



Dimitrie Cantemir (1683-1723) and his important contribution to the history of inguinal hernia repair

Alexandru Eugen Nicolau

Department of Surgery, Emergency
Clinical Hospital, Bucharest,
Romania

Abstract

In 2023 we celebrated 350 years since the birth, and 300 years since the death of Dimitrie Cantemir (1673-1723), scholar of European prominence, encyclopedic spirit, Prince of Moldavia, first Romanian member of the Berlin Academy of Sciences, and the first in Eastern Europe. Cantemir described for the first time the transperitoneal approach to inguinal hernia repair in his famous work "The History of the Growth and Decay of the Othman Empire". The work was written in Latin, revised in 1714-1716 and translated into English by N. Tindal and published in 1734. We briefly present a history of the main existing therapeutic procedures for inguinal hernia repair until the Cantemir's presentation. The description of the procedure is in "Annotationes", in the chapter entitled "Avlonia", a region from Albania. The Albanians were famous for their skill in repairing inguinal hernias. Cantemir witnessed a hernia repair performed on his secretary in his palace in Istanbul. He gives a detailed description of the procedure, the abdominal incision, reduction of hernial sac content, closing and cauterizing of the hernial orifice with the preservation of the testicle, and the evolution of the patient during the 30 days of follow-up. The postoperative mortality was 1-2%. The surgical technique presented was a progress towards the operations practiced at the time in Europe, mainly cauterization and castration. The history of inguinal hernia repair is a mirror of surgical history. The presentation of the transperitoneal approach of the inguinal hernia by the Romanian scholar is of a great importance for the history of surgery and medicine.

Keywords: history of surgery, inguinal hernia, transabdominal repair

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Address for correspondence:
Alexandru Eugen Nicolau
aenicolau@gmail.com

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In 2023, we celebrated 350 years since the birth, and 300 years since the death of Dimitrie Cantemir, the most brilliant Romanian spirit of the time (Figure 1). Dimitrie Cantemir was an encyclopedic spirit, "a scholar of European fame, a Moldavian prince, a Berlin academician, a Moscow prince, our Lorenzo de Medici", as G. Calinescu, a Romanian literary critic, considered [1]. At the age of 15 years he was taken hostage in Istanbul, where he stayed for 17 years. The Turks made him Prince of Moldavia in 1710. He wanted the autonomy of the country from the Turks under the protection of Russia as an Orthodox

power and the establishment of an absolute monarchy to counter the dominant feudal anarchy of the boyars [2]. He became Peter the Great's ally in the Turkish-Russian war. They were defeated by Ottoman-Tatar allied army at Stanilesti in 1711, and Cantemir took refuge in Russia and became an advisor to Peter the Great [3]. On 14 July 1714, Cantemir was accepted as a member of the Berlin Academy of Sciences, being the first representative of the Romanian Lands and the first from an Eastern European country to be a member of an academy. The diploma contained the following text: "... Dimitri Cantemir, Prince of the Russian Empire, hereditary

Lord of Moldavia, setting an example, as worthy as it is rare, has dedicated his illustrious name to scientific research. And through its membership, our Society has acquired a new luster and an unrivalled adornment. We humbly bow before the good will which the Prince grants us and our works" [3].



Figure 1. Dimitrie Cantemir. Engraving. Author unknown, London 1734.

For the history of medicine and surgery, Cantemir is important for the first description of the transabdominal approach to repair inguinal hernia [4-8]. The history of inguinal hernia is a history of anatomy and surgery, of operative techniques [7,8]. Before presenting the technique described by Cantemir, we consider useful to make a brief presentation of the described operative procedures that we consider the most representative in the history of hernias, which preceded the work of the Moldavian prince.

The first description of inguinal hernia appears in Egypt, in the famous Papyrus Ebers (ca. 1550 BC) [4,7]. In the ancient Greco-Roman period, the famous School of Cos used taxis followed by support by bandages and dressings. The most representative figure of this period is Celsus Aulus Cornelius (25 BC-50 AD), a Greek living in Rome, who, in "De Re Medicis" (25 AD), describes the inguinal hernia and presents the surgical technique based on the experience of the famous School of Alexandria in the Hellenistic era. The technique consisted of sedation with a root extract of

mandragora, scrotal or inguinal incision, dissection and resection of the hernial sac, preserving the testicle, ligation of the vessels, disinfection of the wound with wine and vinegar, and dressing with rose oil [8-10]. Heliodorus (125 AD) performed the twisting of the hernial sac with preservation of the testicle [5,6]. Galen (129-201 AD), the surgeon of the Gladiators in Rome, recommended ligation of the hernial sac and spermatic cord with castration. His medical precepts dominated medicine for hundreds of years [6,11].

The Middle Ages represented a regressive stage in medicine. Surgeries were performed by many illiterates, and books from the Greco-Roman period were lost [11-13]. Part of the medical precepts were found in Arabic medical writings that were translated and reprinted after the Crusades. The Arab surgeon Albucasis (936-1013) placed the patient in supine position, used cauterization of the hernial orifice in the bubonocoeles. In scrotal hernias, he reduced the sac, sutured the hernia and performed castration. [9,12]. The French surgeon Guy de Chauliac (1298-1368) in his "Chirurgia Magna", presented various treatments for inguinal hernia: ligation of the spermatic sac and cord by scrotal incision and castration, cauterization with red-hot iron of the inguinal orifice and spermatic cord, bandage and dressing with arsenic for chemical cauterization, "golden thread" ligation of the sac and cord with a golden thread without interrupting the vascularization of the testicle [14]. Cautery and castration were the most commonly used at the time [9,12,13].

The Renaissance is marked by minor advances, metal bandages are widely used. Pierre Franco (1500-1561) proposed bandaging and suspensory for bubonocoeles, and for scrotal hernias, initially castration, but later preferred sac ligation with preservation of the testicle [9,13]. He is the first to approach strangulated hernia by cutting the strangulation ring [6,7]. Ambroise Paré (1510-1590) preferred bandaging, but also operated on incarcerated hernias and strangulated hernias where he used the "golden thread" to preserve the testicle [7,12,13]. The lack of a thorough knowledge of anatomy prevented advances in surgical technique of the era until the mid-18th century [7,8,13].

The period that follows is marked by clarifications of the anatomy of the groin through the works of Littré (1654-1726), Camper (1722-1789), Richter (1742-1812), later Hunter (1718-1783), Cooper (1768-1841), Scarpa (1752-1832) and others. The period was also called the "Age of Dissection" or the "Anatomical Era" [8,9,11]. Introduction of anesthesia and aseptic technique into surgical practice led to the successful performance of Eduardo Bassini's (1844-1924) first anatomical operation for the inguinal hernia in 1884 at the University of Padua. By 1889, he had operated on 262 inguinal hernias in 216 patients, with a follow up period of 6-52 months, 3% recurrences rate, 5% infections and no deaths in 251 nonstrangulated repairs [15]. Bassini's operation became a landmark for nearly a century [15].

The transabdominal technique of inguinal hernia cure appears in Cantemir's well-known historical work,

which is considered the most valuable internationally, “INCREMENTORUM & DECREMENTORUM AVLAE OTHOMAN[N]ICAE SIVE ALIOTHMAN[N]ICAE HISTORIAE A PRIMA GENTIS ORIGINE AD NOSTRA VSQVE TEMPORA DEDUCTAE LIBRIS TRES”, an original history of the Ottoman Empire, which becomes the main source of reference especially for European diplomats (Figure 2) [3,16]. The work consists of three books, the first two describe the rise, the third describes the fall of the empire, from 1214 to 1711 [16]. The author’s original Annotations (Annotations) are added, which present aspects of Ottoman life and civilization. He includes colorful and interesting stories and also his personal observations and opinions [3]. The work was begun when Cantemir lived in Istanbul and was completed and revised in 1714-1716 [16]. The original manuscript was taken to London by his son, Antioch Cantemir, who was appointed ambassador to the Tsar. The English vicar and scholar Nicholas Tindal made the first translation, published in 1734 (Figure 3). All subsequent translations are based on this version [16]. When most researchers were looking for the original manuscript in Russia and the USSR, Academician Virgil Căndea (1927-2007) discovered it at the Houghton Library of Harvard University (Cambridge, Mass., USA) in 1984 and published in facsimile in 1999 [16]. The original manuscript was sold in Germany by Tindal and was later bought along with a series of rare books by Harvard University from the antiquarian Otto Harrassowitz in Leipzig in 1901. Harvard did not know the value of Cantemir’s manuscript [16]. The original Latin manuscript was translated into Romanian by Dan Slușanschi (1943-2008), the most competent Latinist and Hellenist of the time, and published in 2002 [17].

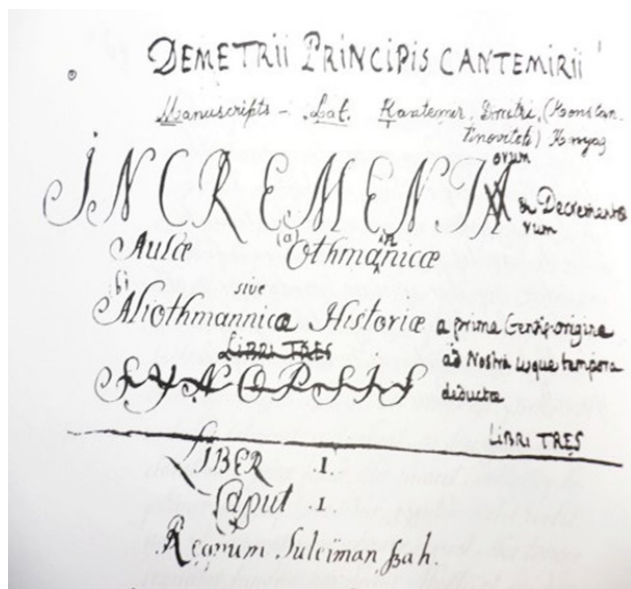


Figure 2. Title of the original manuscript. Reproduction with permission from “Demetrio Cantemiri Incrementorum et decrementorum Aulae Othomanicae tres libris”. Facsimil. Ed. Roza Vânturilor, 1999.

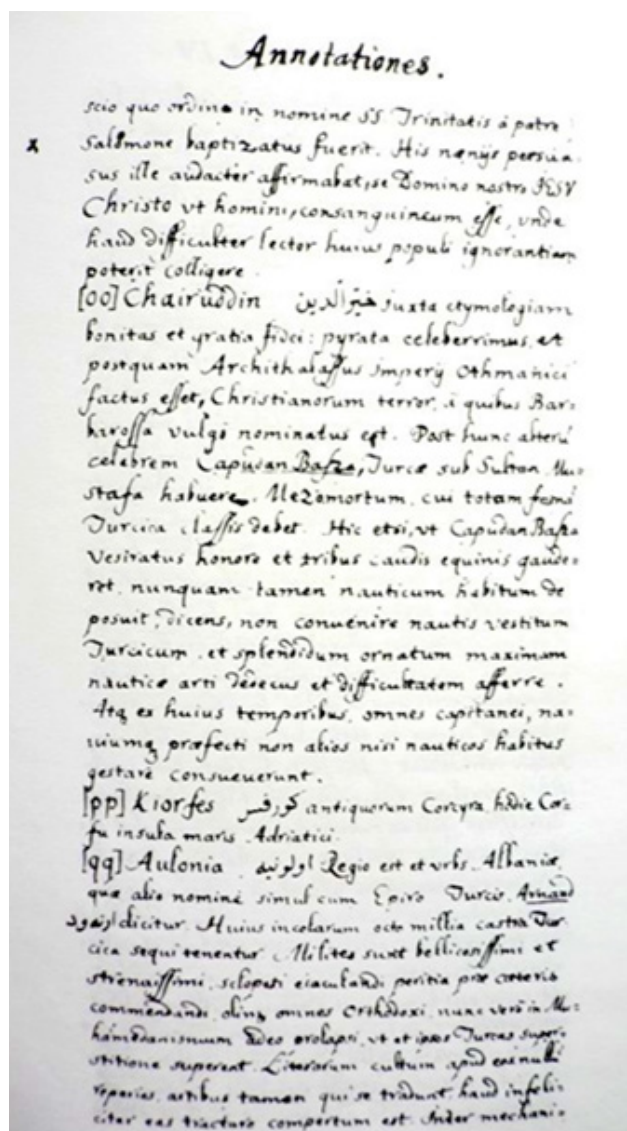


Figure 3. Avlonia (original manuscript). Reproduction with permission from “Demetrio Cantemiri Incrementorum et decrementorum Aulae Othomanicae tres libris”. Facsimil. Ed. Roza Vânturilor, 1999.

The paragraph on the treatment of inguinal hernia is entitled “Avlonia” and appears in “Annotations”, book II, chapter IV, pages 212-215 (Figure 4). Avlonia is a town and region in Albania called by the Turks Armaud, corresponding to Epirus. It is stated that the Albanians “are very warlike and industrious citizens, to be praised above all others for their skill in rifle shooting, formerly all orthodox, but now so fallen into Muhammedanism, they surpass even the Turks themselves in their superstition”. “They excel especially in two aspects: in building aqueducts and in healing hernias” [18]. We reproduce below the translation in English of the inguinal hernia operation from the original Latin manuscript made by Nicholas Tindal [18].



Figure 4. English translation first pages. Reproduced with permission from “Demetrius Cantemir History of Othman Empire”. 1734: London, first pages, processed and posted by Vladimir Toncea [Internet]. Available from <https://www.natura2000oltenita-chiciu.ro/publicatii/>

“They perfectly cure by a method as rough as successful, ruptures in persons of any age. When I was at Constantinople, in order to see their method more exactly, I caus’d my Secretary, now in years, to be cur’d of this distemper in my Palace. Accordingly, the price of the cure being agreed upon, they bound the Patient to a pretty broad board with swathing bands from his breast to his feet; then with a sort of razor they open’d the Hypodermium under the belly, and drawing out the inner coat a hand’s breadth, thrust up in their place the intestines that were fallen down into the Cods. After this, they sow’d up the Hypodermium with a coarse thread, and when they had made a knot in the thread that it might not flip out, they cut off with the same razor the part of the Hypodermium which hung over the stitches, and anointing it with Hog’s grease, burnt it with a hot iron. After the burning they left the wound in the belly still open and lifting up the legs of the Patient almost dead, pour’d

the whites of nine new-laid eggs into the wound. This as it bubbled up or work’d in an hour or two, they took for a good sign of cure. For it after the third hour no ebullition or working appears, they deem it mortal, because from thence the Patient’s weakness is apparently so great, that he can’t possibly receive any benefit from the Medicine: though scarce one or two in a hundred happen to die; and this they ascribe rather to weakness or age than the insufficiency of their art.

On the second and third day they repeated the infusion, the Patient being kept all the while on his back, so depriv’d of his senses that he seem’d really dead. Neither did they allow him any thing to eat or drink, supposing it sufficient, if his tongue was frequently moisten’d with a drop of water. On the fourth day they laid the patient bound to the board on the floor; where he soon recover’d his senses, and complain’d of his pains with a weak voice. They refresh’d him with a moderate draught of warm

water, and the three next days gave him a little broth made of any thing, only taking care not to overload his stomach with meat.

The seventh day the bands were loos'd, and the Patient gently laid in a bed. But that he might not draw up his legs or move himself, two of them stood by him continually, and repeated the infusion of whites of eggs every day. From the ninth to the twelve day the wound receiv'd only six whites, which as soon as infus'd, seem'd to bubble up more than before. The fifteenth day the wound scarce held the white of egg, yet they repeated the infusion as long as they perceiv'd any to go into the wound and bubble up. When this ceas'd, they laid to the wound a plaster of pitch, oil and other mixtures, and susser'd the Patient to move his feet, and lie on his side. Mean while, they constantly in the morning before the Patient swallow'd any thing gently drew the end of the thread which hung out, to try whether the band might be broken.

After the twentieth, thirtieth or fortieth day, according to the age or strength of the Patient, they drew out the thread and with another plaster made a perfect cure. By this rough method, of which I was an eye-witness these illiterate people are us'd to cure so difficult a distemper."

It is a genuine, complete and detailed case presentation that reveals some remarkable, even sensational, aspects of surgical technique of the time. It is worth noting that the operator used an operating technique that was not at all mutilating, with an abdominal approach, reduction of the hernial contents, closure of the hernial orifice by suture and cautery, and preservation of the testicle. In fact, we have an advance in technique compared to what was practiced in Europe at the time [19]. It should be noted that surgical practice in Europe has been regressing compared with the practice of the School of Alexandria in the Hellenistic era [9]. It is also worth mentioning the resistance of the patients and the way of testing the body's reaction to the surgical aggression by applying egg whites, as well as the postoperative mortality of only 1-2%, which is remarkable for the time. It is possible that the Albanians, neighbors of the Greeks, knew the surgery of hernia operations from those of Hellenistic era.

No other entity allows the study of the origin and evolution of surgery in theory and practice as does inguinal hernia, from cautery and castration to laparoscopic and robotic surgery, a faithful mirror of their evolution over the centuries [9]. In this fascinating evolution of operative techniques for inguinal hernia, let us be proud of Dimitrie Cantemir's brilliant contribution to the history of these techniques. It is desirable that these historical landmarks are known to as many surgeons as possible.

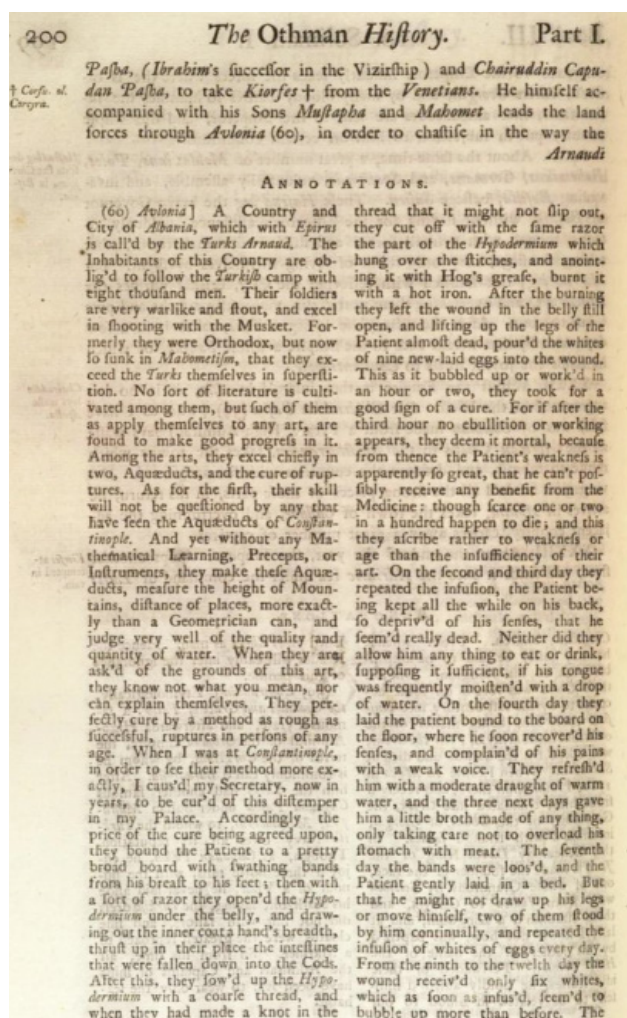


Figure 5. Avlonia. Reproduced from "The History of the Growth and Decay of the Othman Empire" by Dimitrie Cantemir The Public NewYork Library [Internet]. Available from https://books.google.ro/books?id=q3NUAAAYAAJ&pg=PR1&source=gs_selected_pages&cad=2#v=onepage&q&f=false

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