

CONFERENCE PAPER

Concepts and Therapies for Cancer from Islamic Golden Age to Ottoman Empire

S75



Abstract

From its origins during the Islamic Golden Age (8th–14th centuries) to its use and dissemination during the classical Ottoman medical tradition (15th–18th centuries), this article charts the development of cancer knowledge and treatment. This analysis shows a remarkable continuity in the humoral theory of cancer as a disease of black bile, drawing on important primary sources such as the writings of Rhazes, Avicenna, and Haly Abbas, as well as Ottoman surgical manuals (*jarrāh-nāmes*). Although the Ottoman texts were primarily used to translate and preserve classical Islamic knowledge, they also show a consistent medical paradigm in which a systemic approach to a feared and frequently fatal disease was taken through the use of diagnosis, diet, purgation, and cautious surgery.

Key words: Cancer, History of Medicine, Persian Medicine, Pharmacology

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Introduction

The challenge with cancer has existed throughout history. Physicians such as Rhazes (*al-Rāzī*), Avicenna (*Ibn Sīnā*), and Haly Abbas (*al-Majūsī*) methodically classified illnesses and their treatments during the 8th to 14th centuries, which is referred to as the Islamic Golden Age. Their encyclopedic works would define medicine for centuries to come. Deeply ingrained in Galenic humoral pathology, their theories on cancer were not relics; rather, they comprised a sophisticated and intricate system of knowledge (Emami, et al., 2024).

Across cultures and millennia, the history of cancer tells a tale of persistent medical difficulty. An important part of this story is the contributions of Islamic medicine, which is a synthesis of Greek, Persian, Indian, and indigenous ideas. Physicians such as Rhazes (*al-Rāzī*), Avicenna (*Ibn Sīnā*), and Haly Abbas (*al-Majūsī*) methodically classified illnesses and their treatments during the 8th to 14th centuries, which are sometimes referred to as the Islamic Golden Age. Their encyclopedic works would define medicine for centuries to come. Deeply ingrained in Galenic humoral pathology, their theories on cancer were not relics; rather, they comprised a sophisticated and intricate system of knowledge (Kardeh, and Kardeh, 2019).

The Conceptual Foundation: Cancer as a Disease of Black Bile

The four humors, blood, phlegm, yellow bile, and black bile (*al-saudā*), comprised the foundation of Islamic and Ottoman medicine. Disease was viewed as an imbalance (dyscrasia), whereas health was associated with a balance (eucrasia) of these humors. It was widely accepted that cancer was a disease that resulted from an overabundance of morbid, burned black bile. It was believed that this dry, cold humor would solidify into a hard, swollen tumor.

The descriptions provided by physicians of Persian medicine regarding the hallmarks of cancer were closely associated with this etiology. According to Avicenna's *Canon of Medicine*, cancer is a dark, hard, spherical swelling that is slightly warm to the touch. Its name, *saratān* (*Crab* in Arabic), came from the way it looked: the tumor itself represented the body of the crab, and the enlarged, engorged veins surrounding it symbolized the legs of the creature. By distinguishing cancer from a simple scirrhus based on its accompanying symptoms including pain, pulsation, inflammation, and angiogenesis, Jorjani improved the diagnosis in his *Zakhireh Kharazmshahi* (Mahjour, Khoushabi, and Noras, 2018).

Cancer was never regarded as merely a localized illness due to this systemic perspective. A tumor's presence was one indication of a humoral imbalance within the body. Therefore, the main objective of any treatment was to evacuate the body of the excess black bile in order to rectify this systemic imbalance. All physicians, from Rhazes to the Ottoman writers, supported this as a fundamental component of their treatment.

Therapeutic Strategies in the Golden Age: A Staged and Cautious Approach

The treatment protocols for cancer in the Islamic Golden Age were sophisticated,



multi-modal, and emphasized caution. The course of treatment was based on disease presentation and stage.

1- Systemic and Preventive Management

The first line of defense was always systemic purification (Said, and Bashar, 2011). This involved:

A. Purgatives

It was crucial to administer black bile purgatives repeatedly. Herbs like black hel-lebore, white agaric, and clover dodder (*Cuscuta epithymum*) were frequently pre-scribed. They were frequently taken with cheese whey or honey syrup to mitigate their adverse effects and speed up their action.

B. Diuretics

To prevent the further production of black bile, a particular diet was essential. In order to lessen the burning sensation of the bile, patients were instructed to eat “*cold and wet*” foods rather than “*hot and dry*” ones. Commonly suggested foods included chicken, young fish, purslane, pumpkin, cucumber, barley water, and cheese whey.

C. Venesection

Bloodletting from a vein near the affected area or a general site was frequently employed to remove morbid humors.

2- Local and Surgical Interventions

Local therapies are intended to treat wounds that already exist or stop the tumor from growing or ulcerating. Avoiding irritation, which was thought to exacerbate the cancer and hasten its spread, was a fundamental rule. Cooling and dissolving agents were used to make ointments and poultices. These included washed mineral sub-stances such as red Armenian bole, litharge, and zinc oxide, which were frequently combined with plant-based vehicles like chicory juice, rose oil, or black nightshade water (Emami, et al., 2024).

Surgery was only performed as a last resort on healthy patients with small, accessi-ble tumors in their early stages. According to Haly Abbas and Albucasis, the process was extreme. Following systemic purification, the surgeon was supposed to remove the tumor entirely, making sure that no “*roots*” remained. The surrounding veins were squeezed to release thick, dark blood after the wound was allowed to bleed heavily to remove any remaining black bile. Cauterization was occasionally employed to stop bleeding and eliminate any diseased tissue that remained. The risks were widely rec-ognized; Hippocrates’s adage that disturbing occult cancers causes death was often quoted. Rhazes himself noted that operating internal cancers frequently accelerated the patient’s death, and he promoted palliative care to increase life expectancy and lessen suffering in cases that were advanced or incurable.



Transmission and Practice in the Ottoman Classical Period

The Ottoman *jarrāh-nāmes* did not emerge in a vacuum but were products of this rich medical tradition. These texts were predominantly translations or adaptations of the great Arabic works of the Golden Age (Acıduman, Er, and Belen, 2021).

1- Knowledge as Translation: The Jarrāh-nāmes

The 15th-century work *Tarjamat al-Khulāsa fī Fenn al-Jirāha* (*Translation of the Summary in the Art of Surgery*), written by surgeon Mas'ūd, clearly identifies itself as a Turkish translation of an earlier Arabic work that was commissioned during the reign of the Abbasid Caliph al-Ma'mun. Similarly, the surgical chapter of Albucasis's *al-Taṣrīf* is creatively translated and illustrated in Şerafeddin Sabuncuoğlu's *Cerrahiyyetü'l-Hâniyye* (1465), the most well-known Ottoman surgical text. The contents of these manuals attest to their essential yet derivative function. An unidentified author's *Jarrāh-nāme* (c. 1504) gives a classic humoral description of cancer as a hard, deadly swelling that is firmly attached to the body and has roots and green veins. Venesection, frequent purging of black bile, avoiding causative foods, and applying cooling ointments made of ceruse, vinegar, and Armenian bole are all part of the same treatment regimen that was discovered centuries ago. Surgery is only recommended "if it is in an appropriate location for removal," followed by cauterization. The work of Surgeon Mas'ūd provides more targeted, regional therapies. He suggests shaving the hair, making a cruciform cut, and removing the mass "like a walnut with its shell" in order to treat head cancer. He then packs the wound with salt. He describes a complicated treatment plan for breast cancer that includes topical applications of tiny orpiment disks, ointments like *hawāriyyin*, and a special diet consisting of rice, chicken, and pomegranate treacle. He outlines treatments for heel cancer, which is thought to be caused by thick phlegm, including bone debridement if required, repellent plasters, and camphor ointment.

2- Continuity Over Innovation

The Ottoman texts give off a strong sense of continuity. In Mas'ūd's work, the cause of cancer is a "thick humor" or "thick phlegm," which is somewhat different from the rigid black bile theory but still falls comfortably within the humoral model. Rhazes, Avicenna, and Albucasis are directly credited with developing the therapeutic arsenal, which includes diet, purgatives, venesection, topical treatments, and cautious surgery. According to Acıduman et al., "nearly all of the examined works are translations and do not give new information on cancer different from their predecessors" (Acıduman, Er, and Belen, 2021).

It is important to distinguish this lack of innovation from a lack of worth. Their function as knowledge keepers and distributors accounts for the Ottoman *jarrāh-nāmes*' importance. They made sophisticated surgical and medical ideas understandable to a larger audience of Ottoman practitioners who might not have been proficient in Arabic, the traditional language of science, by translating these intricate Arabic works into Turkish. They guaranteed the continuation and usefulness of a millenni-



um-old medical custom (Acıduman, Er, and Belen, 2021).

Conclusion

From the Islamic Golden Age to the Ottoman Empire, the development of cancer theory and treatment is a tale of intellectual integrity and transmission. For more than 500 years, the fundamental idea that cancer is a systemic disease brought on by an imbalance of black bile has not changed. According to the dominant scientific paradigm, the treatment plans proposed by Persian and Arab physicians comprised a combination of medications, purgation, diet, and extremely cautious surgery, creating a comprehensive and logical systematic approach.

The crucial link in this chain was the Ottoman *Jarrāh-nāmes*. They were places of preservation and useful application rather than radical innovation. They ensured that the surgeon's hand was still guided by the knowledge of Rhazes, Avicenna, and Albucasis by faithfully translating the monumental works of the Golden Age into the vernacular. By undertaking this approach, they solidified an ongoing medical tradition that treated the patient as a whole, approached intervention with a sense of humility rooted in the understanding that certain diseases, even when completely comprehended, remain fierce enemies, and treated the disease systemically. The durability of medical concepts and the significance of cultural translation in the development of science and medicine are highlighted by this historical viewpoint.

Authors' Contribution

Hamed Ahansazan: Conceptualization, Writing original draft, Investigation, Methodology; Marziyeh Raeispour: Writing, Review and Editing; Niusha Esmaealzadeh: Supervision, Writing, Review and Editing, Conceptualizing. All authors read and approved the final version of the work.

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Conflict of Interest

The authors declared no conflicts of interest with respect to the research, authorship, and/or publication of this article.

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