

Perm State Medical University

The history of surgery

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A Timeline of Surgery

Early Surgery:

- 6,500 BC Skulls are trepanned;
- 1,500 BC The Ancient Egyptians have some knowledge of anatomy from mummification;
- 335-280 BC A Greek named Herophilus lives. He carried out dissections of human bodies in public;
- 130-210 AD The Roman surgeon Galen lives. Many of his ideas are wrong but they dominate surgery for centuries;
- 476 AD The Roman Empire in the West falls. Afterwards many skills are lost in Western Europe but are kept alive in the Byzantine Empire and are later practiced by the Arabs;



A Timeline of Surgery

- 13th Century In Europe surgery revives. In towns skilled craftsmen called barber-surgeons practice. They carry out amputations and set broken bones. However barber-surgeons are lower in status than university educated doctors;
- 1452-1519 Leonardo Da Vinci lives. He dissects some human bodies and makes accurate drawings of them;
- 1543 Andreas Vesalius publishes *The Fabric of the Human Body*, which contains accurate diagrams of the human body;
- 1728-1793 John Hunter, known as the Father of Modern Surgery lives.

A Timeline of Surgery

Modern Surgery:

- 1842 Crawford Long uses ether as anesthetic;
- 1865 Joseph Lister discovers antiseptic surgery;
- 1890 Rubber gloves are first used in surgery;
- 1895 Wilhelm Roentgen discovers x-rays;
- 1905 Novocain is used as a local anesthetic.

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Trepanation



Trepanation is a surgical intervention in which a hole is drilled or scraped into the human skull. The intentional perforation of the cranium exposes the dura mater to treat health problems related to intracranial diseases or release pressured blood buildup from an injury. The main pieces of archaeological evidence are in the forms of cave paintings and human remains. At one burial site in France dated to 6500 BCE, 40 out of 120 prehistoric skulls found had trepanation holes. Many prehistoric and premodern patients had signs of their skull structure healing, suggesting that many of those subjected to the surgery survived.

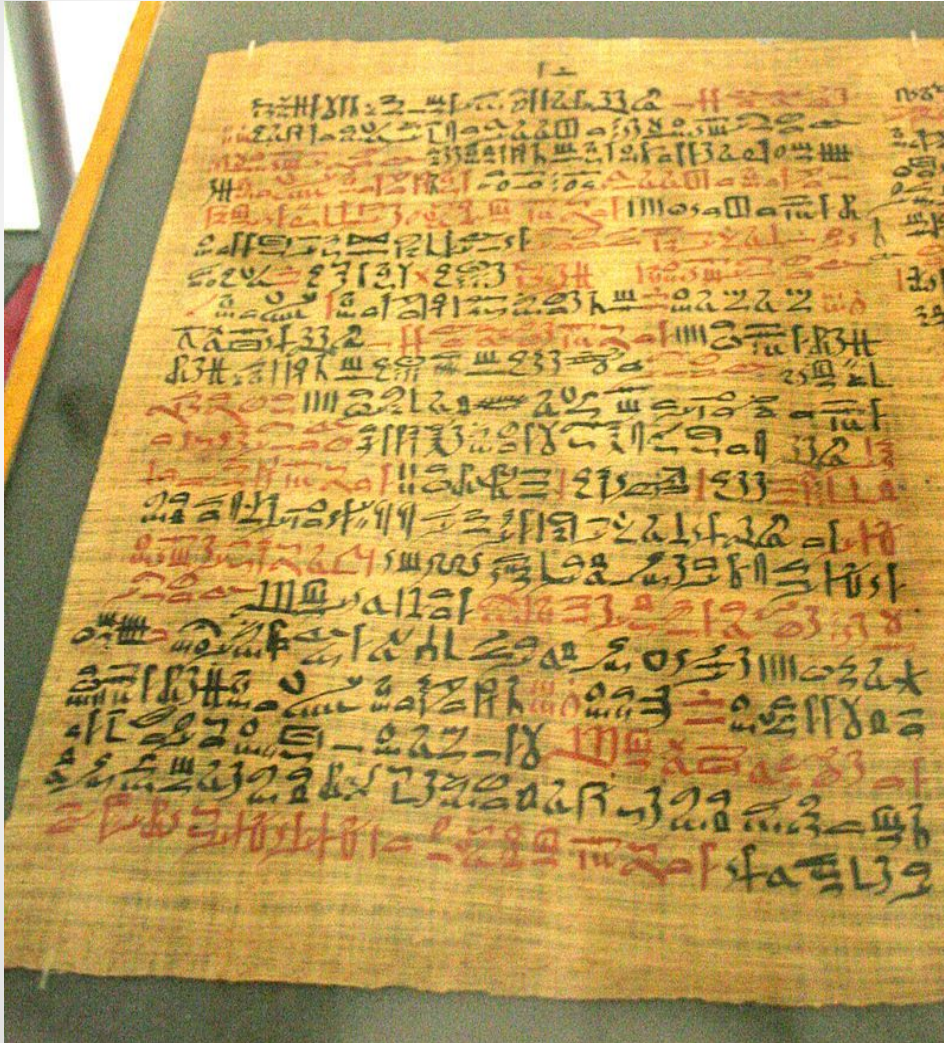
Bloodletting

Passages from the Ebers Papyrus may indicate that bloodletting by scarification was an accepted practice in Ancient Egypt. Egyptian burials have been reported to contain bloodletting instruments. In Greece, bloodletting was in use in the fifth century BC during the lifetime of Hippocrates, who mentions this practice but generally relied on dietary techniques. Erasistratus, however, theorized that many diseases were caused by plethoras, or overabundances, in the blood and advised that these plethoras be treated, initially, by exercise, sweating, reduced food intake, and vomiting. Archagathus, one of the first Greek physicians to practice in Rome, believed in the value of bloodletting. During the Roman Empire, the Greek physician Galen, who subscribed to the teachings of Hippocrates, advocated physician-initiated bloodletting.



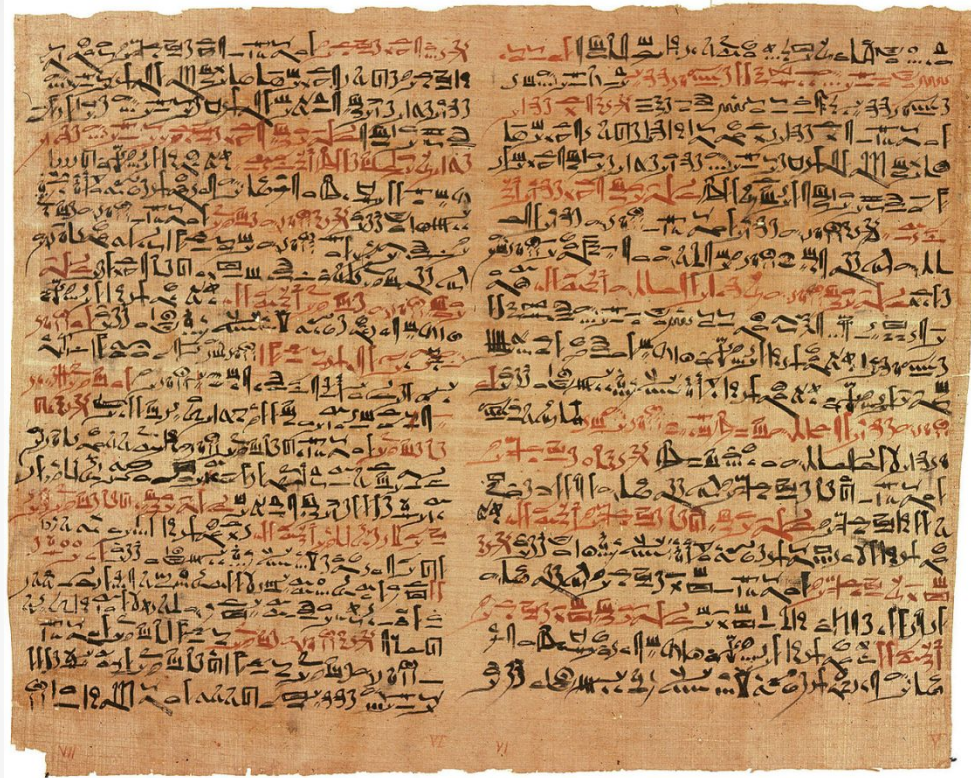
Egyptian medical papyri

Ebers Papyrus



The most important discovery relating to ancient Egyptian knowledge of medicine is the Ebers Papyrus, named after its discoverer Georg Ebers. The Ebers Papyrus, conserved at the University of Leipzig, is considered one of the oldest treaties on medicine and the most important medical papyri. The text is dated to about 1550 BCE and measures 20 meters in length. The text includes recipes, a pharmacopoeia and descriptions of numerous diseases as well as cosmetic treatments. It mentions how to surgically treat crocodile bites and serious burns, recommending the drainage of pus-filled inflammation but warns against certain diseased skin.

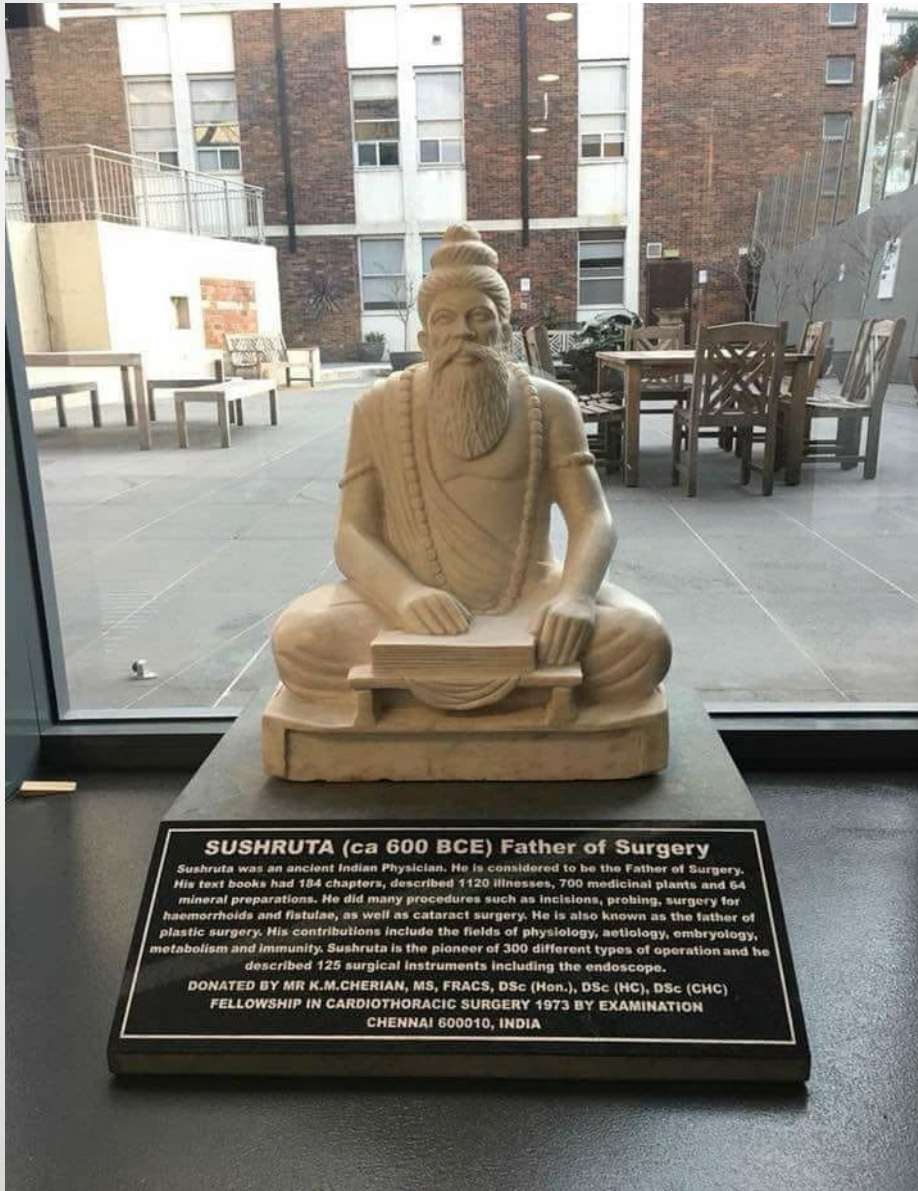
Edwin Smith Papyrus



The Edwin Smith Papyrus is a lesser known papyrus dating from the 1600 BCE and only 5 meters in length. It is a manual for performing traumatic surgery and gives 48 case histories. The Smith Papyrus describes a treatment for repairing a broken nose, and the use of sutures to close wounds. Infections were treated with honey

Sushruta

Founding father of surgery



His period is usually placed between the period of 1200 BC - 600 BC. He was an early innovator of plastic surgery who taught and practiced surgery on the banks of the Ganges in the area that corresponds to the present day city of Varanasi in Northern India. Much of what is known about Sushruta is in Sanskrit contained in a series of volumes he authored, which are collectively known as the Sushruta Samhita. It is one of the oldest known surgical texts and it describes in detail the examination, diagnosis, treatment, and prognosis of numerous ailments, as well as procedures on performing various forms of cosmetic surgery, plastic surgery and rhinoplasty.

The Sushruta Samhita is one of the most important surviving ancient treatises on medicine and is considered a foundational text of Ayurveda.

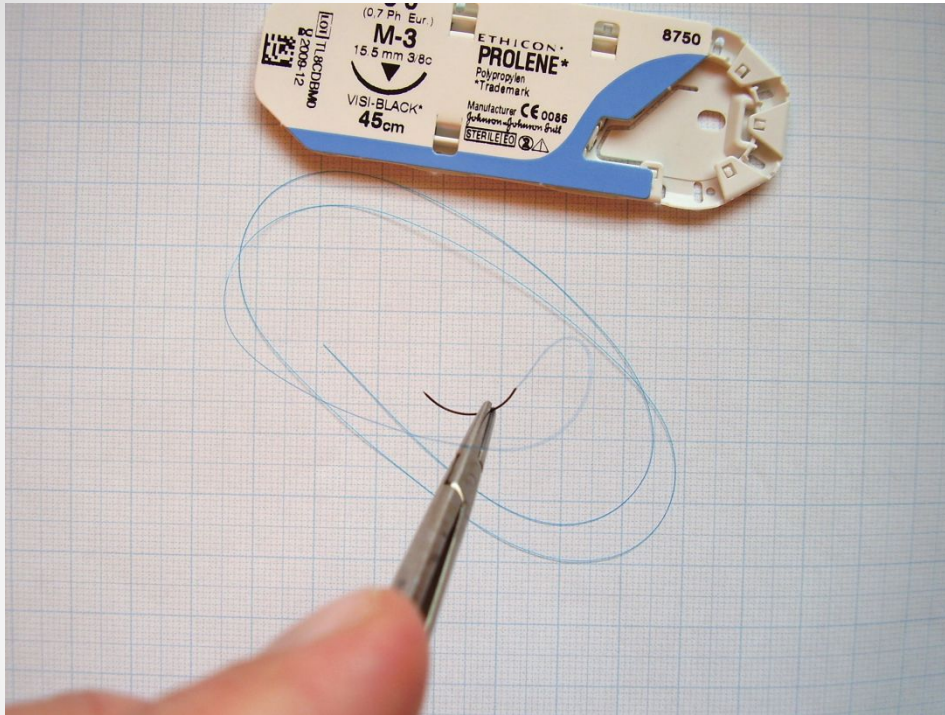
Galen

Greek physician, writer, and philosopher who exercised a dominant influence on medical theory and practice in Europe from the Middle Ages until the mid-17th century. His authority in the Byzantine world and the Muslim Middle East was similarly long-lived.

His anatomical reports were based mainly on the dissection of Barbary apes. However, when he discovered that their facial expressions were too much like those of humans, he switched to other animals, such as pigs. His anatomical reports remained uncontested until 1543, when printed descriptions and illustrations of human dissections were published in the seminal work «De humani corporis fabrica» (The fabric of the human body) by Andreas Vesalius where Galen's physiological theory was accommodated to these new observations. Galen's theory of the physiology of the circulatory system remained unchallenged until 1242, when Ibn al-Nafis published his book «Sharh tashrih al-qanun li' Ibn Sina», in which he reported his discovery of pulmonary circulation.

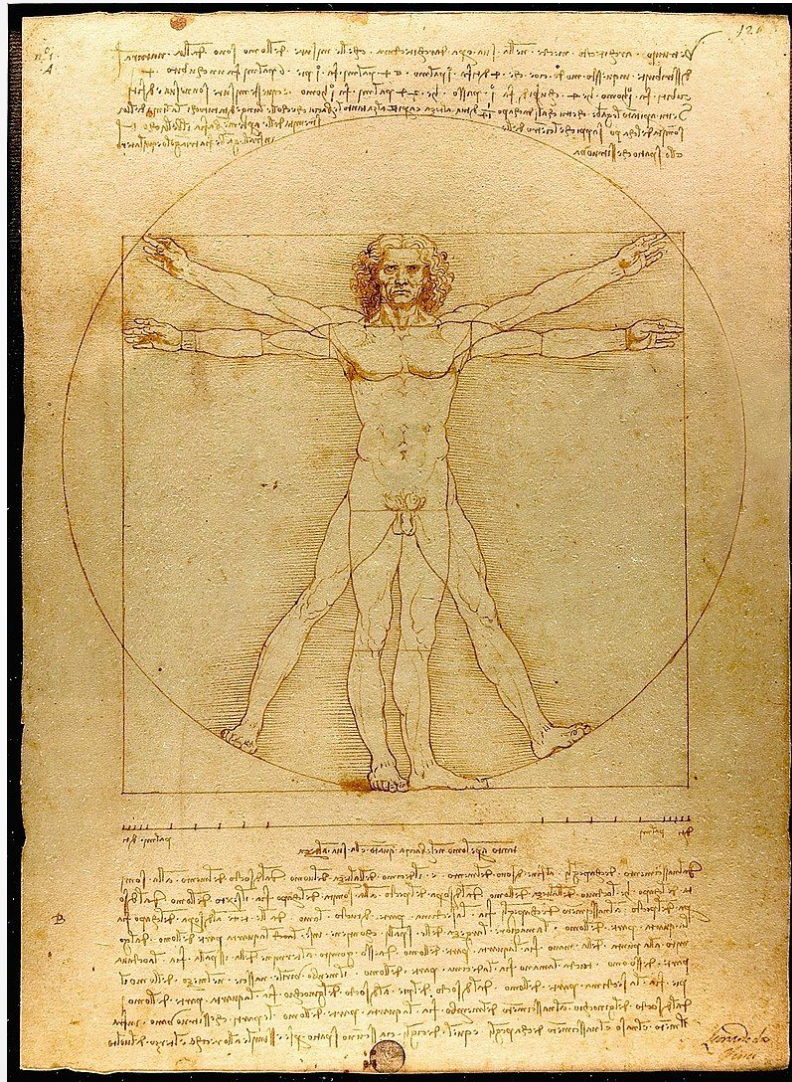


Catgut suture



- Catgut suture is a type of surgical suture that is naturally degraded by the body's own proteolytic enzymes
- The first known absorbable sutures were made of the intestines of sheep
- Gut strings were being used as medical sutures as early as the 3rd century AD as *Galen*, a prominent Greek physician from the Roman Empire, is known to have used them

Vitruvian Man



The Vitruvian Man is a drawing made by the Italian polymath Leonardo da Vinci in about 1490. It is accompanied by notes based on the work of the Roman architect Vitruvius. The drawing, which is in ink on paper, depicts a man in two superimposed positions with his arms and legs apart and inscribed in a circle and square.

The drawing represents Leonardo's concept of the ideal human body proportions. Its inscription in a square and a circle comes from a description by the ancient Roman architect Vitruvius in Book III of his treatise «*De architectura*». Yet, as has been demonstrated, Leonardo did not represent Vitruvius's proportions of the limbs but rather included those he found himself after measuring male models in Milan.

Thank you for attention!