Highlights on the History of Medicine in the Middle East

ORTADOĞU'DA TIP TARİHİNDE İLGİNÇ OLAYLAR

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Summary

In this article, the terms of Middle East and Near East are stressed and the medical histories of the countries in these regions are investigated. The term "Middle East" is restricted to its classical meaning i.e. Lebanon, Syria, Palestine, Jordan, Iraq, Arabia and Egypt. The region is very important because of its role in the spread of culture and civilization.

Key Words: History of Medicine, Middle East, Near East

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Özet

Bu makalede, Ortadoğu ve Yakın Doğu ile ilgili bazı terimler incelenir ve bu bölgedeki ülkelerin tıp tarihleri araştırılır. "Ortadoğu" terimi klasik anlamında sınırlandırılmıştır. Lübnan, Suriye, Filistin, Ürdün, Irak, Arabistan ve Mısır gibi. Bölge, kültür ve medeniyetin yayılımındaki rolü nedeniyle çok önemlidir.

Anahtar Kelimeler: Tıp tarihi, Ortadoğu, Yakındoğu

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The definition of the term "Middle East" has depended, to a large extent, on those who use it. It is most probably a military term that was meant to supersede the previously used term of "Near East" which had been used to distinguish it from the "Far East" (India, China, Japan). Classically, "Middle East" includes: the Fertile Crescent, also called greater Syria, which is made up of Lebanon, Syria, Palestine, Jordan and Iraq (including Kuweit), and the Arabian Peninsula: Saudi Arabia, Yemen, the United Arab Emirates, Bahrein, Oman, Qatar and Egypt. The Sudan is not usually included, although, with Egypt, it is an integral part of the Nile Valley; it is usually considered part of what has been termed Subsaharan Africa. Other countries, sometimes included in the Middle East, are: Iran and Afghanistan; and occasionally, "Middle East" was extended to include the region between Tunisia and Burma

In this study, the term "Middle East" will be restricted to its classical meaning ie Lebanon, Syria, Palestine, Jordan, Iraq, Arabia, and Egypt. It has a population of 135 million. The extended Middle East has a population of almost 300 M (Table 1).

In its earliest history, the Middle East came successively under the influence of the:

(1) Sumerians, Assyrians and Chaldeans and their cuneiform script

(2) Egyptians and their hieroglyphic writing

(3) Greeks, Romans and Byzantines and the Greek language

(4) Arabs and Arabic

(5) Ottomans and Turkish written in the Arabic script, and

(6) since the invasion of Egypt by Napoleon (1798), the region drifted into the sphere of influence, at least medically speaking, first of Europe and later of the USA.

The region is generally considered a pivotal one because of its dual role in the spread of culture and civilization as well as in the history of medicine in general and the history of Urology in particular. The confinement of man's thoughts to writing started in

Table 1. Population in the Middle East (in millions) (c 1981-2)

	Restricted ME		Expanded ME
Iran			61.5
Turkey			58.2
Egypt	55		
Sudan			26
Iraq	20		
Afghanistan			16.3
Saudi Arabia	15		
Syria	13		
Yemen	12.5		
Israel	05		
Jordan	04		
Lebanon	03.5		
United Arab Emirates	02.4		
Kuweit	02.2		
Oman	01.8		
Qatar	00.6		
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	135	+	162 = 297

the Middle East, first on clay tablets in Cuneiform, then on papyrii in Hyeroglyphics; then the alphabet was discovered or rather invented by the Phœnicians. The two great religions of the World started in the Middle East. The final great cultural invention of man, the decimal system was also invented in the Middle East. The region was populated mainly by Semitic people: the Sumerians, Babylonians, Assyrians, Phœnicians, and Arabs. It was the seat of military contentions and a battlefield (Alexander, Khalid ibn al-Walid, Richard Lion-Heart, Saladin, TE Lawrence, Abduw al-Nasir, Saddam Husayn and Blackhead) not only in the military sense but also in the intellectual arena. There is on the outskirts of Beirut, at the mouth of the dog river, a cliff that bears stelae with inscriptions of the following warriors: Ramses (1256 BC), Assarhaddon (671 BC), nabu-Jad Nasaar (587 BC), Caracalla (215 AD), barquwq (1385 AD), Napoleon III (1860), Gouraud (1920 AD). The cliff stands as a memorial to their exploits which, despite the misery and chagrin of wars, have helped the exchange, the assimilation and the spread of ideas.

Diseases

The region has been plagued by certain diseases which have a history of their own. Schistosomiasis is one of the most widespread plagues involving almost 90% of the Egyptian population and almost 30% of the people of Iraq. Malaria did not recede till after the second World War. Hydatidosis is widespread in areas where sheep are preponderant. Cholera has been known to have spread to the region through the pilgrimage of the living as well as the pilgrimage of the dead [1,2]; and from the Middle East it has spread to Europe. Examples of some specific diseases which are not as widespread but are geographically restricted due to some climatic conditions or special dietary habits, include: Cutaneous Leishmaniasis in Iraq, Aleppo and Najd, Dracunculus medinensis in the Hijaz [3] and Linguatula serrata ("halazone" or "halazuwn" as it is called in Lebanon) where goat liver is consumed raw [4]. Cancer is conspicuously less widespread than it is in Europe and the USA, although the incidence of some forms of it is higher than the incidence in Europe and in the USA, namely bladder cancer [5]. Viral hepatitis, Tuberculosis (genito-urinary tuberculosis has a conspicuously low incidence) and Enteric fevers occupy a middle range between the two previous groups. Syphilis and Lobar pneumonia have been almost wiped out since the advent of penicillin.

Classical Period

Sumerian Medicine

The story of the flood and Noah's (nuwH) Arch, the story of the tower of Babel and several other biblical stories actually originated in the land of the two rivers, the cradle of civilization, and were incorporated into the Bible without acknowledgement. In the land of the two rivers, the earliest recorded medical writing was that of the Sumerians. The vast library of Ashurbanipal was discovered near Nineveh (ninawa) the capital of Assyria; about 900 of its 30 000 clay tablets relate to medicine. A Sumerian dictionary of words and characters, dating back to 4000 BC, mentions different parts of the body, including the kidneys and the penis, and refers to the practice of Uroscopy by Sumerian and Babylonian physicians [6,7]. The tablets also mention gonorrhea in the treatment of which a catheter was used [8]. The Sumerians called their physicians "Asu". They used belladonna for bladder spasms

and they knew about impotence [9]. The snake was a medical symbol signifying rejuvenation, regeneration and the cure of illness [10]

Medical practice was affected by Hammurabi's code which is the earliest text relating to medicine ever discovered. It is written in cuneiform on a stele of black diorite, 2.5 meters high, which was discovered in 1902 at Susa where it had been carried from Babylon around 1100 BC as a trophy of war. It is presently in the Louvre in Paris. It was published as "The code of Hammurabi, King of Babylon about 2250 BC. Autographed text, transliteration, translation, glossary, index of subjects, list of proper names, signs, numerals, corrections and erasures, with map, frontispiece and photograph of text" by Robert Francis Harper, Chicago: Callaghan & Co, 1904 (11). The code mentions the fees payable to a physician following successful treatment; these varied according to the station of the patient. Similarly, the punishment for the failure of an operation is set out. At least this shows that the medical profession had advanced far enough in public esteem to warrant the payment of adequate fees. It is also the earliest known system of medical ethics. The punishment is sometimes so severe that Singer has wondered how the Babylonians ever succeeded in keeping their medical men ! (12)

Egyptian Medicine

The History of Urology in Egypt has been summarized by Bitschai. The most ancient object of urological interest is a vesical calculus discovered by G Elliot Smith in 1901 in a prehistoric tomb at Al Amrah near Abydos; it was dated at about 4800 BC. It was found among the bones in the grave of a boy of about 16. It is yellow, with a uric acid nucleus and concentric laminations of calcium oxalate and ammonium magnesium phosphate [6]. It was described by Shattock in 1905 [13] and placed in the Museum at the Royal College of Surgeons in London. The stone had been broken by the excavating workman's pick but was estimated to have been 6.5 cm in diameter. It has been destroyed when the Museum received direct bomb hits in 1941 [14]

In pharaonic times, Imhotep stands out clearly, from the mists of antiquity, as the first figure of a physician (swnw) (c 2650 BC). He lived in Memphis and wrote about architecture and medicine and about the futility of earthly grandeur and the far longer survival of the written wisdom [15]. Over the two millennia after his death, his reputation grew until he finally came to be regarded as the Egyptian God of Medicine. When the Greeks arrived in Egypt, they assimilated him with Asklepios. Imhotep must have been held in exceptionally high esteem throughout the history of ancient Egypt, a sort of national historic treasure. Imhotep's tomb (Sakkara) seems to have become a tourist attraction shortly after it was built. At least 400 statues showing him as a seated scribe holding a papyrus scroll (wisdom and divine inspiration) have been preserved [15]

Circumcision was used by the Egyptians as early as 2400 BC if not earlier. It was depicted on the tomb of Ankh-ma-Hor at Sakkara which dates back to about 2400 BC. Our knowledge of Egyptian Urology comes from such inscriptions and from two papyrii that were found during excavations in 1862 AD: the Edwin Smith papyrus copied around 1600 BC and found at Thebes and the Georg Ebers papyrus copied around 1552 BC and now at Leipzig [16,17] they show that the Egyptians knew about the following:

(1) erection and seminal emission occurring following dislocation of the cervical spine (Case 31 of 48 cases discussed in the Edwin Smith papyrus)

(2) hemorrhage following circumcision (column 88 of the Georg Ebers papyrus)

(3) hydrocele (Georg Ebers papyrus)

These papyrii do not mention the kidneys nor stones, but they include the urological knowledge of the Egyptians: urinary retention, bed-wetting, cystitis, hematuria, priapism, gonorrhea, and impotence [15]. The Berlin papyrus (c 1300 BC) contains a section on how to predict the sex of the unborn child: wheat and barley are watered daily by the woman's urine, if the wheat grows, it will be a boy, if the barley grows it will be a girl [10,15]; it is curious that this test was described again by ibn abiy ÔuSaybi`aš some 2500 years later ! (18)

Phœnician Medicine

The PhÏnicians invented the alphabet and spread it across the known world through the la-

bors of Qadmus (Adam ie the Old man). This invention caused one of the greatest revolutions in the history of culture and civilization. The PhÏnicians also invented glass and became great adepts at fashioning from it useful utensils as well as art objects. The PhÏnician God of medicine was Echmoun (aCmuwn) to whom is dedicated a medical establishment (temple-sanctuary) excavated by Dunand (1924 & 1963) a few miles to the North East of Sidon on the left bank of the Awaly river [19]. This establishment was constructed by Bodashtart and Echmoun azar II, kings of Sidon. Although the Phœnicians had a system of medicine that included wiring the teeth with gold, a dental art that they had perfected, as evidenced by the so-called "Ford jaw" found by Ford in one of the Phœnician tombs in Sidon, no documents remain about Phœnician Urology [20]

The Hebrews took circumcision of the new born from the Egyptians, and made it into a prescribed religious rite.

Roman Medicine [Haddad & Bitar]

Themison of Laodicea (c 123-43 BC) was the founder of the Methodist sect. He taught the use of leeches [21] which is becoming nowadays more and more fashionable.

Rufus of Ephesus (c 98-117 AD) who practiced in Alexandria, dedicated several of his writings to Urological problems: "the Kidney and the bladder" and "Renolithiasis" [22]. He is reported to have been the first to describe the prostate and prostatic abscess [17]

Archigenes of Apamea (c 90 AD) was cited by alraAziY [Rhazes] more than 47 times [22]

Zeuxis of Terentum (c 60 BC) founded a center for medical studies at Laodicea [21]

Galen of Pergamon (130-200 AD) wrote several books including tracts on "the urine", "the semen" [22] and sections on renal physiology proving the function of the ureter after conclusive evidence from experiments on living animals [17,23]

Antyllos (140 AD) was cited by alraAziY [Rhazes] more than 45 times and who is particularly remembered for his work on surgery of aneurysms, he also described hypospadias and its surgical correction, phimosis, adhesion of the prepuce to the glans, venereal warts, and urethral strictures [17]

Soranos of Ephesus(c 200 AD) [22] flourished in Rome and was one of the finest gynecologists of antiquity; he followed the Methodist tradition [21]

Cosmos and Damian (303 AD) from Syria were the two anargyre brothers who were later sanctified and became the patron saints of physicians [24]

Aretæus of Cappadocia, cited by alraAziY [Rhazes] 49 times [22], described bladder disturbances due to voluntary retention of urine as during feasts and at public reunions [17]

Byzantine Medicine

Oribasius (326-403 AD) who was cited by alraAziY [Rhazes] more than 130 times [22] described vesicorectal fistula [17]

Palladios (543 AD) wrote commentaries on Hippocrates [25]

Paul of Aegina (625-690) who was cited by alraAziY [Rhazes] more than 237 times [22] described penile gangrene and the bladder clyster [17] and was the last medical authority, before the advent of the Arabs

Magnus of Emessa seems to be the only Byzantine physician to have written on Urology. His book "On urine" has been translated into Arabic in the ninth century, and into German by Omar Salameh, Leipzig, 1932, from the Arabic manuscript found in Berlin and dated 19 Safar 698 H. Another Arabic copy (in Hebrew letters) is found in Paris (Hebrew fund No 1202). The book has 11 chapters and Salameh proves that it is identical to the book translated by Kuhn into German in 1830 from a Greek text attributed to Galen [3]

Arab Medicine

The old civilizations of the Sumerians, the Egyptians, the Greeks, the Romans and the Byzantines were a heap of blazes, cold dim and dormant under the thick cinders of the centuries, when the Arabs rekindled them into a bright and beautiful

torch which, despite centuries of harassing Crusades, was carried into Sicily and Spain into the heart of Europe, shaking it out of its slumber, paving the way for the Renaissance. When the Arabs appeared on the stage of History, Hippocrates had been already dead for more than a thousand years; Galen's lips had been sealed for more than 400 years. From their tents which protected them from the scorching sun and the searing sands, the Arabs broke the multiple yoke of paganism and were stirred by a new faith of one and only God. A high birth rate and an accentuation of the general dryness of the Arabian peninsula undoubtedly contributed to the new wave of migration. In their new surroundings, the Arabs exchanged their camel milk and their dates for water, wheat, wine and honey; and they substituted the pen for the dagger. The Arabic language soon replaced Greek as the means of international communication and became the universal language of science and medicine. An increasingly large number of important Arabic medical texts gradually accumulated and became the source from which every aspirant physician had to quench his thirst. No matter what the ethnic or religious origin of the contributors to this new Arab, Arabic or Arabian Medicine, they all wrote in Arabic and their works belong, in a historical, social and medical sense, to the body of Arabic Medical Literature that forms the core of Arab Medicine. The false claim that Arab medicine is Greek, Persian or Islamic is similar to claiming that American Medicine is German, Polish or Christian. Armed with the rigorous logic and clear positivism to which their minds had been trained since negative eternity by the meticulous and rigorous seasonal changes, and the astronomical clocks of their natural habitat, the Arabs had produced the decimal system, one of the greatest discoveries of all time, and produced several thousand medical works similar in their clarity, precision and beauty to the stars of their desertic heavens (26).

Several hospitals are known to have existed in several cities of the Middle East starting from 750 AD in Damascus. They were for the most part benevolent institutions that thrived on waqfs (Trusts); they were well organized and gave superb service [27]. Attached to many of these hospitals were medical Schools some of which are famous; a certification examination was instituted [28] and important libraries served the medical profession and the public; some of them were hospital libraries, others were government libraries and a few were private libraries [29]

The science of Uroscopy advanced so much during Arab times that the story is reported that Caliph almanSuwr (c 760 AD) wanting to examine his newly appointed physician ibn baJtyaCuw`, sent him a sample of urine for examination from one of his slaves, in fact it was the urine of a horse; the physician sent back the report that this was not a human urine but the urine of an animal that ate barley [30]. This is somehow similar to the story of the young Palestinian physician who wanted to examine Zondek in Jerusalem around 1940 by sending him his own urine; Zondek sent back the report "pregnancy confirmed"; the young physician had no testicular tumor and died in 1964 at the age of 69 from pulmonary edema due to hypertension. In a book "alðaJiyraš" ascribed to caAbit ibin qurra (d 901 AD) [25] there is a clear differential diagnosis between polyuria and diabetes mellitus [17]. alraAziY [Rhazes] (d 923 AD) described the paralysis of the bladder in a patient (qattaAn) who had a spinal cord tumor. He described spina bifida and its relation to incontinence [31]. He devised the non-metallic catheter and advised its use. He described the multi-eyed catheter [17]. He described perineal urethrostomy [17]. He described what has come to be known recently as Fournier's gangrene, several hundred years before Fournier; his description of the condition occurs in at least two places in his famous encyclopedia "alHaAwiy" [The Continens] and again in his "kinnaAC" [28]. He introduced the surgical use of animal gut, an essential ingredient of the surgical urologists daily work [32]. He also described intestinal ileus in association with urinary calculi [29,33]. He made three important contributions to the treatment of gonorrhea; the first was urethral irrigation with a solution of quince, psyllium seed or honey, the second was a stylet adapted to a catheter for the

purpose of clearing urethral mucus, blood and pus; and the third was the use of lead sounds [17]

ibn aljazzaAr (902-979 AD) wrote a special monogram on Urolithiasis [34]. Abulcasis (c 936-1013) gives, in his medical encyclopedia "altaSriyf liman `ajiza `ani alta'liyf", the description of over 200 surgical instruments with illustrations and method of manufacture. In Urology, he described the drilling on urethral stones, the operation of vaginal lithotomy and the several different surgical uses of cotton [35]. Avicenna (c 1000 AD) introduced the technique of the instillation of medication into the urethra [32]

The use of a diamond tipped lithotrite to break up urethral stones was first described in an Arabic book of unknown authorship fabricated around the 9th century and falsely attributed to Aristotle [17]. ibn zuhr [Avenzoar] (1091-1162 AD) also describes the diamond tipped lithotrite in his famous book "altaysiyr" [36]. Ahmad altiyfaAshiy alqafSiy (c 1250 AD) who composed a great volume on mineralogy "azhaAr alafkaAr fiy jawaAhir alaHjaAr" quoting from ibn aljazzaAr's book "kitaAb alaHjaAr alkariymaš" wrote about the precious advantage of diamond, which is confirmed by experience, in its use on the tip of a metal rod introduced in the urethra to break the calculus by repeated rubbing. Although the initiator of this novel technique is not known, several authors over four centuries, seem to have mentioned and used this precursor of lithotrity (37).

ibn zuhr {Avenzoar] was the first to describe the condition we know today as de La Peyronie's disease [36]. ibn habal (1121-1214 AD) seems to have been the first physician to understand and give an accurate description of the anatomophysiology of the uretero-vesical junction in his "almuJtaAraAt" [38]. ibn alðahabiy was the first to use graduated urethral sounds made of lead for the dilation of the urethra [29] he probably took the idea from alraAziy.

The story of the knowledge of the Arabs about periurethral abscess could be gross, but it certainly is interesting. A patient was reported to have been brought to a famous Arab physician of the 10th century AD with inability to urinate and a swelling of the penis. The story goes that the doctor put the patient's penis on a table and struck it very hard; a large quantity of pus came out; the doctor asked the patient: "You have been having intercourse with an animal, have'nt you ?" The patient shamefully admitted his sin and asked the doctor how did he know. "See the grain of barley that came out with the pus !" [ibn abiy 'uSaybi`aö]. Since I read that story I developed the habit of asking patients who suffered from prostatitis whether they were having intercourse with a donkey; to my amazement, over a period of 12 years, I found two patients who admitted the practice; one was a religious man from Damascus and the other was a school teacher from Amman (39).

The Arabs were very much interested in sex problems and wrote several interesting monographs on sexology, sexual hygiene in general and especially on the psychological treatment of impotence [40]

Modern Times

Medical Schools

The recent history of Urology in Egypt starts with the invasion of the country by Napoleon (1798); following this invasion, Muhammad Ali established a Medical School in 1827, at Abu Za'bal, a suburb north of Cairo. The second medical school in the Middle East was founded in Beirut by American Missionaries in 1867 as part of their Syrian Protestant College which was founded in 1866 and later (1920-2) renamed The American University of Beirut. The third Medical School in the region was founded in Beirut by the Jesuits in 1883; the fourth was founded in Damascus in 1903; the language of instruction was, and still is, Arabic; it is the only medical school in the world that still teaches in Arabic. Around 1927 the medical School in Baghdad was founded. In the second half of the twentieth century, we witnessed a mushrooming of medical schools in the Middle East (Table 2) (41).

Teaching Medicine in Arabic

The Arabic language was a vehicle for the

Table 2. Medical schools in the middle east

Restricted ME		Expanded ME	
		Iran	11
Egypt	9		
		Turkey	09
Israel	4		
Lebanon	3		
Syria	3		
Iraq	3		
Saudi Arabia	2		
		Afghanistan	02
		Sudan	01
Jordan	1		
Kuweit	1		
Yemen	1		
	--		--
	27	+	23 = 50

teaching of Medicine during the Abbasid period. The first medical translation movement into Arabic occurred during the reign of alma'muwn (813-833 AD) under the leadership of Hunayn ibn isHaAq (known in the West as Johannitus) (809-873), one of the great physicians of all ages and one of the greatest medical luminaries of all time, translated literally hundreds of Greek medical books into Arabic which soon became the scientific and medical language all the way down to the times of Vesalius and Harvey both of whom were reputed to have learned Arabic. About 300 years later, translations of Arabic texts into Latin were started by Constantinus Africanus (c 1020-1087) of Monte Cassino fame and culminated in the splendid work of Gerardo de Cremona (1114-1187) in Toledo [42]

This first translation movement by the Hunayn school was repeated, 1000 years later, by the school of Clot in Cairo (1832-71 AD). Clot inspired and directed a great movement of translation. A whole library of medical books were translated from the French or Italian into Arabic, for the use of the medical students. They were printed in the Government Press at buwlaAq which soon became the most famous printing press in the Middle East. This translation movement was rekindled for the third time by the American missionaries who came to Beirut under the leadership of Cornelius van Dyke [43] under his guidance, the Bible was translated into Arabic and several Arabic medical texts were prepared by Wortabet, Post, Lewis [44] and van Dyke and were printed at the American Press in Beirut (1869-83); several Lebanese physicians participated in this movement (1880-1911); English-Arabic dictionaries were printed (1983-1911) as well as medical Journals (1874-1910) [35]. Arabic remained the language of medical instruction at the Syrian Protestant College from 1867 until around 1883 when it became obvious that the small number of book copies sold did not permit the revision necessary to keep abreast of newer developments in medicine [43]. The fourth chapter in the history of Medical translation into Arabic was opened, at the turn of the century, at the Damascus School of Medicine and is still going on.

Egypt

Muhammad Ali of Egypt founded the first medical school in the Middle East in 1827 at Abu Za'bal north of Cairo and entrusted it to a very enterprising French physician, Barth□l□my Clot, who was originally from Grenoble and who became known in Egypt as Clot Bey. He stayed at the head of the medical school for 23 years, before he went back to France, died and was burried in Marseilles [45]

In the thirties Ali Pasha Ibrahim became the well known celebrity of Egyptian Surgery and Urology. After him came Riyad Fawzi, Mahmud Badre, and Zahir in Cairo, AbdulRahman elSadr and Amin Bishai in Alexandria, and Asaad B El Mairy in Tanta. The Egyptian contributions to Urology include the introduction of penile implants for impotence by Gamal Buhayri and the simple surgical procedure for the palliation of Priapism introduced by Ghorab.

Several Egyptian urologists have migrated to the USA; among them are: Emil A Tanagho (MD 1952), Abdelgaffar Awayes (MD 1963), Talaat E Yaghmour (MD 1964), Samuel Attia (MD 1966), Omar El-Bash (MD 1971), Elias Tawil (MD 1976), Alfred A Sidhom (MD 1976 ?), Nabil Y Khawand (MD 1978)

American Missionaries

The American University of Beirut (Syrian Protestant College) is the only University founded by American Missionaries in the Middle East. American Missionaries were however very active in founding Churches, Schools and Hospitals. Sharon J Thoms (d 1913) and his wife Marion Wells graduated from Michigan University in 1898 and founded a hospital in Muscat (1909). The Lansing Memorial Hospital was founded in Basra (1900-14) by the Arabian Mission of the Reformed Church; three graduate physicians, from the University of Michigan, worked there as a surgical team which in the field of bladder stones "developed a reputation second to none in the world"; they are Drs Arthur Bennett (MD 1904), Christine Iverson (MD 1907) and Hall van Vlack (MD 1910). A second Lansing Memorial Hospital was built at Amara on the Tigris between Basra and Baghdad under the supervision of Dr William MÏrdyk (MD from UM 1920). In 1932, Dr WW Thoms worked at the Mason Memorial Hospital in Bahrein with Dr LP Dame and at the Marion Wells Thoms Memorial Hospital for Women with Dr Esther Barney [46]

Turkey

Medical education started in Turkey at the Hospital in Kayseri in 1206 [47,48]. Behcet (1774-1834) inaugurated the first modern Ottoman Medical School under Mahmut II. The civilian medical school of the Ottoman Empire was created in 1866. A Medical School was founded in Damascus in 1903, another in Ankara in 1945 and another in Smyrna (Izmir) in 1955 [48]. One of the more active Turkish urologists in international meetings is Dr Ulukok from Izmir.

Lebanon

In a letter dated 1986 01 10, my late and very good friend, Dr Emile Bitar, suggested I write the History of Urology in Lebanon. I appreciated the idea very much and started immediately to gather data for that purpose. It became apparent from the beginning that the History of Urology will be based on the History of Urologists and that there would be a number of Lebanese Urologists who spent most of their fruitful life outside Lebanon; these, I thought, should be included in a complete History of Lebanese Urology. Other smaller groups of Urologists who should also be included are:

(1) Those who were born and educated in Lebanon, but were unable to legally acquire the Lebanese nationality because of political reasons (mainly because they are of Palestinian parentage)

(2) A few Urologists (and physicians whose work impacted on Urology) who are of Lebanese origin but who were not born in Lebanon and who never resided or practiced in Lebanon. So that in the final analysis we have a composite mosaic to study (Tables 3 & 4)

Ibrahim Najjar is a Lebanese of Corsican origin, who obtained his medical degree in Cairo (1842) and later came to Arnaut Kšy, near Istanbul, where it is reported that he performed a vesicolithotomy on a Greek subject and removed a 150 gms vesical calculus. He was the first physician in modern Lebanon who had an official medical diploma [49] and Dr Emile Bitar named the Beirut municipal hospital after him (c 1970). yuwsif jalJ (Youçif Jalkh) was the second Lebanese physician to obtain an official medical degree (1842). How he happened to go to Cairo and study medicine has already been told [50]. His son saliym jalJ wrote a book on Pediatrics and was (1911-1913) the first President of the Medical Alumni Association of which my father, Sami I Haddad was the 5th President (1927-1929) and I was the 12th President (1959-1961)

The history of the medical meetings held in Lebanon has already been written [51]

George Post spent 40 years in Beirut (1869-1909) and was a very skillful lithotomist and the extensive collection of vesical calculi in the American University of Beirut surgical museum is a tribute to his numerous operations of this type, which totalled at least 700 up to the turn of the century [52].

Dr Salim M Talhouk (1871-c 1932) from a prominent family from Aley, studied Urology in

Table 3. Lebanese Urologists in chronological order

Year of graduation	Name of Urologist	Year of graduation	Name of Urologist
1842	Ibrahim Najjar +l	1961	George Chéhadé l
1894	Salim M Talhouk +l	1961	Farid Mufadi Fuleihan a
1906	Mikha'il M Malouf +l	1962	Munir J Katul a
1908	Kamil Gharghour +l	1963	Albert V Assali a
1913	Sami Ibrahim Haddad +l	1963	Farid George Khoury a
1914	Yusif (Joseph) Attié +l	1964	Saad S Antun a
1934	Emil A Sayegh a	1964	Sa•d A Karmi a
1940	Ernest N Khoury a	1965	Saad Koury (Courie) a
1941	Emil J Ghanem +a	1966	Edward Chelouhy l
1942 (?)	Sa`dallah al Khalil +l	1966	Fuad Freiha a
1945	Gabriel Abou Chaar l	1966	Kamal Hanach a
1946	NSR Maluf a	1966	Yves L Homsy a
1946	Edward Tarabulcy a	1966	Sam N Rizkalla a
1948	Farid Sami Haddad a	1966	FF Shami a
1948	Bahij S Azury l	1970	Elie Phillippe Khoury a
1951	Ernest Bouhanna l	1971	Chaouki Debs a
1952	Jorge Dib Elias a	1971	Philip F Nasrallah a
1953	Milad Cessine l	1972	Fuad Jamil Khoury a
1953	Joseph Naffa` +l	1972	Walid I Sidani a
1954	Richard Fadil a	1972	Raymond Sleiman a
1954	Gabriel Rebeiz a	1973	Suhayl S Kalash a
1954	Assaad T Rizk l	1973	Walid Afif Mufarrij a
1955	Darwich al Masri a	1973	George Tawil a
1955	Felix Atallah +l	1974	Varouj K Altabarmakian a
1955	Robert Chaiban l	1974	Darwich Bejany a
1955	Raymond J Kyriakos a	1974 (?)	Khayrallah Mady l
1955	Khalil Torbey +l	1975	Bassam Bejjani a
1956	Kamal T Hamadeh l	1975 (?)	Abdo J Faddoul a
1957	Fakhry Allamé l	1975 (?)	Wa•l Saikali a
1957	Camille Mallouh a	1976	Wael F Muakkassa a
1957	Joseph Zouain a	1977	Assaad M Mounzer a
1958 (?)	Najib Salahuddine +a	1977	Nabil J Sayegh a
1959	Sami Arap a	1977	Tawfik A Zein a
1959	Alexander Sadik a	1978	Raja B Khawli a
1960	Louis Niman Ashkar a	1979 (?)	A N Ghanem a
1960	Zahi N Makhuli a	1980	Thomas Allen Coury a
1960	Carlos H Mata a	1980 (?)	Basem Khouri a

+ means deceased
a means abroad
l means in Lebanon

Paris (c 1896) but never practiced it. The same happened (1914) to Dr Mikhail H Malouf (1882-1961) [53]. I have Pierre Duval's book on "Chirurgie de l'Appareil urinaire et de l'Appareil génital de l'homme" Paris: Masson et Cie, 1910 with the following inscription: "Dr S Talhouk, Fayoum Egypte Sept 1912" as well as Félix Legueu's two volumes entitled "Traité chirurgicale d'Urologie" Paris: Félix Alcan, 1910 inscribed with "Appartient à M K Malouf, Paris 1/4/1914 [Presented to dear Farid son of the capable, most famous and brilliant surgeon Sami Haddad from the sincerely affectionate miJaA'iyl Jaliyl ma`luwf 31 March 1945". Dr Ma'luwf had also presented me with his collection of old surgical instruments such as a fetal lithclast etc...

Modern Urology in Lebanon actually starts with Dr Sami Ibrahim Haddad (1890-1957) a Rockefeller Scholar who specialized in Urology in Baltimore (1921) under the father of American Urology, Hugh Hampton Young [54]. He became

Table 4. Lebanese urologists in alphabetical order

Abou Chaar, Gabriel	1945	Khawli, Raja B	1978
Al Khalil, Saadallah	1944	Khouri, Basem	1980
Allamé, Fakhry	1957	Khoury, Elie Phillippe	1970
Al Masri, Darwich	1955	Khoury, Ernest N	1940
Altabarmakian, Varouj K	1974	Khoury, Farid George	1963
Antun, Saad S	1964	Khoury, Fuad Jamil	1972
Arap, Sami	1959	Khoury, Saad	1965
Ashkar, Louis Niman	1960	Kyriakos, Raymond J	1955
Assali, Albert V	1963	Mady, Khayrallah	1974 ?
Atallah, Félix	1958	Makhuli, Zahi N	1960
Attié, Yusif	1914	Mallouh, Camille	1957
Azury, Bahij S	1948	Ma`luf, Mikhail	1906
Bejany, Darwich	1974	Maluf, NSR	1946
Bejjani, Bassam	1975	Mata, Carlos H	1960
Bouhanna, Ernest	1951	Mounzer, Assaad M	1977
Cessine, Milad	1953	Muakkassa, Wael F	1976
Chaiban, Robert	1955	Mufarrij, Walid Afif	1973
Chehadé, George	1961	Naffah, Joseph	1953
Chelouhy, Edward	1966	Najjar, Ibrahim	1942
Coury, Thomas Allen	1980	Nasrallah, Philip F	1971
Debs, Chaouki	1971	Rebeiz, Gabriel	1954
Elias, Jorge Dib	1952	Rizk, Assaad T	1954
Faddoul, Abdo J	1975	Rizkalla, Sam N	1966
Fadil, Richard	1954	Sadik, Alexander	1959
Freiha, Fuad S	1966	Saikali, Wa•l	1975 ?
Fuleihan, Farid M	1961	Salahuddine, Najib	1958 ?
Ghanem, A N	1979 ?	Sayegh, Emil S	1934
Ghanem, Emil J	1941	Sayegh, Nabil J	1977
Gharghour, Kamil	1908	Shami, FF	1966
Haddad, Farid Sami	1948	Sidani, Walid I	1972
Haddad, Sami I	1913	Sleiman, Raymond	1972
Hamadeh, Kamal T	1956	Talhuq, Salim M	1894
Hanach, Kamal	1966	Tarabulcy, Edward	1946
Homsy, Yves L	1966	Tawil, George N	1973
Kalash, Suhayl S	1973	Torbey, Khalil	1955
Karmi, Sa•d A	1964	Zein, Tawfik A	1977
Katul, Munir J	1962	Zouein, Joseph	1957

the Professor of Surgery (1937) at the American Medical School in Beirut and the Dean of the Medical Faculty (1941) before he founded The Orient Hospital in 1947 [55]. He introduced to Lebanon and the Middle East the cystoscope, the PSP test, and the pyelogram. He founded the Annual Report of the Orient Hospital (1948-1973) and published several papers on Urological subjects and a textbook on Urology "Essentiels of Urinary and Genital Diseases" in 1946 [56]. He was also active in the field of Medical History, collected hundreds of Arabic Medical Manuscripts and published several articles on the History of Arab Medicine as well as a book on the [Contributions of the Arabs to Medicine] (Arabic) in 1936 [57,58]. Contemporary with Haddad, two other physicians became urologists: Kamil Gharghour (b 1887 of Palestinian-Austrian extraction) [59] and Yusif (Joseph) Attié (MD 1914).

The era of modern urology was ushered in 1954 when a new batch of young Urologists started to return to Lebanon from their studies abroad. They were: Farid S Haddad, Bahij Azuri, Ernest Bouhanna, Milad Cessine, Gabi Rebeiz, Assad Rizk, Darwich Masri, Felix Atallah, Robert Chaiban, Raymond J Kyriakos, Khalil Torbey, Kamal T

Table 5. New modalities of diagnosis and treatment. introduced at The Orient Hospital (1954-1969)

	Date	Initials	Number	References
Pre-sacral oxygen insufflation in the rœntgenographic diagnosis of pararenal masses				
	1955 01 07	AGh	OH 4558	AROH 1955 8 19 & 22
Translumbar aortography				
	1955 01 10	AGh	OH 4558	AROH 1955 8 19 & 21
Endoscopic (transurethral) resection of the prostate				
	1955 02 05	MA	OH 4331	
Catheterization of the ejaculatory ducts				
	1955 02 12	MA	XR 2538	
Endoscopic (transurethral) resection of bladder tumor				
	1955 03 10	HGh	OH 4570	
Endoscopic (transurethral) resection of ureterocele				
	1954 11 11	ZIK	OH 4494	
Post prostatectomy calculi				
	1956 12 06	MMA	OH 5493	Proc XIth Int Congr Urol T II pp 391-6 AROH 1960 13 62-3 AROH 1967 20 25-9
New technique for the removal of spermatoceles intact				
	1958 11 08	YQN	OH 5750	AROH 1971 24 21-35
Pre-sacral oxygen insufflation as an aid in retroperitoneal surgical dissections				
	1958 11 08	AMD	OH 6725	AROH 1960 13 1-19 AROH 1961 14 53-4
Disturbances of ejaculation				
	1961 10 27	HCH		AROH 1963 16 1172-5
Marplan in the treatment of ejaculatio precox				
				AROH 1961 14 60
A new method of urinary diversion				
	1962 06 06	ARA	OH 8056	AROH 1963 16 1176
The use of urinary flow measurements in the spacing of urethral dilatations for the treatment of urethral strictures				
	1962	AS		AROH 1964 17 1297-1300
Lymphography				
	1966 08 19	UH	OH 10099	AROH 1967 20 5-15
Guided segmental renal arteriography				
	1966 10 25	KH	XR 2396	
Interstitial cell tumor of the testicle with impotence and hydrocele				
	1969 01 25	WHM	OH 11312	AROH 1971 24 36-42

Hamadeh, Fakhry Allamé, Joseph Zouain, Najib Salahuddine, Georges Chehadé, and several others who practiced Urology at various Hospitals in Beirut.

Vertebral angiography and Pressuren anesthesia were not included in this list because I was unable, on account of the loss of almost all the records of the Orient Hospital (patients charts, admission books, alphabetical cards, diagnosis cards, cards of the roentgenographic department etc) during the war in Lebanon (1975-6), to verify the dates, the patients' serial numbers and the roentgenograms' serial numbers.

ABBREVIATIONS: AROH = Annual Report of the Orient Hospital (it was founded in 1948 and the last volume (26) appeared in 1973); OH = Orient Hospital; XR = X-ray number.

I, Farid Sami Haddad (b 1922) was the first of them. I introduced to the Middle East endoscopic urology (transurethral resection), aortography, arteriography, vesiculography, lymphography and retroperitoneal oxygen insufflation (Table 5). I founded the Lebanese Urological Society (1957) of which I was the first President and remained PResident thereof for ten years (1957-67) and, with Dr Emile Bitar, I founded the Lebanese Society for

the History of Medicine (1964). With Darwich alMasri, I laid the foundations of an Arab Society of Urology.

We organized the first Urology meeting in 1959 on May 25 [60]. Dr Fakhry Allame, a younger member of our group became the Dean of the new Medical School at the Lebanese University (c 1982). Another aspect of the History of Lebanese Urology is the story of Lebanese scientists, like Sir Peter Medawar, and several other Lebanese Urologists who contributed to Urology abroad (Tables 3 & 4).

From time immemorial Lebanon has played the role of a source of human element who went migrating mostly westward. The best known migration was that of Dido (Elissa) who went from Tyre to found Carthage in North Africa. Less well known however was a previous migration to North Africa that reached Morocco [61]. The migration of the Arabs led them to North Africa and across the Pillars of Hercules into Spain and the South of France (713 AD). After this feat, the Pillars of Hercules became known as the straights of jabal TaAriq [the mount of TaAriq or Gibraltar]) after the name of their famous commander. The most contemporaneous of these migrations involved the graduates of the universities who went west, mainly to the USA and carried the culture with them [61,62]. It has been found that between 1871 and 1914, about 30 % of Lebanese physicians migrated to Egypt (22), the Sudan (17), Palestine (11), Iraq, (7) Syria (5), Jordan (3), Brazil (3), the Philippines (2), the USA (1) and to Ethiopia (1). The number of medical graduates who go and specialize abroad has varied between 86% (1944-57) and 91% (1966) [Haddad 1973]

Syria

The first medical school to teach medicine in Arabic in modern times was founded in Damascus at the turn of the century. In Syria, Urology started with Dr Mounir Choura who wrote a urological text in Arabic "ÌfaAt aljihaAz albawliy wa altanaAsuliy" [Affections of the Urinary and genital systems] Damascus, 1962 [63]. He was followed by Qamand who graduated from Germany, Adib Attar, Farzat Nashawi and at least fifteen others who migrated to the USA: Waleed B Nahas (MD 1960), Safouh Atassi (MD 1964 ?), Nabil Hilwa (MD 1969), Ghassan K Roumani (MD 1969), Bassem Atassi (MD 1970), Joseph C Kassis (MD 1970), Nazir Hamawi (MD 1971), Issam Mouded (MD 1971), Ramsy Haj-Murad (MD 1972), MM Zaitoon (MD 1972), M Aziz Baghal (MD 1973), Farid Jano (MD 1973), Marwan Atallah (MD 1974 ?), Rahis M Lababidi (MD 1974 ?), Tawfik Hadaya (MD 1978), and Ghassan RifaÏ.

Iraq

The Medical School of Baghdad was founded in the twenties and quite a time elapsed before the specialty of Urology became established in Iraq; previously urologic operations were performed by the general surgeon. One of the earliest true urologists in Baghdad was Talal Shawkat (c 1961). In Musil, a Medical School was opened during the royal period and a medical journal was started. One of the first urologists in Mosul was AK Al-Falaki [64]. We have been able to find only one Iraqi Urologist who migrated to the USA, Emil Totonchi (MD 1968).

Kuweit, before the international buccaneers made it an independent country, was a county of Iraq. In the early years of this century, PW Harrison was one of the first modern physicians to have performed urological operations at the American Mission Hospital which we visited later on in 1962. The ultra-modern Assabah Hospital was built when Dr Zahi Haddad was the effective Director General of Medical Services in Kuweit and the first director of the Sabah Hospital [65]. Dr Zahi Haddad, who was of Lebanese origin, had worked in the department of health in Palestine as Medical Officer in Tiberias, Senior Medical Officer in Qantara, Haifa, Nablus, Jaffa and Nazareth. For his excellent work, he was decorated with the OBE (Officer of the British Empire). He died in Kuweit [66] and was burried there. A few days after his death, the Kuweiti Medical Association held a special memorial meeting where several several eulogies were read by his colleagues and by Kuweity Government Officials [67]

The first Urologist in Kuweit was Dr Husayn Amin; he was of Egyptian origin (c 1966). In 1966, there were in Kuweit about 500 Physicians and 4000 Hospital beds [68]. Other urologists included Ali E Tannir and Hassan Hathout [69]

Palestine

From the period of the Crusades (11th century) a Hospital was founded in Jerusalem by the Knights of St John of Jerusalem (also known as Knight Hospitalers and Knights of St John of Rhodes [1310] or of Malta [1530]). After Saladin took back Jerusalem, a herbalist-botanist, rashid aldiyn alSuwriy (1177-1238) originally from Tyre, thrived in Jerusalem and became very famous for his writings on materia medica.

The Palestine Arab Medical Association was founded in 1946; Dr Zahi I Haddad (1895-1964) was its first President. The Journal of the Palestine Arab Medical Association was also founded shortly thereafter.

The influx of zionists into Palestine (Israel) resulted in the largest physician/population ratio in the world. This plethora of physicians (12 000/5 000 000 ie a ratio of 1/417) resulted in a unique situation where physicians started to be employed as taxi drivers, restaurant waiters and in similar undignified (debased, demeaned, unbecoming) employment. With the new influx of Russian jews (1 000 000 with 8 000 physicians) the ratio might become 1/300 ! There are 19 Urologists in Israel who are members of the International Society of Uro-logy (A Savir, M Prat, E Merimsky, M Firstater etc).

Several Palestinians became Urologists in the diaspora like Sa•d A Karmi (MD 1964), who came from a very well known Palestinian family from Jerusalem; he participated in the first program of renal transplantation in the Middle East (in Amman, Jordan) [70] and later migrated to the USA as also did Riad N Farah (MD 1966), Ibrahim Hawatmeh (MD 1969).

Jordan

In the early seventies, a renaissance of medical activities took place in Jordan. A Medical School was opened; several very well equipped hospitals were founded and a number of excellent and very well trained physicians and surgeons started this renaissance. A Jordanian Medical Journal began to publish the results of this endeavour.

Saudi Arabia

With the influx of oil money in the latter half of the twentieth century, the Saudi Government devoted large amounts of it to the erection of Hospitals and the founding of medical schools. In 1980 there were two important hospitals in Riyadh: The Central Hospital in Riyadh, commonly known as the Chmaysi and The King Faisal Specialist Hospital which opened in July 1975. The building of the third hospital, that of the National Guard was completed in 1981. At first these were manned by imported physicians; but gradually the imported physicians were being replaced by Saudis. With the growth of the substructure of hospitals, medical schools, physicians and supporting infrastructure, medical journals began to flourish. "The Saudi Medical Journal" issued by the Medical Services of the Armed Forces, is in its 13th year of publication. The Annals of Saudi Medicine is now in its 12th year of publication; it started in July 1981 as "The King Faisal Specialist Hospital Medical Journal"; after 4 years, its institutional base was broadened to include the participation of the King Saud University in Riyadh, and, starting with Volume 5, number 3, dated July 1985, its name was changed to "The Annals of Saudi Medicine".

I was one of the first certified Urologists to work in Saudi Arabia (1977-81); I performed the first Urological procedure in Saudi Arabia at the Obeid Hospital in Riyadh in 1977 [71]. Other Urologists included Kamal Hanach and Nabil Bissada at the King Faisal Specialist Hospital in Riyadh and Dr WaÏl Saikali who practiced at the Bakhsh Hospital in Jeddah (c 1980).

Table 6. Population per physician and per hospital bed

Country	Pop/ Physician	Pop/ Hosp bed	Pop/ Med Sch
Lebanon	00719	0263	01.1 M
Israel	00345	0180	01.2 M
Qatar	00581	0366	
Kuweit	00654	0340	02.2 M
Lybia	00694	0207	
Bahrein	00820	?????	
United Arab Enirates	00835	0301	
Jordan	01010	0811	04.0 M
Oman	01078	0443	
Syria	01328	0776	04.3 M
Algeria	01814	0367	
Tunisia	02176	0482	
Iran	02885	0673	05.6 M
Egypt	00701	0498	06.1 M
Turkey	01370	0472	06.5 M
Iraq	02565	0547	06.7 M
Saudi Arabia	00830	0542	07.5 M
Morocco	04737	0862	
Yemen	05306	2232	12.5 M
Afghanistan	05608	2876	08.0 M
Sudan	10108	1112	26.0 M

These figures are averaged from two sets of figures obtained from two different sources

Conclusion

I have gathered a few statistical numbers (Table 6) to show the number of physicians and the number of Hospitals relative to the population of the various countries in the Middle East. These might be useful in any plan to revamp the medical resources in the Middle East.

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AROH = Annual Report of the Orient Hospital

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