Approach to Painful Disorders by Şerefeddin Sabuncuoglu in the Fifteenth Century Ottoman Period

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PREERVED human remains, artifacts, and works of art document the existence and prevalence of painful diseases from before the beginning of recorded history. Modern medicine is the culmination of the efforts of millions of people and tens of different civilizations, some known and others not. In the period between the ancient civilizations of Egypt, Greece, Rome, Persia, and India and the Renaissance period in Europe, the knowledge of medicine was kept alive and further developed by the Arabs and Muslims.¹ The nomenclature, the Dark Ages, reflects the state of civilization in Europe between the fourth and thirteenth centuries, but not that of the Islamic world, where science was loved and respected.² During this time, while the only Western center of secular medical practice was in Salerno, clinician-scholars such as Sabuncuoglu were among a cadre of Islamic physicians skilled in the practices of medicine that remain at the forefront of pain management practice even currently.

Şerefeddin Sabuncuoglu lived during the fifteenth century in Amasya, a small city in what is now central Anatolia.³ During the early period of the Ottoman Empire, Amasya was a center of commerce, culture, and art. When it became a center of tradition and was assigned a governor, the city also became architecturally enriched with the building of numerous new mosques, schools, inns, bridges, and fountains. Many scientists and artists were raised in Amasya during this time as well as afterward.⁴ During this period, Şerefeddin Sabuncuoglu practiced medicine in the Amasya Hospital, which was built in 1308. In 1465, at the age of 80 years, he wrote a book called Cerrabiyet’ül Haniye (Imperial Surgery), the first illustrated, Turkish-written, Islamic surgical textbook.⁵ The book was rediscovered in 1936 by Süheyl Unver, a Turkish medical historian, and the illustrations were published in a separate volume.⁶ There are three original handwritten copies, two in Istanbul, in the Fatih Millet Library and the Çapa Medical History Department of Istanbul University, and one in the Bibliothèque Na‐

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modification of, with original contributions from, *al-Tasrif (Textbook of Surgery)* \(^{14}\) of Abu al Qasim Khalaf Ibn’ Abbas Al-Zahrawi (Albucasis; 936–1013 AD). The author translated the last three chapters of *al-Tasrif*, which has a total of 30 chapters. However, there are 137 different medical observations and recommendations from Sabuncuoğlu, along with translated passages from the works of al-Zahrawi. \(^{4}\) al-Zahrawi’s *al-Tasrif* was the most important surgical book of his time and has influenced the East and the West for centuries. al-Zahrawi used the surgical text of Paul de Agene, but he added another aspect to his book by drawing and describing the surgical instruments. This not only educated medical students in the art of surgery, but it also gives us insights into the surgical operations of the time. Sabuncuoğlu read and referred to the books of previous masters, following the tradition of fifteenth century Muslim scholars. Therefore, he used the surgical chapters of *al-Tasrif*, but he added his experiences and observations to his book. For example, although there was no information about back pain in the cauterization section of *al-Tasrif*, Sabuncuoğlu wrote a separate section for it in his book. \(^{15}\) In addition, Sabuncuoğlu drew surgical instruments (with his own additions) and doctor–patient figures to demonstrate specific procedures. These illustrations are unique in Islamic medical history and medical history in general.

Despite his merits, Sabuncuoğlu was not widely known, even in his own era, and his book was ignored until the 1930s, perhaps in part because it was written in Turkish rather than Arabic or Persian, the scientific language of that time. \(^{16}\) Although his miniatures do not have great artistic value, it is important to emphasize that they were drawn in a modest but serious spirit according to Islamic rules. (It has generally been believed that in the Islamic world, painting, especially the painting of human figures, was discouraged. However, it is argued that prophet Muhammad did not ban painting himself—it was only the interpretation of some religious scholars after the ninth century. \(^{17}\) In his other book, *Mücerrebneme*, Sabuncuoğlu mentioned that he performed innovative procedures first on animals, then on himself, and finally on his patients. \(^{4,18,19}\)

In *Cerrabiyetü‘ıl Hante*, Sabuncuoğlu described various painful conditions, including headache, pain of sinu-sitis, sciatica, cold pain, and pain of the eye, tooth, throat, and back. Because the influence of Ibn-i Sina (Avicenna; 980–1037 AD) and his medicine was very strong on Ottoman medicine at that time. \(^{20}\) Sabuncuoğlu first suggested treating these pains by *materia medica*, medicines obtained in mixtures of various herbs and their products. These medicines were in forms of medicated taffy, creams, pomades, plasters, ointments, lotions, and oral preparations. He used taffy prepared from a mixture of *Afyon* (*Fruwtus Papaver somniferum*), *Akbenc* (*Hyoscyamus albus*), *Zerdecube* (*Curcuma longa*), * проведен* (*Hyacinthus*), *Akerkarba* (*Herba Anacyclus pyrethrum*), *Suruncan* (*Colchicum autumnale*), *Hamama* (*Amomum race-mosum*), and *Dar-ı Fülfül* (*Piper langum*) for relieving general pains as a systemic analgesic. \(^{9}\)

Although Sabuncuoğlu did not etiologically classify headaches, he described sinusitis-induced headaches and migraine as half-side head pain. He also suggested the use of a paste consisting of a mixture of *Asel* (*Mel*), *Mazaryun* (*Daphney mezereum*), and *Kükürd* (sulfur) or an ointment consisting of rose water, opium, and *Zaferan* (*Crocus sativus*) for the medical treatment of headaches. \(^{9}\) If the pain could not be treated adequately or had been characterized as chronic headache, he suggested applying heat cauterization on a certain region of the cranium. \(^{4}\) For sinusitis-induced pain, he recommended that patients treat their feet with a plaster-smeared medicine that consisted of *Bezr-i Sedab* (*Herba Ruta graveolens*), *Raziyan* (*Semen Foeniculum vul-gare*), and *Kinna* (*Lawsonia inermis*). \(^{9}\) If the patient still experienced pain, he recommended that the scalp above the point of the biparietal junction be cauterized until cranium bones were seen. However, he warned his students to avoid burning the bones (fig. 1).

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**Fig. 1. Illustration of cauterization of acute headache (A) and chronic headache (B).**

*Zerdecube* (*Curcuma longa*), * проведен* (*Hyacinthus*), *Akerkarba* (*Herba Anacyclus pyrethrum*), *Suruncan* (*Colchicum autumnale*), *Hamama* (*Amomum racemosum*), and *Dar-ı Fülfül* (*Piper langum*) for relieving general pains as a systemic analgesic. \(^{9}\)

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one side of the head, and the book describes its surgical management. An interesting treatment method presented in the fourth section of chapter I is the treatment of chronic migraine by sectioning of the superficial temporal artery. Sabuncuoğlu described an incision starting from the pterion, extending just ventral to the ear, and ending at the ear lobe; he also explained how the superficial temporal artery is identified, coagulated at both ends, and sectioned after coagulation. This indicates that he knew the vascular origin of the pain. With the influence of the teachings of Galen, it had been believed that pain was always related to nerves, with no reference to the vascular system. Although this seems quite a novel application during that age, the treatment is identical to that described in al-Tasrif by Zahrawi.

In Mucerrerbename, Sabuncuoğlu advised patients with dental pain to rinse or gargle with medicines prepared from Kızılbire-i yabise (Fructus Coriandrum sativum), Akırkarba (Herba Anacyclus pyrethrum), Mevziçaç (Delphínium staphisagria), and Zincebil (Zingiber officinale). He said, “If the pain persisted and could not be treated by any medicine then heat or medical cauterization is indicated. Cauterization should be applied on the fissure of tooth” (fig. 2).

In the forty-second section of chapter I of Cerrabiyet’ül Hanîyye, Sabuncuoğlu gave some sources of back pain and their treatment. He said, “Sources of back pain may be trauma, collapsing, vomiting, and/or straining of the back.” He also suggested treating it by using analgesic medications prepared from Karanfil (Caryophyllus aromaticus), Sümûl (Hyacinthus), Sáhâ-i bindî (Melastoma), Mıcâ-i Yabisê (Strax officinale), Üşne (Moscuś arboreus), Irasa (Herba Iris florentina), Kust (Costus speciosus), Râşen (Inula Ibêlenium), and Belesan yâğı (Commiphora opobalsamum). If the patient was still chronically distressed after the medication, the point of pain was marked with ink, and then cauterization was performed in accordance with the patient’s strength (figs. 3 and 4).

Sabuncuoğlu discussed sciatica in section 41. It was described as a leg pain, and the main causes were defined as cold and humidity. The medical therapy of sciatica was a mixture composed of Diûnt’l Kari (Pavonia arabica), Bevli’-Nisa (Urina Feminæ), Mamişa (Chelidonium majus), Şem-i Musaffa (Ceraflava), Ayvon (Fructus Pápa ver sommiferum), and Zaferan (Crocus satívus). In intractable sciatica cases, cauterization was recommended to be performed in two ways, either by medicine or by heat. For medical cauterization, a round device (copper or iron) was used, and the patient was positioned in the lateral decubitus position. The round cauterization device was placed on the painful area, and the special cauterizing medicine was applied. After at least 1 h, this area was washed with fresh water, and this cleansing procedure was continued for 3 days. Special creams were also used. According to the author, heat cauterization could be performed with iron or wool. In heat cauterization with iron, the physician used his thumb to locate the painful area (fig. 5). After localization, three points, like a triangle, were marked around the painful area, and a fourth point was located at the center of triangle. All of these points were cauterized. Two points on the thigh...
and one point on the leg were also suggested to be cauterized, but because of the risk of damaging vessels and nerves, it was advised not to do it too deeply in the leg. Sabuncuoglu said, "I remember such complications reported by experienced physicians. I also remember such complications reported by inexperienced physicians. In heat cauterization with wool, the mixture of wool and medicine are heated and placed on painful area. This procedure shall be repeated several times." 6–8

Sabuncuoglu described two types of cauterization tools, made of iron and gold, that were specially designed for these applications. The tips of the cauterization tools were in various shapes, such as round, pin, sharp, point, olive, triangle, crescent, and nail (fig. 6). Gold was mostly preferred because it prevented postcauterization infections, but it was not suitable for warming because the tools often melted after rewarmed. Therefore, Sabuncuoglu reported that he preferred iron, despite its higher infection potential. 4 This shows that Sabuncuoglu was conscious of the balance of risk and benefit. As a responsible scholar and educator, he frankly described the positive and negative aspects of each technique and tool so that the following generations would not be misled.

Sabuncuoglu stated that heat cauterization was necessary as a last resort for pain management because this method had a potential risk for complications. He implied it with his own words: "If you want to make a cauterity, first you have to be an experienced physician about cauterization. If you are not, you may lead a serious complication for the patient." He discussed cauterization in detail in Cerrabiyet’ü Haniyye. Despite the disagreement of some contemporary authors, he recommended cauterization as an effective method of chronic pain treatment. The opponents’ claim was that the pain could be aggravated by cauterization or even to be spread to another part of the body. As a response to this, Sabuncuoglu wrote that "we have no doubt about usefulness of cauterization, if the indication is correct." 4 It was recommended that the patient’s strength, appetite, age, and impairment be considered before cauterization. He said, "Although some authors are proposing the selection of season for cauterization is important, our experience has taught us that cauterization can be applied successfully in every season." 4 Eventually, he argued that herbal treatment combined with cauterization had maximal treatment potential. It is possible to observe here that Sabuncuoglu emphasized a kind of multimodal therapy. The combination of medicines and invasive techniques are successfully performed and well received in contemporary pain management.

Currently, a wide range of invasive techniques are available for pain management. Radiofrequency ablation has also been performed for pain treatment in modern medicine. Would it be incorrect to consider radiofrequency ablation as an invasive neural burning technique? When we look at Sabuncuoglu’s work from a modern perspective, his applications seem old-fashioned and irrational. These applications were not only revolutionary for his time but are also valid at present. In modern pain treatment, the treatment must be adapted to the severity of the underlying disease and the intensity of the pain. Optimal effectiveness is obtained if the indication is correct. 24 Sabuncuoglu’s illustrative studies undoubtedly contributed to medical education. He frankly disclosed the problems he faced during his surgical practice and did not hesitate to criticize himself or to cite his senior masters, Galen (129–210 AD), Hippocrates (460–370 BC), and al-Zahrawi. 16 He taught not only his opinion to his students but also his opponents’ claims. Sabuncuoglu recommended that surgeons mark the surgical area, reflecting his systematic approach to the surgical process. He thought that the intervention itself was only one part of the treatment and therefore recommended postoperative medical treatment in the form of ointments and soils.

Cerrabiyet’ü Haniyye describes diagnosis and invasive techniques for the management of pain and also the
treatment of many diseases with an illustrative method. *Mücerrebname* focused on medical treatments of various diseases. In these books, Sabuncuoğlu advocated the treatment of pain step by step, from noninvasive to invasive procedures. Currently, this approach is widely accepted in modern medicine. The lack of significant progress in medical knowledge could be expected in the Dark Ages; pursuing that knowledge was well worth the struggle.

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