

Were Pneumothorax and Its Management Known in 15th-Century Anatolia?

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Jean-Marc Gaspard Itard, a student of René Laennec's, first recognized pneumothorax in 1803, and Laennec himself described the full clinical picture of the condition in 1819. Treatment of pneumothorax was not begun as a standard procedure until World War II, but we think that Serefeddin Sabuncuoglu recognized the condition and applied treatment in the 15th century.

Sabuncuoglu (1385–1470) was a surgeon who lived in Amasya (in Anatolia). In 1465, he completed *Cerrahiyyet'ül Haniyye* (Imperial Surgery), the 1st illustrated surgical textbook in the Turkish–Islamic medical literature. We describe the highlights of the book's recommendations concerning treatment of thoracic trauma, particularly of pneumothorax. We reproduce 2 of the colored miniature illustrations and add our comments regarding the advice of Sabuncuoglu. Most notably, he advocated "mihceme," a cupping therapy, as a simple technique of thoracic aspiration. (*Tex Heart Inst J* 2009;36(2):152-3)

Key words: History of medicine, 15th cent.; medical illustration/history; pneumothorax/therapy; thoracic surgery/history

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Cerrahiyyet'ül Haniyye (Imperial Surgery), which Sabuncuoglu completed in 1465 at the age of 80, is the 1st illustrated surgical text in the Turkish–Islamic medical literature. It consists of 412 pages handwritten in old Turkish and of 193 topics arranged into 3 chapters (cauterization treatments, surgical procedures, and fractures and dislocations). Only 3 handwritten copies are known to exist, 2 of which are in the hand of Sabuncuoglu himself; some parts of the book are thought to be missing.¹

The chief importance of this book rests upon its inclusion of color miniature illustrations.¹ Despite the widespread belief that Islam forbids painting (especially the representation of living creatures), this ban did not always extend to secular work. The volume contains numerous miniature color illustrations of doctors and patients, surgical tools, incisions, and surgical techniques—all illustrated fastidiously by the author himself.

We are fortunate to have available to us a re-publication of *Imperial Surgery*, together with Professor Ilter Uzel's in-depth commentary on the text.² In this article, we focus on Sabuncuoglu's recommendations concerning the treatment of thoracic trauma, particularly of pneumothorax. We reproduce 2 miniature illustrations from the volume and comment upon Sabuncuoglu's advice.

The Management of Thoracic Trauma

In his chapter on fractures and dislocations, Sabuncuoglu describes how to recognize symptoms, how to trace a sensation to its anatomic point of origin, and how to manage sternal fractures, step by step (Fig. 1). He writes that sternal fractures appear most often in the posterior and lateral parts of the sternum, rather than the anterior. Symptoms in these fractures are severe pain, shortness of breath, and cough. If hemoptysis is present, he indicates that there is need for grave concern.

The author's anatomic knowledge is also apparent in his description of costal fractures. As was true of sternal fractures, he observes that ribs are usually broken in their posterolateral extensions, and rarely in the anterior. This, he says, can be attributed to the cartilage structure of the ribs at the front. The most important technique for diagnosing costal fracture is manual examination, he adds. If fractured bone has pierced the pleura, the patient may manifest shortness of breath, cough, and hemoptysis. Sabuncuoğlu reports that management of this condition (puncture of the pleura) is difficult. Although he doesn't use the term pneumothorax, it is clear that he is describing that condition. The chest tube was unknown in the 15th century, but one of Sabuncuoğlu's management methods is of considerable interest: after incising the traumatic area, the surgeon places a tool on the region of the fracture and performs a procedure known as "mihceme" (aspiration by negative pressure).

Mihceme is a "cupping therapy" that has been in traditional use in Anatolia, in China, and in other lands and cultures since ancient times—a procedure in which the skin is incised and blood drawn by suction. Customarily, a flame was introduced into a glass to burn the oxygen and create a vacuum (Fig. 2). In recommending mihceme in instances of rib fracture into the pleura, Sabuncuoğlu is, in our estimation, describing simple pneumothorax aspiration. He indicates that this management gives good results.

More difficult yet was the management of patients who had sustained arrow injuries of the thorax in which the blood coming from the wound was frothy, the neck of the patient was swollen, and the patient was short of breath. As far as can be understood from the book, Sabuncuoğlu describes pleural drainage for empyema but does not describe closed underwater drainage for pneumothorax, which was unknown at that time.



Fig. 1 The reduction of sternal fractures.

From: Uzel I. *Cerrahiyetü'l Haniyye I*, 1st ed. Ankara, Turkey: Turk Tarih Kurumu Yayinlari (Turkish Historical Society); 1992.² Used by permission.



Fig. 2 "Mihceme" is a kind of cupping technique, as illustrated here.

From: Uzel I. *Cerrahiyetü'l Haniyye I*, 1st ed. Ankara, Turkey: Turk Tarih Kurumu Yayinlari (Turkish Historical Society); 1992.² Used by permission.

Conclusion

It can be easily said of Sabuncuoğlu that he was one of the pioneers of thoracic surgery. He described the removal of foreign bodies from the esophagus, the use of a silver ringlet after tracheostomy, and (in detail) the technique and required instruments for pleural drainage in cases of empyema.³

Sabuncuoğlu developed surgical methods for application to pediatrics, urology, abdominal surgery, obstetrics, gynecology, otorhinology, and even cosmetic surgery.^{1,4-6} His color illustrations in this book are enough by themselves to prove him a good medical educator. In the words of Sabuncuoğlu himself, "Write what you do, teach what you know—future generations will be grateful to you."

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