

GALEN & ASKLEPION HEALTH CENTER

BY M. BASHEER AHMED, M.D.

PART 1...

PART 2 WILL BE FEATURED IN THE OCTOBER EDITION

In the summer of 2010 I visited Turkey to attend an international conference in Istanbul. I have visited Istanbul a few times in the last ten years. It is a beautiful and fascinating city, part of which is located in Asia and the other part in Europe. They are connected by the famous bridge over Bosphorus. This year I included a trip to the southwest part of Turkey – Izmir. Izmir is an ancient part of Turkey, which was ruled by several Empires: Greek, Roman and finally Ottoman. There are parts of Izmir where you can actually see the buildings, which were originally built in the 4th Century BC and discovered after the archaeological excavations in the 1950s to 1970s. The most exciting moment came when I stood on the ruins of a hospital where the most famous physician of ancient times, Galen, had practiced medicine.

Mankind's quest of healing of illness influenced human beings since the time immemorial. In ancient times the healing power of God and the supernatural beings played an important role in healing. From the 12th century BC "Asclepius," a Greek mythological God, was regarded as the most important god of health in the ancient western world and this belief continued in the Roman era. Many temples were founded on its name that served as health centers (hospitals). The treatment methods that were applied at these hospitals partially served the same function as in today's hospitals, with specific emphasis on miraculous healing powers that were believed to come from the gods.

The Odyssey and *The Iliad* by Homer of the 8th century BC provide some information of medical practices in that era in Greece. Hippocrates, the famous physicians of the 5th-4th centuries BC changed the course of practice of medicine in ancient times with the extensive writing on human diseases and healing. He wrote on many subjects including anatomy, physiology, diet, pathology, surgery and gynecology. He described four liquid disciplines as the reason of illness. He stated that the diseases were the result of an increase of imbalance in these liquids, namely blood-mucus, yellow ballast, and black ballast. His work *Corpus Hippocraticum* became the foundation of Western medicine.

Asklepion health center of Pergamum was originally built in Izmir in the 4th century BC. However, most of the building seen today were remodeled in the 2nd century AD during the period of the Roman Empire. It had a great reputation for its treatment methods and its unique architecture. Several emperors, philosophers and aristocrats received treatment in this hospital between the 2nd century BC and the 2nd century AD. A famous orator Aelius Aristides came to Asklepion for treatment of his illness. He recorded the detailed architectural plan of the hospital where multiple modalities of treatments were offered.

Asclepius was a real physician who lived in Greece around 12th century BC, and through time, myth and legend; he became the Greek god of healing. He was

the first to record the use of herbs, the dose, and the condition treated, as well as the final outcome. This made him the first physician to record and empirical methodology of medical treatment. His following grew and flourished for a thousand years as patients were brought to temples of healing that followed his paradigm. The influence of Asclepius was far reaching. Hippocrates and Galen both studied in the Asklepion treatment centers, where the transformation from the healing power of faith and gods to empirical science based on observation and experiments continued to grow over several centuries.

The story of Asclepius is that he was the son of Apollo, the Healer, who was conceived by the union between the Apollo and a mortal woman, Koronis. According to ancient sources, Apollo's twin sister, Artemis, caught the pregnant Koronis having an affair with another mortal man. Artemis punished the betrayal of her brother by killing Koronis. However, Apollo saved the unborn child by performing the first caesarean section. He then gave the infant to a wise man, Chiron, to raise him. Asclepius was taught the art of medicine, use of drugs, healing, and the art of surgery, and thus he became the most well respected doctor of his day. It wasn't until the end of the ancient world and the rise of Christianity in the first and second centuries AD that the Asklepion movement began to lose its human appeal. Until that time, nearly every Greek city had its own Asklepion Temples – the healthcare

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centers of those days.

The Temple of Asklepion in Pergamum, Turkey, was built in the 4th century BC and remodeled in the 2nd century AD. Just in front of the entrance of the temple there is the 820-meter-long holy road, which connected the Asklepion to the lower city in the Roman Ages. The part of the road with marble columns, which is still seen today, was discovered during the Pergamon excavations in the 1960's and 1970's. At the end of the street there is a courtyard of the Asklepion entrance, which is surrounded by Corinth-type columns on the three sides; in the middle of the court is an altar made of the marble, on which there are sculptures of snakes representing the god Asklepion. There is an 80 meter-long holy tunnel connected to the sacred area through a passage that was covered with a vault. It received its light from the open parts of the ceiling. At this passage, patients were kept waiting for days and months until they would see dreams. This area was also built for protection of the patients from negative weather conditions. The water from the sacred area was regarded as sacred and believed to have healing power. Attached to the sacred area is a theatre with a viewer capacity of nearly 3,500 people. It is in the shape of a half-circle. The detailed information about the treatment methods applied at Pergamum Asklepion in the Roman Period where documented by the great Roman orator, Aelius Aristides, who had chronic illness – difficulty in breathing, fever, swelling of the belly, possibly psychosomatic illness – came to Pergamum Asklepion and stayed 13 years for treatment and recorded the treatment methods that were applied to him. Aristides, who regained his health by the treatment, recorded his experiences in his book, *Hieroi Logoi*.

The patients who came to Asklepion for treatment were examined first at the gate. Those patients who were sick with terminal illness and had no chances to be healed were not admitted to the hospital. Women who were to give birth soon were not accepted in the sacred area. At the entrance door of the sacred area, there was the epigraph "For the Sacred-

ness of all gods, death is not allowed in Asklepion." If the patient was admitted, he had a hope to get better. The patient who was accepted into the temple had to make some ritualistic preparations first. He would wear white clothes, the symbol of cleanliness, wash in the sacred well and clean himself. After the cleaning process, he would present sacrifice to the gods to show gratitude. These sacrifices were food, money, a sacred animal – calf, ram, rooster, etc. In order for the patients to easily provide their sacrifices, there were sales of sacrificial goods and various animals in the shops that were located throughout the sacred road.



The Sacred Way leading into the Asklepion

The patients in the sacred area were first left to sleep in special rooms. This was called temple sleep – incubation (Aristides has also slept in the temple for two years). The patient was generally supposed to see god-Asclepius in the dream that would heal the patient directly or inform him of the treatment methods, which the patient would remember when he woke up. Sometimes the dreams were not very well understood by the patients and interpretation by the priests was necessary. Several treatment methods including massage therapy were used for patients who were seriously ill or later used as at treatment during recuperation. Various oils and ointment were taken from different plant roots and leaves and mixed with wine, vinegar and honey and applied according to the type of illness. "Shaking the body" by riding a horse, was also a treatment method that was frequently used for patients who had stones in their body. Walking on soil with bare foot, running around the sacred area and

various simple movement of body were included in the exercise program for patients.

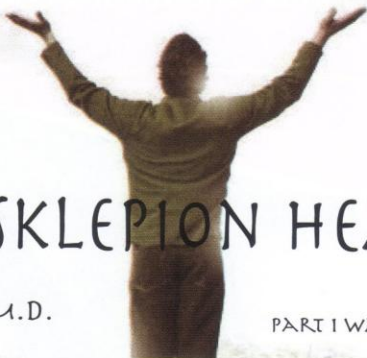
Herbal Medications: Diet pills, made of the roots and leaves of various plants, were among the other methods used in the treatment. Various relaxing drinks, taking the blood, and purgation were frequently mentioned as other methods of treatment.

Snake Bite: Biting of the patient by a sacred snake whose poison was taken out licking by a sacred dog or snake were also mentioned as a helpful methods for healing of various ailments.

Surgery: Surgical treatments were applied as a last choice, due to the high risk of bleeding, infection and mortality. Many surgical tools were found during the archeological excavations in the sacred area of Asklepion, such as catheter, needle, knife, spatula, tweezers and forceps. Galen, who was the famous physician of that era, had made important advances in methods of surgery. He gained the experience with the various surgical applications he carried out while he was the doctor of gladiators who performed in a Roman amphitheater in that area.

The patients who were healed at the sacred area were required to make a presentation of an offering just as they did when they arrived at the sacred area. The presentations could be food, money, animal or anatomic offering. However, as an expression of gratitude, the most important presentation was offering plaques. In the sacred area many offering plaques have been found made of bronze material which contained information about the type of illness and treatment individual had received. ✚

This story will be continued in the October edition of the Tarrant County Physician.



GALEN & ASKLEPION HEALTH CENTER

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PART 2

PART 1 WAS FEATURED IN THE SEPTEMBER EDITION

Galen was a prominent Roman physician and philosopher of Greek origin, and probably the most accomplished medical researcher of the Roman period. He studied in Pergamum (Turkey), which was part of Greece and then of the Roman Empire. He traveled to Alexandria, Egypt to complete his medical studies and then traveled extensively, learning a wide variety of medical theories and discoveries, before settling in Rome, where he worked for elite clients. Eventually he was given the position of personal physician to several emperors. His theories dominated and influenced Western medical science for well over a millennium and continue to have an impact on modern medicine. His account of medical anatomy was based on dissection of monkeys, because human dissection was not permitted in this time. He first had exposure with the epidemic of the Plague when he was in Rome and during an outbreak of plague among troops stationed at Aquileia. He studied the epidemic of plague extensively and wrote about its symptoms and treatment.

Galen's contributions spanned numerous academic disciplines. Although the main focus of his work was on medicine, anatomy, and physiology, Galen also wrote about logic and philosophy. Earlier Greek philosophers, including Socrates, Plato and Aristotle, influenced his work. His understanding of anatomy and medicine were principally influenced by Hip-

pocrates' humoral theory. He contributed to the understanding of numerous fields of medicine including anatomy, pathology, pharmacology and neurology. Galen contributed a substantial amount to the Hippocratic understanding of pathology. According to Hippocrates humors theory, the four universal elements that comprised the world – earth, air, fire and water were associated with one of the humors – blood, phlegm, black bile and yellow bile. Differences in human moods came as a consequence of imbalances in one of these bodily fluids. Galen took Hippocrates' theory and created a typology of human temperaments. An imbalance of each humor corresponded with a human temperament (blood – sanguine, black bile – melancholic, yellow bile – choleric and phlegm – phlegmatic). Individuals with sanguine temperaments are extroverted and social. Choleric people have energy, passion and charisma. Melancholic are creative, kind and considerate. And phlegmatic temperaments are characterized by dependability, kindness and affection. When the body's humors were in proper alignment, a person was healthy, when out of balance he was sick. The task of the doctor, according to Galen was to restore this alignment by prescribing changes in diet, exercise and certain activities or by taking some herbal medications or other measures. For example: fever was caused by too much blood and thus he prescribed bloodletting to remove the excesses. Although it was

incorrect, it was essentially a rationalist view of health and disease.

Galen gained knowledge of anatomy by dissecting animals, mostly focusing on pigs and primates, due to restrictions on the dissection of the human body. Although these experiments gave him more complete understanding of the circulatory system, the nervous system, and other structures, his work was not without scientific inaccuracies. Galen's understanding of blood movement was flawed as was his belief that a group of blood vessels, called the rete mirabile, was near the back of the human brain. This was based on dissection of sheep and misidentifying the results with the human carotid sinus.

Galen was the first to recognize that there were distinct differences between venous (dark) and arterial (bright) blood. However, he inaccurately stated that venous blood was created and pumped by the liver and that arterial blood originated in the heart. Galen believed that blood movement was two one-way systems of distribution, rather than one single system of circulation. He identified that blood was distributed to all organs of the body, where it was consumed. Galen also performed surgeries on human patients, especially procedures on patients' brains and eyes. Galen performed cataract surgery on patient that is similar to what is performed by contemporary ophthalmologists.

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Galen's reputation as both physician and philosopher is well known. The Roman Emperor Marcus Aurelius described him as "first among doctors and unique among philosophers." Galen summarized and synthesized the work of his predecessors, and it is in Galen's words (Galenism) that Greek medicine was handed down to subsequent generations, such that Galenism became the means by which Greek medicine was known to the world. Even today in the Indo-Pakistani Sub-Continent, Eastern medicine is practiced as Unani medicine (Greek Medicine) and Galen's theory of humors is also taught.

Greek medicine was part of Greek culture, the Roman Empire and Byzantium. Christians came in contact with Greek medicine while the Eastern Roman Empire (Byzantium) ruled Syria and Western Mesopotamia. In the later part of the seventh century, Arab Muslims conquered most of the Eastern Byzantium territory, and subsequently all the Greek scholarly work was translated and preserved in the Arabic language. From then on Galen and

the Greek medical tradition in general became assimilated into the medieval and early modern Islamic Middle Eastern medical practices. Muslim physicians ad-



Galen: ("Claude Galien". Lithograph by Pierre Roche Vigneron.)

opted the Galen rationalistic approach as they saw themselves as healers and preservers of health rather than relied upon

super natural of faith healing.

The Syrian Christian translator Hunayn ibn Ishaq made the first major translation of Galen into Arabic. Hunayn (c. 830-8

translated 129 books of Galen (János) into Arabic. One of the Arabic translations, "Kitab ila Aglooqar Shifa al Amraz," which is extant in the Library of Ibn Sina Academy of Medieval Medicine & Sciences, was translated in India. This is a masterpiece among all the literary works of Galen. It is a part of the Alexandrian compendium of Galen's work. The book provides insight into understanding the traditions and methods of treatment in the Greek (Unani) and Roman era.

Galen's work and contributions to medicine had a profound effect during the first millennium and preeminence among the great thinkers, as exemplified by a 16th century mural in the refectory of Great Lavra (Monastery) of Mt. Athos, Greece.

This depicts pagan sages as the founders of the Tree of Jess, with Galen between the Sibyl and Aristotle. ✚