

Anatolia; The Cradle of Modern Medicine*

Anadolu: Modern Tıbbın beşiği

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‘Anatolia – The Cradle of Modern Medicine’* (This text based on oral presentation, 1st International Symposium, Expo 2015 candidacy of Izmir, 16-17 October 2007)

Anatolia... Asia's extended arm towards the west. A bridge connecting Asia to Europe. A prized territory with a millennia old history of human habitation. The homeland of an unbroken series of civilizations... This presentation is as a sort of sightseeing tour crossing the ages for a survey of Anatolia's legacy of preserving health and fighting disease. Not an easy task if you consider the time expanse involved, for human settlement in Anatolia dates back to as long ago as the Ninth or Tenth Millennium B.C. A tale covering merely the last few centuries would have been so much easier to recount, but I must take you through the progression of 12 thousand years, no less. Rest assured though, I will only touch upon the fundamentals, the turning points and the milestones of the story.

Key Words : **History of Medicine, Anatolia**

Anadolu... Asya'nın batıya doğru uzanan kolu. Asya ve Avrupa'yı bağlayan bir köprü. İnsanlık için binlerce yıldır yerleşim alanı olarak seçilmiş bir bölge. Binlerce yıldır uygarlıkların hiç kesintiye uğramadan evsahipliğini yapmış topraklar. Bu sunum sizi Anadolu'nun tarihinde sağlığın korunması ve hastalıklarla mücadele konusunda yıllar içerisinde bir geziye çıkaracaktır. Sözü edilen zaman diliminin genişliği, milattan önce onuncu hatta dokuzuncu yüzyıla kadar gerilere gitmesi, kısacası neredeyse 12bin yıllık bir süreyi kapsamı nedeniyle, elbette Anadolu'nun yaşanan bütün olayların anlatılması mümkün değildir. Burada sadece ana noktalara, kırılma noktalarına ve kilometre taşlarına değinilecektir

Anahtar Sözcükler: **Tıp Tarihi, Anadolu**

In overview

Did you know that Julius Caesar uttered his famous declaration, “Veni, vidi, vici,” here in Anatolia, in Zile, Tokat; that the Trojan War was fought here; that the nearly universal phrase “as rich as Croesus” refers to Croesus the king of Lydia who ruled much of Western Anatolia from his capital city in Sardis in present day Salihli, Manisa? Did you hear of the Phrygian king Midas, cursed with the touch of gold; and were you aware that Gordium where Alexander the Great slashed the mythical Gordian knot in half was the capital of Midas' Phrygian Kingdom, today in the district of Polatlı about 60 kilometers southwest of modern Ankara? Are you familiar with the ancient Lydian, Urartean, Phrygian and Hittite civilizations all rooted in Anatolian land? Against this rich and colorful background,

let us follow the evolution of medical practice from its most primitive stages to the highly advanced as legends gave way to history in Asia Minor.

Trepanation in Anatolia

A medical as well as mystical practice, trepanation is possibly the oldest surgical procedure documented with evidence. It consisted of drilling a hole into the skull so as to expel the ailment. Excavations in Aşıklı, Kuruçay Tumulus, Kültepe, Dilkaya and Gordium in Anatolia have uncovered several skulls with trepanation holes, some of which show signs of healing in the bone structure. That patients nearly eight thousand years ago could survive this critical surgery in the absence of anesthesia and antisepsis testifies to the achievement of the Neolithic age's empirical medicine.

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What we have learned from the Hittites

One of the oldest Anatolian civilizations along with the Phrygians, Lydians and the Urartus, Hittites ruled central Anatolia from around 1650 to 1200 B.C. The medical tradition they inherited from indigenous Anatolian peoples and from Mesopotamia were centered on deities. Disease agents included disregard and disrespect towards the gods, blasphemy, betrayal of oath or perfidy, and personal uncleanness among other things. Based on magical rituals, Hittite medicine was a supernatural system of healthcare practiced by male as well as female healers. Illnesses came from Ishara the goddess of oath, while Kamrusepa was the goddess of healing and medicine. Healers made extensive use of Anatolian flora including mandrake, henbane, poppy, gallnut, myrtle, licorice, saffron and olives in balms and ointments administered with magical incantations. Malaria and the plague are known to have struck the kingdom in epidemic proportions, and King Mursili II's prayer for relief from the plague exemplifies Hittite faith.

Death banished...

Sacred to Apollo's son Asclepius, the demigod of medicine, asclepieia were sanctuaries and healing temples where pre-Hippocratic mystic-empiric medicine was practiced. Several asclepieia were established across the Mediterranean region, and priest-physicians meted out faith healing aided by simple healing herbs and a visit to the baths. The earliest destinations of health tourism, asclepieia regularly hosted stage and music performances as well. The asclepieion in Bergama where Galen studied in his youth is an exceptionally well-preserved representative of the genre.

Anatolian origins

Many of the ancient era's philosopher-physicians were Anatolian by birth and by origin. Soranus was from Ephesus,

Dioscorides from Anazarba, Arateus from Cappadocia, Galen from Pergamon, Herophilus from Chalcedony, Aetius from Amida... Let us take this occasion to celebrate all the old masters who grew up in this land to influence, and even shape, medicine as we know and practice it today.

"To help, or at least, to do no harm"

Hippocrates who resided in the Island of Cos (460 BC-375 BC) is rightly referred to as the "father of medicine" in recognition for his lasting contributions. He rejected superstitions and emphasized natural causes and effects. He identified epilepsy as a disease rather than a divine state, secularization of medicine outside the realm of the temple, transformation of the Asclepius cult into a professional lodge, the practice of taking case stories prior to diagnosis, and the establishment of the clinical doctrines of observation, documentation and classification. The Hippocratic School's emphasis on the philosophical concept of the four humors influenced the discipline of medicine right up to the Renaissance. But Hippocrates' most lasting legacy has been his firm focus on disease as the product of environmental factors, diet and healthy living habits.

"The virtuous physician must a philosopher be"

Galen (AD 130-200) was a follower of Hippocrates. Born in Bergama, he studied medicine in his native city as well as in Izmir, Corinth and Alexandria. His contributions to anatomy and physiology cannot be stressed strongly enough. He is also known as Divinus Galenus because of his belief in the divine spirit. The Galenic formulation that deals with the principles of compounding medicines is named after him. Galen's death heralded the dark ages of medicine in Europe.

The period of translations

The benighted Middle Age of Europe was

offset by a strikingly different environment in the East. Nestorian priests smuggled Antiquity's entire medical compendium, that is to say, the works of Hippocrates and Galen, to the east, saving them from certain destruction at the hands of the Byzantine Empire. The texts were translated first into Pahlavi and later into Arabic, the language of science of the era, in Gondeshapur between the 6th and 8th centuries. The body of scientific and cultural thought that burst forth in the ensuing intellectual golden age in the Arabic language was the joint accomplishment of Arabic as well as Afghan, Turkish, Persian, Assyrian and Hebrew scholars.

The two greatest influences on Anatolian medicine in the Middle Ages: Al-Razi and Avicenna

Al-Razi (854 – 932): Although the Razi, Iran, born Al-Razi took up medicine relatively late in life, he left a lasting contribution and is credited with having achieved a synthesis of Hippocratic and Galenic schools of medicine. He placed emphasis on patient follow-up, and avoided prescribing too many concoctions to treat and cure them. Al-Razi wrote over a hundred treatises on medicine, philosophy and mathematics, the most important among them -Kitab el-Havi -a monumental medical encyclopedia. Razi was the first physician to diagnose smallpox and measles and the first one to distinguish the differences between them.

Avicenna (980 – 1037): The Bukharan Ibn Sina, or Avicenna as he is known in the West, was an astronomer, chemist, logician, poet – but above all, a paradigm shifting physician and philosopher. He is most famous today for the Canon of Medicine, a didactic and systematic magnum opus that combined ancient Greek and medieval Islamic medical teachings and remained a standard medical text at many Islamic and European universities up until the 18th century. The more than 450 works Ibn Sina wrote on a wide range

of subjects include a medical treatise in verse, not to mention the revolutionary scientific encyclopedia *The Book of Healing*. Ibn Sina took up Hippocrates' rational approach to medicine, and developed it. And it is to Ibn Sina that we owe the distinction between therapeutic and preventive medicine.

A quote from the 11th century

“Medicine did not exist until Hippocrates invented it. When he died, Galen revived it. It was blind; Huneyn bin İshak gave it eyes. Al-Razi bestowed on it coherence. And Ibn Sina made it whole and hale.” – al-Juzcani.

The Seljuks: Anatolian hospitals and the concept of hospitalization

From the 11th century onwards, Anatolia increasingly bears the mark of Seljuk civilization. This is an era of enlightenment and artistic vigor for the most part, and Anatolian Seljuk medicine is an inventive blend of pre-Islamic Central Asian Turkic healing practices with the medical discipline of the Greater Seljuk Empire. One notable Seljuk contribution to the field is the concept of hospitals and hospitalization that gradually spread over to the Western world. Some of the earliest public hospitals were established in Anatolia along with those in important Eastern metropolises such as Damascus, Baghdad and Cairo. Scores of ‘healing houses’, or Darussifas as we refer to them, were set up all across Anatolia, including the one in Mardin in early 12th century, Kayseri in 1206, Sivas in 1217, Divriği in 1228, Konya, Aksaray and Çankırı in 1235, Kastamonu in 1272, Tokat in the 13th century, and Amasya in early 14th century, to name just a few. Itinerant hospitals and health dispensing charities were also introduced by Anatolian Seljuks. The darussifa built in the early 13th century in Kayseri in honor of Seljuk princess Gevher Nesibe bears Shamanic figures on its main gate – a pair of male and female serpents

representing life, and the eternally revolving cosmos framed between them. The double-headed eagle decorating the gate of Divriği darussifa is another relic from the same period, reminding us of the universality of symbols.

Science migrates back, from the East to the West

As academies and other institutions of higher learning grew more widespread in the West, science retraced its steps back. A new period of translations ensued, this time from Arabic into Latin. Nurtured under the protective wings of the East, medical and other scientific knowledge were transmitted to Europe over the Mediterranean via Andalusia, triggering the Renaissance. Ibn Sina had almost been prophetic when he stated, “Science and arts won't persist where they aren't appreciated.”

Anatolian medicine under the Ottomans

The second great empire after Eastern Rome (Byzantium) to rise in Anatolia, the Ottoman Empire reigned from the 13th century until early 20th century, establishing a territorial rule spanning three continents described as “supranational” by historians. Ottoman medicine followed in the footsteps of Seljuk medicine before it, as testified by several health institutions across Anatolia including Yıldırım Beyazıt Darussifa in Bursa, Bayezid II Külliye in Edirne and Havsa Sultan Külliye in Manisa, as well as Fatih, Haseki, Süleymaniye, Ahmet I and Atik Valide Sultan Külliyes in Istanbul. It expanded on the Turkic medical tradition in general. One characteristic of this tradition was well-managed hospitals, while another was humanistic and care oriented treatment of mental patients. I should note as well that “informed consent”, a practice that wasn't introduced in the West until the 19th century, was well established in Ottoman medicine. Signed and sealed Ottoman records from as early as the 15th century documenting that pre-surgery pa-

tients were given detailed explanation of procedures and stated their consent before legal witnesses provide a historic milestone in the development of patients' rights and ethical medicine. The practice of music therapy is also well documented.

Smallpox vaccine and Lady Mary Montague

Lady Mary Montague, wife of the British Ambassador to Istanbul, is known to have detailed the Turkish practice of “varioulisation” against smallpox in her letters to Britain in 1717. The ethnic-Latin Ottoman physician Emanuel Timonius had also written on the subject, first in 1714 in a London-based science journal, and subsequently in 1745 in Berlin. Hence, the method was familiar to European scientific circles. We have no way of knowing whether the practice provided inspiration to Jenner as he developed his smallpox vaccine, but we can safely state that the two methods together saved untold millions from death and disfiguration.

Crimean War and Florence Nightingale

Considered by many to be “the first modern armed conflict”, the 1853-1856 Crimean War is equally significant for the way it set the stage for the founding of the modern nursing profession. Florence Nightingale served in the British Army Hospital in Üsküdar, Istanbul, for two years together with 42 of her compatriots. The recognition she gained as a national heroine helped her launch the Nightingale Training School that revolutionized the concepts of hospital hygiene and patient care.

Medical schools and the modernization of Anatolian medicine

The Ottoman Empire's efforts towards modernizing its administrative structure and education began to yield tan-

gible results from the early 19th century onwards. Istanbul's first western style medical school was established in a small mansion in Şehzadebaşı in 1827, and from that point on, Turkish medical education was thoroughly westernized. Allow me to pay homage here to the Royal Physician Mustafa Behçet Efendi who spearheaded the move towards modern medical training and also to the Vienna born Dr. Karl Bernard who took over as the principal of the school in 1838. Having arrived in Istanbul as a young physician, Dr. Bernard firmly focused the curriculum on basic sciences and dissection. He studied Anatolian flora as well, and drew up Turkey's earliest pharmacopoeia. Dr. Bernard's final resting place is in Istanbul. May he rest in peace.

Women in medical training

The medical school that has since been moved to Haydarpaşa began accepting female students in 1922 – 1923, and the earliest graduates were Drs Müfide Kazım, Sabiha Süleyman, İffet Naim, Suat Rasim, Fitnat Celal and Hamdiye Abdürrahim in 1928. However, they were preceded by Safiye Ali who studied medicine in Germany and opened her office in Istanbul in 1922 and was the first Turkish woman doctor. Ever since that date, Turkish women continue the tradition of their Hittite ancestors by dispensing health across the country as doctors and surgeons and make up a full third of Turkey's academicians in the field of health.

Birth of the Turkish Republic Following the War of Liberation in 1919-1923, modern Turkey was established as a secular, social state that upholds the law. The Republic embodied enlightened ideals. Several physician friends accompanied Mustafa Kemal Atatürk as he successfully defended the country against invading armies and proclaimed the republic. But the health infrastructure that the young republic inherited was in ruin, with only one medical school, 554 doctors in total and a woefully inadequate healthcare work-

force. Epidemic diseases were rampant, including respiratory tuberculosis, trachoma, and the highly prevalent malaria.

Atatürk's public health policy (1923-1938)

Mustafa Kemal Atatürk's public health policy centered on "preventive medicine". Tasked with rebuilding the country after decades of devastating war, the government prioritized eradication of epidemic diseases, ameliorating the shortage of trained healthcare personnel, and drawing up the relevant regulations.

Refik Saydam and preventive medicine

Dr. Refik Saydam (1881 – 1942) graduated from the Military Medical Academy in 1905, and specialized in Histology and Embryology. He returned to Turkey from his post in Berlin when the Balkan War broke out. He was one of a handful of individuals who accompanied Mustafa Kemal to Samsun as he set out to organize the resistance. Saydam represented the Doğubeyazıt province in the founding National Assembly. He served as the Minister of Health for five terms, and after a term as the Minister of Interior, he was elected to head the cabinet in 1939. Dr. Refik Saydam spearheaded the establishment of the Public Hygiene Institute, promoted domestic production of vaccines and was the principal force behind the campaign for preventive medicine.

Hulusi Behçet and Behçet Disease

A 1910 graduate of the Military Medical Academy, Dr. Hulusi Behçet (1889-1948) specialized in dermatology. He continued his studies in Budapest and Berlin, and was appointed as a professor at Istanbul University's Faculty of Medicine Department of Dermatology and Venereal Diseases in 1933. He identified a chronic syndrome

whose symptoms include mouth sores, genital ulcerations and eye inflammations, and the name (Morbus Behçet) was formally adopted at the International Congress of Dermatology in Geneva in September 1947. Currently referred to as Behçet Disease, the syndrome has a biennial World Congress dedicated to its study.

1933 university reform and refugees finding a home in Turkey

Turkey launched a wide scale university reform in 1933, and academicians who had to flee Nazi Germany were invited by Atatürk to work in the newly founded Turkish universities. Championed by Dr. Reşit Galip, the Minister of Education of the period, the reform and the infusion of German scientists prompted by it, transformed the academic field in Turkey. 42 foreign scientists many of whom were Jewish took up posts in various universities in Istanbul and Ankara. Philippe Schwartz, Erich Frank, Fritz Reimann, Albert Eckstein... Most learned our language well enough to conduct classes in Turkish. Some of them returned to their home country at the end of World War Two, while some became Turkish citizens and chose to stay here. But, they all acknowledged Anatolia as their adopted homeland, the one sanctuary that welcomed them in their darkest hour. In the words of Erich Frank, "When I was robbed of my citizenship and left homeless, only Turkey received me with open arms. Turkey is my homeland."

Dr. Gazi Yaşargil: Neurosurgery's Man of the 20th Century

Born in 1925 in Lice, Diyarbakır, Yaşargil attended Ankara Atatürk High School and Ankara University. He studied medicine in Basel, Switzerland and built his highly acclaimed career in neurosurgery in Zurich. In 1994 he accepted an appointment as Professor of Neurosurgery at the College of Medi-

cine, University of Arkansas for Medical Sciences where he is still active in the practice of micro-neurosurgery, research, and teaching. Gazi Yaşargil is universally recognized as the founder of micro-neurosurgery. He created a range of innovative instrumentation to enable the advancement of microsurgical techniques, and his genius in developing microsurgical techniques transformed the outcomes of patients with conditions that were previously inoperable. Yaşargil was named "Neurosurgery's Man of the Century" in 1999.

Today...

As of 2007, Turkey has over a hundred thousand medical doctors and 54

schools of medicine. Over six thousand public outpatient clinics dispense primary and preventive health care, while hundreds of hospitals provide specialized and advanced medical service. The Turkish healthcare sector is as accomplished in the field of primary care from maternal and child health to eradication of epidemic diseases, as in highly advanced and complicated medical procedures from cardiovascular or brain surgery to organ transplantation.

To conclude

I tried to give you a brief overview of Anatolian medical culture. Asia Minor is the birthplace of ancient civilizations and a significant proportion of the es-

sential elements of what we refer to as human civilization originated here. The land's ingrained culture is one of solidarity nurtured on diversity. 2007 also happens to be the 800th anniversary of the great Anatolian thinker Mevlana Jallaladdin Rumi. And I tried to emphasize how the rich cultural milieu here contributed to our understanding of medicine.

We are only a stone's throw away from the Balçova Hot Springs, immortalized in legend as the Bath of Agamemnon, King of Mycenae. If the hot springs could wash away the pall of the Trojan War, they can help with the jet-lag you must be feeling after your flight here from countries near and far. Do you agree?

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