History of spinal disorders and Cerrahiyetül Haniye (Imperial Surgery)

A review of a Turkish treatise written by Şerefeddin Sabuncuoğlu in the 15th century

Historical vignette

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The history of spinal surgery represents an important aspect of spine-related sciences. The development of the treatment strategies of spine-related disorders has predominantly been recorded in the Western literature. In this paper, a Turkish physician, Şerefeddin Sabuncuoğlu (1385–1468), and his treatise, Cerrahiyetül Haniye (Imperial Surgery), are presented. Three sections of this book regarding spinal disorders (spinal dislocations, sciatica, and back pain) are reviewed. The techniques described were used by Sabuncuoğlu in the 1400s. In conclusion, the language and illustrations of this treatise are unique. Compared with current approaches, there are no major differences in the principles of treating spinal traumas despite the passage of almost 500 years.

KEY WORDS • spine • historical vignette • Cerrahiyetül Haniye • Şerefeddin Sabuncuoğlu

The history of medicine, especially regarding surgery, runs parallel to the history of human life. After ancient medicine, the main principles of medicine were established by the first Greco-Romans, including Hippocrates, Galen, and Paul of Aegina and others. This earlier era, however, was replaced by a less productive one in which no new treatises were promulgated. Most of our current knowledge regarding these early treatises is based on their translations into Arabic between 700 and 900 AD. For many centuries Arabic schools had been the primary forums for developing medicine. Albulcasis (936–1013 AD), with his famous medical encyclopedia called Al-Tasrif, and Avicenna (981–1037 AD), with his book The Canons of Medicine,6,8,17 were the most famous physicians in that era, and thus their treatises were accepted as the most important medical books for several centuries, being translated into Latin and later into other languages. The dominance of Arabic and Persian schools continued until the Renaissance.

Şerefeddin Sabuncuoğlu, a Turkish physician, wrote several medical books, including a color-illustrated surgery treatise, Cerrahiyetül Haniye (Imperial Surgery), in the 15th century. In this paper we review the sections on spine-related matters of this almost 500-year-old treatise and discuss its writer, Şerefeddin Sabuncuoğlu.

Şerefeddin Sabuncuoğlu
Sabuncuoğlu was born in Amasya in 1385. Following his primary education, he began his medical training in the hospital in Amasya, when he was 17 years of age. At that time Amasya was a large city in central Anatolia with several schools. The hospital in Amasya was a faculty hospital—that is, it was not only a treatment center but also a medicine education center. He learned medical and surgical techniques not only from his master, Nahcivani, but also from several medical books written in Arabic, Persian, and Greek. He worked for 14 years in this hospital, after which he worked in other Ottoman cities, including Kastamonu, Bolu, and Gerede,3,7,10,12,18,19 all located in Anatolia.

As a physician, Sabuncuoğlu excelled in many ways. He was a good clinician, treating his patients with the most effective medicine that he believed to exist. He was also a good researcher. Before the use of any new medicine, he would undertake research and produce protocols for such experimental studies. He tested new medicines in animals and people who volunteered, including in himself, before administering the medicine to others. He was a good teacher, training several students, of whose success he was proud. Sabuncuoğlu was also a good writer and illustrator. Of the four treatises he wrote, his first was on
pharmacology, which was a translation from Persian with some of his own contributions. His famous book, *Cerrahiyetül Haniye* was published in 1465, when he was 83 years of age. His other book, *Mücerrebname*, a pharmacology treatise, was published in 1467, when he was 85 years of age. He dedicated *Cerrahiyetül Haniye* to the Ottoman Emperor, Fatih Sultan Mehmet, who lived in Istanbul, where he traveled to present his book. He did not, however, place any importance on this book. The exact year of his death is uncertain, but is believed to be between 1468 and 1470.18,19

*Cerrahiyetül Haniye* (*Imperial Surgery*)

This is the most important treatise compiled by Sабuncuogлу. For many years, it was thought that this book was a translation of Abulcasis’ book *Al-Tasnif*. Despite some similarities between the two books, however, a careful analysis of these two treatises revealed that there are 137 different observations and recommendations in Sабuncuogлу’s book.19 His book was discovered at the beginning of the last century and was reviewed by several researchers.3,10,17,18,19

To the best of our knowledge, there are only three extant, hand-written copies: one in the Istanbul Fatih Library, one in the Department of History of Medicine in the Çapa Medicine Faculty of Istanbul University, and the third in the National Bibliotheque of Paris.14–16

Because of the different sizes of the three hand-written copies, each has different page numbers. The copy in the National Bibliotheque of Paris has 212 pages, that in the Istanbul Fatih Library has 199 pages, and that in Istanbul University has 188 pages. The Paris copy is the best preserved and consists of three chapters and 191 sections.

Thus far, several authors have published excerpts or some illustrations from this treatise, including portions related to orthopedics and traumatology, thoracic surgery, dental medicine, urology, plastic surgery, anorectal surgery, general surgery, pediatric surgery, and neurosurgery.1,2,4,5,9,11,13,20

In this review we focus on the spinal disorder–related sections of this treatise (sections 30, 41, and 42 of Chapter 3).

**Section 30: Spinal Dislocations**

Spinal dislocations may occur in the back or in the neck and may be complete or partial. There is no treatment for those that are complete. A complete dislocation is associated with a sphincter incontinence and motor loss below the level of injury. The prognosis is poor, and the patient eventually dies.

Partial dislocations may be of four types and are caused by direct traumatic injury or falling. Some partial dislocations may be reduced. A variety of techniques and procedures may be used for the reduction of spinal dislocations (Fig. 1).

In the first procedure the patient is placed in a prone position, near a wall, on a soft mattress. Two wooden blocks, one in front of the patient’s head and one in front of his feet, are placed. Each wooden block should have an extension in the middle.

Threaded wheels should be attached to each extension of the wooden blocks. Each wheel should have three or four handles. Afterwards, the patient’s chest is wrapped beneath the axilla with soft and fine rope. Two ends of the rope are tied to the wheel on the side of the patient’s head. The patient’s knees are wrapped with a fine rope and tied. If needed, both ankles are tied as well. These two ends of the rope are also tied to the wheel attached to the wooden block on the side of the patient’s feet. After these steps, two people simultaneously turn the wheels. While the patient is being stretched, the physician, using both hands, pushes the dislocated portion of the spine until reduction occurs.

If the reduction does not occur, the patient is placed
next to a wall. In the wall, a space is dug, suitable to accommodate the placement of a wooden block. The tip of the wooden block is placed against the dislocated portion of the spine and pressed using both of the physician’s feet.

After reduction of dislocation is accomplished, special cutaneous, drying ointments are applied and covered with a fine dressing; hard wooden plates are then placed, extending above and below the treated vertebral levels. Until the patient recovers, he is fed with easily digestible food. If extensive edema develops, a copper plate is placed on the affected area, and this will reduce swelling. Inexperienced physicians may have interpreted this swelling as malreduction and performed an unnecessary surgery; however, medical therapy is sufficient.

Section 41: Sciatica

Sciatica is a leg pain and the main causes of sciatica are cold and humidity. In intractable cases of sciatica, local cauterization can be performed. For this reason, cauterization is undertaken using either medicine or the application of heat (Fig. 2).

Medical Cauterization. For this type of cauterization, a round device (copper or iron) is used (Fig. 3 upper). The patient is positioned in a lateral decubitus position, the round cauterization device is placed on the painful area, and the special cauterizing medicine is applied. After at least 1 hour, this area is washed with fresh water, and this cleansing process is continued for 3 days. Special creams are also used.

Heat Cauterization: Iron or Wool. In heat cauterization with iron, the physician uses his thumb to locate the painful area. After localization, three points, like a triangle, are marked around the painful area, and a fourth point is marked in the center of the triangle (Fig. 3 lower). All these areas are cauterized. Two points on the thigh and one point on the leg are also cauterized, although not too deeply in the leg, because this may damage vessels and nerves. I remember such complications reported by inexperienced physicians. In heat cauterization with wool, the mixture of wool and medicine are heated and placed and on the painful area. This procedure is repeated several times.
Section 42: Back Pain

Back pain is generally caused by falling-related or direct traumatic injury. It is treated by the use of analgesic medications. If the pain is medically intractable, however, a cauterization procedure can be performed. The procedure of choice is to mark the painful area by the use of ink, and afterwards the painful area is cauterized (Fig. 4).

Discussion

Cerrahiyetül Haniye is a special treatise on surgery; there are three chapters and several sections in which the surgical treatment of different parts of the human body is described. Several points need to be addressed regarding this book, including the era (15th century) in which this treatise was written, its language, illustrations, scientific aspects, and author.

Anatolia, as a crossroad between the west and east, has been affected for many centuries by the Western (European) and Eastern (Islamic and Asian) civilizations. Medicine in the 15th century was multifaceted. During this period of history medical sciences in the Islamic civilization weakened. The period did not compare with the brilliance evident before the 12th century. At the same time, there were no significant developments in European medicine, despite the establishment of some medical institutes in Paris and Bologna in the 13th century. Additionally, religious conflicts also prevented a relationship between Anatolia and European countries during these years.

It is in the context of these historical conditions that Cerrahiyetül Haniye was written. Its textual similarities to Al-Tasniﬁ indicate a slight progression and development in the medical sciences in the Islamic school during the last three centuries. Although Uzef reported 137 new observations and recommendations in Cerrahiyetül Haniye, these were limited to general sections; furthermore, we have found that there are no new recommendations in the spine-related disorders section of the book. This also indicates that there have been no changes in the treatment of spine-related disorders, in particular spinal traumas, during the centuries.

Other facets to be addressed are the language and the presence of colored illustrations in the Cerrahiyetül Haniye. The book was written originally in Turkish in the Ottoman Empire, during which most of the literature and scientific articles were handwritten in Persian or Arabic. Although it facilitated the teaching of surgery because of its simple (understandable) Turkish, the book ceased to be taught and was subsequently lost for several centuries because Turkish was not used as a scientific language in the Ottoman Empire.

The presence of illustrations in a medical treatise is another important aspect of this book. Although the depiction of the human body was not formally forbidden in Islamic doctrines, it was by and large considered unacceptable for many centuries. Thus, there are no illustrations of the human body in the most important Islamic medical books, such as Al-Tasniﬁ and Canon of Medicine. Therefore, the presence of colored pictures in this atlas is an important aspect of this treatise. Consequently, Cerrahiyetül Haniye is not only a medical book but a surgical atlas with hand-drawn illustrations that make this book unique.

The illustrations were drawn and painted by Sabuncuoglu, who tried to show details of all the procedures described. He made two different drawings to illustrate the two different dislocation reduction techniques. He also illustrated the surgical instruments necessary for procedures. He described and painted a variety of cauterization tools, which are similar to the Abulcasis’ instruments.

Sabuncuoglu recommended that surgeons mark the operation area, reflecting his systematic approach during the
surgical process. He thought that the intervention itself was only one part of the treatment. Therefore, he recommended a postoperative medical treatment in the form of ointments and oils. Similarly, after reduction of dislocations, he advocated the use of orthoses that covered the vertebrae below and above the affected segment. Although most of these recommendations are similar to those of Albulcasis, a careful review of the text reveals that Sabuncuolu truly reflects his own experience. He honestly reported the problems and complications he faced during reduction and cauterization procedures. He warned the physicians not to cauterize deeply in the leg.

Finally, he was a great physician who tried to train his students both as a master and as a writer. Despite his excellent work, he was forgotten for several centuries. Our reacquaintance with him, thanks to medical historians, occurred less than a century ago. Today, we owe him the credit he deserves after centuries of neglect.

References

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