Editorial Commentary

Thoracic surgery in Turkey

İsmail Sarbay, Akif Turna^

Department of Thoracic Surgery, Cerrahpasa Medical School, Istanbul University-Cerrahpasa, Istanbul, Turkey

Correspondence to: Akif Turna, MD, PhD, FETCS. Department of Thoracic Surgery, Cerrahpasa Medical School, Istanbul University-Cerrahpasa, Istanbul, Turkey. Email: akif.turna@gmail.com.

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Connecting two continents, Asia and Europe, Turkey is forming a bridge in an economical, cultural, and more importantly, scientific way. Many authors, scientists and medical professionals from Turkey are working with both the east and the west harmoniously and collaboratively. The socio-economic profile of the country contains elements from Eastern and Western societies. This can cause demographic similarities in certain aspects. Like in many developing countries, the young population ratio decreases while the population keeps growing. Tobacco consumption and drug abuse is an active issue which causes an increase in lung diseases and malignancies. According to the 2016 National Database (1) lung, bronchus and trachea malignancies are the most common malignancies in men (57.7% in 100,000 people) and 4th most common malignancies in women. The rate of distal metastasis at diagnosis is 55%.

Historical background

Turkey has a long and mainly overlooked surgical history. In the 14th century Turkish language started to be the main medical language in Anatolia led by Hekim (physician) Bereket and İshak bin Murad (2). The first surgical textbook in Turkish, namely Cerrahiyyetü'l Haniyye (Imperial Surgery), was written in 1465, by a famous Turkish surgeon, Serafettin Sabuncuoğlu (3) inspired by the book named Al-Tasrif (written by Abulcasis in 1000). He described treatment of pleurisy, foreign body in upper esophagus, sternal and rib fractures as well as surgical tools and techniques such as tracheostomy (4). Autopsy and anatomy were mentioned in Alâ'im-i Cerrahîn, a surgical textbook (Cerrâh-nâme) written by a Turkish surgeon İbrahim bin Abdullah in 1505. This book contains quotes and information from Plato, Hippocrates, Galen, Avicenna, al-Razi (Rhazes), Akshamsaddin and other physicians from East and West in addition to a translation of another surgical booklet written in Greek and Syriac and captured during the Ottoman siege of the Methoni Castle (5). The books also mention ethical advice addressed to surgeons. There are records of informed consents dating back to the 15th century. These certificates (huccet) of consent were arranged between the surgeon and the patient or their parents/guardians in the presence of the judge (qadi) and the witnesses (6). They contained information about the date, surgeon's name, patient's name and address, surgical intervention performed and fee for the procedure. In some of these certificates there are surgeries performed by experienced (hazik) female surgeons (7).

Medical education was mainly given in Daruşşifa (hospital) as an example of master-apprentice or on-the-job training including theoretical education. The first medical college in the Ottoman era was founded in 1556 as a part of Süleymaniye Complex (külliye). Students were practicing in Süleymaniye hospital. Like in many other contemporaneous states, there were no specialized surgical training facilities (8). In 1827 Imperial Military School of Medicine was founded modeled on those in the West with a staff from various nationalities and religious backgrounds. The school was aimed to match Western developments and institutions. It was transformed into a public institution in 1909 and kept active ever since as a medical school (9).

Many Greek and German physicians contributed as professors and directors (9). Many surgical fields were

^ ORCID: 0000-0003-3229-830X.

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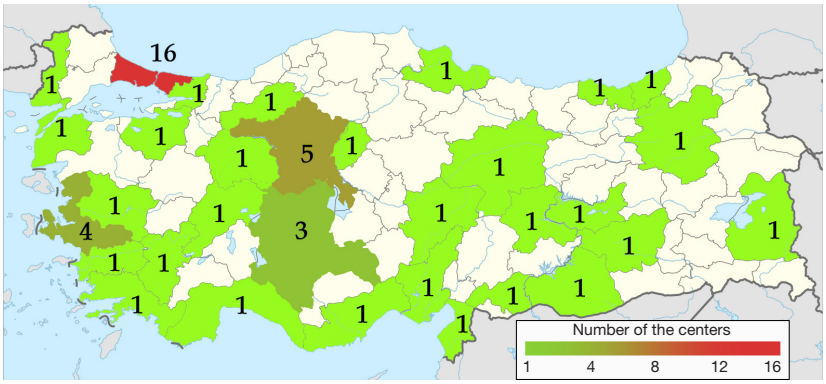

Figure 1 Cities with thoracic surgery education centers are colored according to the number of the centers in the year 2021. *Information source: Council of Higher Education (Turkey)*; *illustrated by Ismail Sarbay, MD.*

developed with the help of Western pioneers and hard work of Turkish surgeons. Rudolph Nissen worked with his colleagues in Istanbul University (present day Cerrahpasa campus) between 1933–1939 until he moved to the United States for the treatment of his lung abscess due to a retained bullet from World War I. He introduced the latest surgical techniques including lumbar sympathectomy, Schede thoracoplasty and Nissen fundoplication (10). Earliest books on thoracic surgery in modern Turkey were written by Ahmet Burhaneddin Toker about surgical treatment of tuberculosis and lung abscesses (1927 and 1938). Fahri Arel, who worked with and later became successor of Dr. Nissen, wrote the first textbook specified on thoracic surgery in Turkish in 1950 (11).

Thoracic surgery training in Turkey

In our country, medical and surgical training curriculums are similar in context but practice differs ever so slightly. As mentioned below certain surgical procedures are lacking in some clinics due to technical inefficiency or focus of the active surgeons. Besides, not every university or public hospital has a training program for thoracic surgery.

The practice of thoracic surgery was divided from thoracic and cardiovascular surgery. Earliest separate thoracic surgery clinic was dated back to 1960 in Ankara by another leading thoracic surgeon Galip Urak (10). Although the first independent department was established in the 1980s.

There are 57 clinics specialized in thoracic surgery teaching in Turkey. Among these 42 centers are state universities and 15 of them are public hospitals. The cities with the most centers are Istanbul with 16, Ankara with 5, Izmir with 4 and Konya with 3 centers (*Figure 1*).

There are currently around 180 thoracic surgery residents in the training centers across the country. A resident must learn and practice the minimum requirements for surgical training which are designated by the medical training council of the Department of Health. Although surgical opportunities and expertises are not perfectly equal. The number of professors and residents, patient capacity, instruments, and procedural preferences differ between centers. Some centers have additional educational programs such as weekly seminaries and journal club hours.

Any candidate who finishes medical school can apply to the training program in a center if they pass the required score in the specialty exam. The residency does not require any prior residency such as general surgery. Thoracic surgery training takes 5 years like most of the surgical disciplines in Turkey. Nevertheless thoracic surgery residents should have 6 months of general surgery rotation as well as 3 months of cardiac surgery, 2 months of pulmonary medicine and 1 month of anesthesiology rotations each. In each rotation, residents should complete a certain list of procedures and gain knowledge.

Patient and procedure variety is not alike in every center. Nowadays many thoracic surgery residents learn video-assisted thoracoscopic surgery (VATS) techniques as the main approach in addition to open thoracotomy. Since robotic technology is not available in every institution, only few residents graduate familiar with the robotic resections. Even so, they are not experiencing robotic training since only experienced surgeons are allowed to operate and there is no robotic simulation training program.

Despite all the disparity, a certain level of knowledge and surgical ability is expected from the trainee surgeons. They have to prepare a proper thesis on a study-worth topic

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and pass a designated oral and practical exam. If a trainee does not meet certain criteria by the end of the 5th year, an additional 6-month period may be added to give the individual an opportunity to catch up.

Thoracic surgeons and the society in Turkey

After graduation it is mandatory for every thoracic surgeon to serve in a public hospital in any needed city across the country for 2 years. After that time a thoracic surgeon is free to stay in the public hospitals or apply to private hospitals. Cultural diversity and socioeconomic disparity reflects on thoracic surgeons too. Larger cities have one or more institutions with thoracic surgery clinics. Yet the hospital volumes differ and therefore the resources and experiences of surgeons for different surgical procedures are not equal. For those reasons some patients travel to bigger cities or search for centers with larger volume.

Thoracic surgery has its individual national society (TGCD) apart from the cardiovascular society. It has 838 members including surgeons and trainees by the time this paper is written. The society forms biennial congress regarding the up-to-date knowledge about the thoracic diseases as well as surgical techniques. Until the pandemic a yearly Thoracic Surgery School program which was designed for residents and newly graduated surgeons to learn from experienced surgeons and mentors was organized by the society. Occasional simulation and training on cadavers was a chance for any member to apply and gain experience.

Some members have close interactions with their European colleagues and society (ESTS). Few surgeons have collaborative works and studies with surgeons and societies from Eastern Asia such as Asian Society of Cardiovascular and Thoracic Surgery (ASCVTS). Thoracic surgeons in Turkey have good cooperation with oncology, pulmonology, radiology and many other disciplines. They held conferences together at least thrice a year under different professional multidisciplinary societies.

Thoracic surgeons deal with a variety of conditions such as tuberculosis, empyema, emphysema, hydatid disease, lung cancer, thymic malignancies, trauma, etc. There are a limited number of centers located in Ankara, Istanbul and Erzurum where thoracic surgeons perform esophageal surgery. The procedures are performed by general surgeons in many other centers. Lung transplantation program was initiated in 2004 and is active in only three medical centers.

As minimally invasive approaches and forms of VATS spread in the world, many thoracic surgeons in Turkey fastly adopt the newest techniques. Alper Toker performed the first VATS lobectomy in 2001 and Dr. Ilhan Ocakcıoğlu was the first to use the uniportal VATS approach for lobectomy in 2013. Robotic resections date back to 2005 and the first robotic lobectomy was performed in 2010 (12). Some surgeons perform awake VATS operations.

Research activities and grants

To gain academic promotion (for the associate professorship and professorship) one must meet certain criteria including research papers published by reputable journals both national and international, presentation in national or international conferences, giving education to medical students and/or trainees etc. Two main bodies provide research grants for projects designed by medical researchers: The Scientific and Technological Research Council of Turkey (TUBITAK) and university grants. The governmental grant fund is another potential with an increasing amount during the last decade.

The only official journal for thoracic surgeons is *Turkish Journal of Thoracic and Cardiovascular Surgery* (abbreviated as *Turk Gogus Kalp Dama*). The journal is funded by Turkish Society of Cardiovascular Surgery and the Turkish Society of Thoracic Surgery as partners and is published quarterly. The journal is indexed in various international indexes including Publons and Citation Index Expanded and has an impact factor of 0.332 by the year 2020, increasing by 75 percent compared to the previous year (13).

Impact of coronavirus disease 2019 (COVID-19) pandemic on thoracic surgery in Turkey

Like many other medical specialties, thoracic surgeons and residents took part in the fight against COVID-19 pandemic by serving as a field doctor and helping the patients (*Figure 2*). In addition to that they kept performing interventions like chest tube insertion and pleural fluid drainage on many COVID-19 patients whether in the wards or pandemic intensive care units. Many of them caught the disease while on duty. Due to the shutdowns and the surge of COVID-19 patients, thoracic surgical procedures were stopped in many centers for months during the first waves. This caused a delay for cancer patients (even in some cases an upstaging), interrupted surgical education of the trainees and caused anxiety due to a stressful and risky work environment.

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Figure 2 Award winning photograph taken in the intensive care unit in Cerrahpasa Medical Faculty Hospital during the pandemic. *Photo source: archive of SARWALKER, special walker designed by the author*. Permission to use was granted.

Many courses, meetings and multidisciplinary symposiums were either postponed or later switched to virtual-only events. Colleagues interacted with one another online, seminaries became webinars. Courses became impractical.

As the new normal extends all around the globe thanks to the vaccination, many centers are back on track with new standards of safety measures. Routine use of COVID-19 polymerase chain reaction (PCR) tests and even ordering a computed tomography scan of the lungs to exclude COVID-19 before admission are now quite normal. There are still many health professionals and patients catching the disease every once in a month or two as new variants spread.

What to come?

In 2004 the Turkish parliament confirmed the Framework Convention on Tobacco Control adopted by the members of the World Health Organization (WHO) and the MPOWER (Monitor-Protect-Offer-Warn-Enforce-Raise) package was published by WHO. The number of smoking cessation clinics is increasing ever since (14). Yet the tobacco consumption rate is still high especially in the younger population (15). According to the latest report of Turkey Statistics Institute tobacco consumption rate increased in the last decade in every age group. The peak was observed in ages between 35–44 years with a 38.6% rate in 2019. In the general population the rate is 28% (41.3% in males and 14.9% in females).

As the population grows old and tobacco consumption continues, the need for more thoracic surgeons working in the field should be expected to grow higher in the near future. Adapting the latest innovations and methods, thoracic surgeons in Turkey are mostly up to date, as long as the technical and economical aspects are resolved. Increased collaboration with both east and west gives the society a unique expansion opportunity.

In the post-pandemic era we would like to increase the scientific activities, educational sessions and training opportunities. Meetings are started as hybrid conferences and become physical again, letting the colleagues interact with each other and allowing the residents to listen and see from the professors and ask questions to them in person.

Thoracic surgeons are mainly performing minimally invasive surgery. Robotic surgical resections are spreading to more centers. Currently thoracic surgeons in 9 centers (5 in Istanbul, 2 in Ankara) are using different robotic assisted surgical system models. But higher costs, patients' concerns and prejudge of senior surgeons who are already experienced in open or minimally invasive surgical approaches pose still a limitation. Yet newly graduated surgeons and residents are keen on new technical and theoretical developments in the profession. Future will force its way.

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References

1. Turkey Cancer Statistics. 2016. Available online: https://hsgm.saglik.gov.tr/depo/birimler/kanser-db/istatistik/Turkiye_Kanser_Istatistikleri_2016.pdf
2. Akbulak Ö. Anadolu'da Yazilmiş Ilk Dönem Tip Yazmalarinda Renk Adlari ve Kullanim Alanlari. Motif Akademi Halkbilimi Dergisi 2020;13:364-85.
3. Uzel İ, Sabuncuoğlu Ş. Şerefeddin Sabuncuoğlu: Cerrahiyyetü'l-Haniyye. Istanbul: Türk Tarih Kurumu, 1992.
4. Batirel HF, Yüksel M. Thoracic surgery techniques of Serefeddin Sabuncuoğlu in the fifteenth century. Ann Thorac Surg 1997;63:575-7.
5. Gurlek M. Alâ'im-i Cerrahîn, Cerrâh-nâme. Istanbul: Yazma Eserler Kurumu Başkanlığı Yayınları, 2016.
6. Sari N. Ethical Aspects of Ottoman Surgical Practice. T Klin J Med Ethics 2000;8:9-14.
7. Demirsoy N, Sayligil O, Topal M, et al. A Female Surgeon in The 17th Century: Kupeli Saliha Hatun and an Evaluation of Consent Forms Related to Her Surgeries. Konuralp Medical Journal 2019;11:468-74.
8. Bayat AH. Tıp Tarihi. 3rd edition. Istanbul: Zeytinburnu Belediyesi Yayınları, 2003.
9. Trompoukis C, Lascaratos J. Greek professors of the Medical School of Constantinople during a period of reformation (1839-76). J Med Biogr 2003;11:226-31.
10. Batirel HF, Yüksel M. Rudolf Nissen's years in Bosphorus and the pioneers of thoracic surgery in Turkey. Ann Thorac Surg 2000;69:651-4.
11. Arel F, Dorken N. A year's results of thoracic surgery. Turk Tip Cemiy Mecm 1953;19:312-9.
12. Coşgun T, Akın O, Akpınar H, et al. The first case of robotic left lower lobectomy in Turkey. Turk J Thorac Cardiovasc Surg 2013;21:225-8.
13. Sanioğlu S. Keep improving with the same enthusiasm. Turk Gogus Kalp Damar Cerrahisi Derg 2021;29:433.
14. Çetinkaya PD, Batum Ö, Kararmaz EA, et al. Compliance With the Legislation of the Smoking Cessation Clinic in Turkey. Turk Thorac J 2020;21:180-4.
15. Orsal O, Ergun A. The Effect of Peer Education on Decision-Making, Smoking-Promoting Factors, Self-Efficacy, Addiction, and Behavior Change in the Process of Quitting Smoking of Young People. Risk Manag Healthc Policy 2021;14:925-45.

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