tragacanth as an effective material for eye eradication[59, 60]. These results show that the drugs used by Muslim physicians to treat ocular diseases included obstruent materials, openers, cleansers and detoxifiers.

According to Muslim physicians' recommendations for eye neoplasm, the disease has a high spread and penetration, and its treatment in the body is difficult; as a result Muslim physicians classify this disease as a terminal illness.

Rhazes believed if treatment of this disease cannot be achieved, and symptoms such as pruritus and sneezing appear, the cause of these exacerbations should be sought in the intracranial vessels. He also introduced the following as the intracranial factors:

- The emergence of tumor or inflammation,
- Elongation of the eye layers, caused by accumulation, and
- The compressed winds in these layers[61].

As a general rule, the source of ocular diseases is either from outside or inside the skull.

In *Zakhireye Kharazm shahi*, Jorgani only received a medicinal prescription, and considered the use of Surma (kohl) as beneficial. This medicine is made from a mixture of furnished antimony, bloodstone, farina, Glaucium, fig, pearl, albumen, yolk, and flower essence, which are mixed and put in eyelids. Then, fresh milk and coriander essence are seeped into the eyes with good results[62]. Hemavi provided effective

55- Kahal, 2008: 245.
56- Rhazes, 2014: 134.
57- Ibid.
58- Baghdadi, 1983: 109.
59- Hariri, 1979: 67- 68.
60- Shirazi, 2009: 48.
61- Baghdadi, 1983: 109.
62- Haly Abbas, 1997: 224-226.

drugs to reduce eye neoplasm pain[63]. Kahal also explicitly stated how to make eye neoplasm drug to reduce pain in the book of *Tazkerat al kahalin*[64]. Muslim physicians initially tried to cure this disease and to eliminate the pain and believed that it has no treatment, and it is deadly[65, 66] because no drug is stronger than it. That is why the patient can have infection by making a small scratch. If the material is absorbed by the eye after this treatment and the pain keeps on, the patient goes blind[67].

Muslim physicians used to follow special maxims and were completely familiar with eye structure. This can be seen from their precise explanations of eye diseases and their classifications of eye disorders. They believed eye neoplasm treatment was so difficult or if advanced was impossible. They believed the most optimistic measure for eye neoplasm was to stop its spread and avoid it to become malignant.

63- Hemavi, 1407: 372.
64- Kahal, 2008: 245.
65- Zahravi, 2004: 433, 434.
66- Nazem Jahan, 2008: 349.
67- Hemavi, 1407: 372.

Conclusion

In this study, a literature review was done, through which it was found that the principles of classification of eye neoplasm types were similar in both medical schools (modern medicine and Islamic Medicine), with the difference that in the modern medicine, the widespread and specialized types of eye neoplasm have been studied.

Based on the view of Islamic Medicine, the use of therapeutic methods, such as lifestyle modification based on hygiene, healthy nourishment, water therapy, exercise therapy and drug therapy as performed by Muslim physicians scholars, is considered as the first step in treatment. And Islamic Medicine recommends lifestyle modifications and the use of appropriate food and nutrition balances. In modern medicine, besides drug therapy, there are other treatments such as surgical, chemotherapeutic, laser, and radio therapies offered for eye neoplasm and are frequently used. Regarding ocular therapies in Islamic Medicine and modern medicine, it appears despite the difference in treatment perspectives in Islamic Medicine and modern medicine, treatment in each group is based on a specific procedure. In each method, a variety of oral and topical treatments are used along with common drugs, which can be considered as a complementary therapy. There is a need for more studies in order to investigate the validity of traditional treatments for eye neoplasm.

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