CONFERENCE PAPER

Evolution of Surgery in the Ottoman Empire: From Islamic Heritage to Modern Practice

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Abstract
Surgery, as a fundamental branch of medicine, has evolved over centuries across different civilizations. In the Islamic world, pioneers such as Zahrawi, Avicenna, and other scholars advanced surgical practice both theoretically and practically. With the establishment of the Ottoman Empire in the 14th century, this heritage was transferred to Anatolia and Istanbul, adapting to unique socio-political, military, and cultural circumstances. Early Ottoman surgery relied on Islamic texts and Persian translations, with notable figures including Sherefeddin Sabuncuoğlu (1385–1468), Surgeon Ibrahim (active around 1505), and Ali Mensi (d. 1733) contributing to both practical techniques and theoretical knowledge. Iranian physicians such as Hakim Mohammad Sabzevari and Ghyath al-Din Sabzevari also played key roles in transmitting surgical knowledge. By the 19th century, the Tanzimat reforms and the establishment of Istanbul Medical School Integrated European methods, marking the emergence of modern surgery in the Ottoman Empire.

Key words: Surgery, History, Ottoman Empire, Persian Medicine, Medical Education

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Introduction

Surgery is one of the core branches of medicine and has a long historical trajectory across civilizations. In the Islamic world, pioneers such as Zahrawi (d. 1013 CE), Avicenna, and other scholars advanced surgery both theoretically and practically. With the establishment of the Ottoman Empire in the 14th century, this scientific heritage was transferred to Anatolia, where surgery developed under unique socio-political and cultural circumstances. The Ottoman Empire, positioned at the crossroads of Islamic and European civilizations, served as an important bridge in transmitting and transforming medical knowledge. Initially, Ottoman surgery relied on classical Islamic works, but over time, it evolved under military demands, the development of hospitals, and interaction with European medicine. This study aims to present the development of surgery in the Ottoman Empire, highlight key surgeons, and examine achievements and challenges in this field.

Materials and Methods

This study constitutes a historical analysis. Primary sources, including Ottoman surgical manuscripts, translations of Persian and Iranian texts, and treatises by Ottoman surgeons, were reviewed and analyzed. Secondary sources included articles from PubMed, Google Scholar, and specialized databases on medical history. Data were organized chronologically to present the development of surgical knowledge, techniques, and training in the Ottoman Empire.

Results and Discussion

Historical Background

Understanding Ottoman surgical development requires examining earlier Islamic medical traditions. From the 3rd to the 7th centuries AH (9th–13th CE), major Islamic scholars advanced surgical knowledge. Zahrawi in Andalusia (d. 1013 CE) authored *Al-Tasrif*, a comprehensive work detailing surgical techniques, instruments, and illustrations, widely taught in both Islamic and European medical schools. Later, Avicenna and Ibn Nafis, while primarily theoretical physicians, contributed to surgery through anatomical insights and practical advice. In Iran, Syria, and Egypt, these texts were copied and applied in hospitals.

With the expansion of the Ottoman Empire in the 14th century, this medical heritage reached Anatolia and later Istanbul. Islamic hospitals (*Dar al-Shifa*) and medical schools became the main centers for teaching and practicing medicine, including surgery. Initially, Ottoman surgery relied entirely on prior Islamic–Iranian–Arab traditions, based on translations and manuscripts of earlier physicians. Military needs, frequent wars, and contact with Mediterranean Europe gradually fostered the development of surgery.

Stages of Ottoman Surgical Development

1- Early Period: Translation (14th–15th centuries)

In the early Ottoman era, surgery was heavily influenced by Islamic traditions, particularly Zahrawi. Ottoman physicians studied and applied Arabic and Persian manuscripts. Sherefeddin Sabuncuoğlu (1385–1468 CE), the first prominent Ottoman surgeon, produced Cerrahiyyetü'l-Haniyye (Imperial Surgery), the first surgical work in Ottoman

Turkish, featuring detailed illustrations of instruments and techniques. Sabuncuoğlu bridged the gap between Zahrawi's tradition and local Ottoman experience (Er, and Pamir, 2013).

Iranian physicians Hakim Mohammad Sabzevari and his son Ghyath al-Din Sabzevari played crucial roles in transferring Iranian medical knowledge to the Ottoman Empire. Despite being students of Sabuncuoğlu, their surgical sections were limited, and complex cases were referred to specialized surgeons (Dastkaran), indicating surgery's status as an independent specialty in the 15th century (Yegane, et al., 2017, pp. 53-60).

A key example of Iranian influence is the translation of *Khulasat al-Tibb fi Fan al-Jarraha* by Cerrah Mesud from Persian into Ottoman Turkish. The book covered three sections: theory, wounds and injuries, and treatments with medicinal compounds. The third section included neurosurgical techniques, especially cranial trauma, skull swelling, and cervical dislocations, illustrating the transfer and expansion of Iranian surgical knowledge within Ottoman neurosurgery (Aciduman and Er, 2008).

2- Flourishing Period (16th–17th centuries)

Following the collapse of Seljuks, Turkish became the primary scientific language in Anatolia. Numerous surgical treatises were written, documenting contemporary knowledge and forming the foundation of modern Ottoman surgery.

Ibrahim authored Allam al-Jurrahin (1505), introducing innovations such as cranial defect repair using fresh bone grafts from goats or dogs and peripheral nerve repair. He emphasized surgical philosophy, proper instrumentation, and hygiene, with sections dedicated to nerve and spinal surgery. His text also referenced diseases like syphilis, demonstrating a combination of practical and scientific knowledge (Er, and Pamir, 2013).

In the 18th century, Ali Mensi's Cerrahname detailed wounds and neurosurgical treatment, further developing surgical knowledge. By the 19th century, Shani-Zadeh Ataullah Effendi's *Qanun al-Jurrahin* systematized cranial injury management and emphasized precise anatomy and dissection. These contributions laid the foundations for modern Ottoman surgery(Er, and Pamir, 2013).

3- Interaction with Europe (18th century)

In the 18th century, hospitals were limited, and Ottoman medicine was based on humoral theory and dietary treatments; surgery and expensive medicines were accessible only to the affluent. In the 19th century, with the advent of reforms and Westernization, European medicine was introduced, leading to establishment of new hospitals and medical schools, alongside an expansion of public health and preventive measures under state supervision (Shefer-Mossensohn, 2010, pp. 1-7).

4- Modernization (19th Century)

With the Tanzimat reforms and the establishment of the Istanbul Medical School in 1827, Ottoman surgery entered a modern era. During this period:

- Surgical training was organized according to European methods, particularly French;
- Dissection and anatomical education were considered essential prerequisites for surgeons;
- Military surgeons played a vital role in the Ottoman-Russian and Ottoman-Greek

wars.

As a result, surgery gradually moved away from solely Islamic traditions and toward integration into modern global medicine (Öztürk, et al., 2015).

Conclusion

The evolution of Ottoman surgery demonstrates a dynamic integration of Islamic, Iranian, and European influences. From Sabuncuoğlu to 19th-century surgeons, neurosurgery, cranial repair, and wound management developed into a modern surgical practice. This trajectory highlights the specialization of surgery and the critical role of cross-cultural knowledge exchange in shaping Ottoman medical history.

Authors' Contribution

Narges Tajik prepared the full manuscript, and Arman Zargaran oversaw the writing process, offering analytical guidance based on his expertise. All authors have read and approved the final version of the manuscript.

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Conflict of Interest

None.

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