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Male Circumcision: History of Current Surgical Practice

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Abstract

One of the most frequent procedures carried out on men, whether for medical or religious reasons, is circumcision, which involves the removal of the foreskin. The procedure's introduction in various locations and times allowed for the development of a surgical approach that is now adapted to minimize problems and deliver obvious medicinal benefits. Male circumcision is currently a hot topic of dispute because of ethical, legal, and scientific concerns, as well as the procedure's various roles: therapeutic, preventive, and ritualistic. The practice's origins can be traced back to ancient times, but it is still a surgical procedure used to prevent HIV transmission today. In order to lower the risk of HIV transmission in men, the WHO advised considering male circumcision in 2007. The purpose of this article is to describe the procedure of circumcision throughout history.

Keywords: circumcision, history, religious, ritual, techniques

1. Introduction

Male circumcision is one of the maximum carried out surgical methods within the world. The surgical treatment for correction of phimosis, the narrowness of the hole of the foreskin that stops overall or partial uncovering of the glans, is given numerous names. From the Latin circum (around) and caedere (to reduce) [1], to the partial or overall excision of the foreskin; in scientific nomenclature, it has the denominations of postectomy (from the Greek: posthé - prepuce; ektomé - resection), postoplasty (from the Greek: plastes or plastic - that forms), or the mixture of both, postectoplasty [2].

It is one of the oldest surgical strategies known, historically undertaken as a mark of cultural identity or religion. With advances in surgical operation within the nineteenth century and within the twentieth century, the method changed into delivered into a few formerly non-circumcising cultures for each health-associated and social reasons [3].

As of 2016, the worldwide incidence of circumcision is envisioned to be around 38% [4]; due to this high percentage, World Health Organization and UNAIDS have promoted better use of circumcision in nations with a high prevalence of HIV as prophylaxis to this disease [3].

The objective of this publication is to conduct a narrative review of the circumcision procedure during history.
2. Circumcision from a historical perspective

2.1 Circumcision in the ancient age

Regarding the origins of circumcision, anthropologists disagree. Sir Crafton Elliot Smith, an English Egyptologist, argued that it is one of the traits of a society known as the “heliolithic,” which originated in Egypt and expanded throughout most of the world around 15,000 years ago, according to Dunsmuir and Gordon [5].

The proof that favors the idea that circumcision started within the Heliolithic tradition in Ancient Egypt is documented in a papyrus so-known as Ebers Papyrus, discovered in Luxor in 1862 by the German archeologist Georg Moritz Ebers (1837–1898) discovered among the legs of a mummy in Thebes and dated to 3000 B.C; the text included step-by-step directions for executing the procedure [1]. The topic of whether Egyptians circumcised their males as a religious ritual or as a surgical procedure for hygiene purposes is intriguing. It appears that Egyptian circumcision was performed as a preventative hygienic measure to ensure excellent sanitation of the balano-preputial groove; this makes sense because the Ebers Papyrus is one of the oldest known medical and pharmacopeia treatises [1]. However, it does not appear that the practice was wholly devoid of ritual implications, as it was once restricted to priests, aristocrats, and members of the royal family [1].

Several authors [1, 3–10] described another relic that shows that Egyptians practiced circumcision and was discovered in Saqqarah, Egypt, in the entryway of the tomb of the sixth dynasty pharaoh Ankhmahor, which represented a circumcision scene (Figure 1). This relic dates back to King Teti's reign (2355–2343 B.C.).

Totalo et al. [1] referred that the Chaldeans, a polytheistic Semitic tribe who settled in southern Mesopotamia in the early part of the 1st millennium B.C, also knew of circumcision in the mountains of Armenia and Kurdistan, as documented in clay tablets found in 1849 in the ruins of the Royal Palace of Nineveh. These tablets were believed to have been produced in 1600 B.C [1].

The Israelites were another Middle Eastern society that used circumcision. Regarding circumcision, some authors [1, 5–7, 11] indicated that it dates back to Abraham's prophet, while others, such as Herodotus (a Greek historian and geographer), have stated that it was brought to Egypt by the Israelites during their captivity circa 1200 BC. It is interesting to comment that the circumcision agreed upon by the Jews could have been interrupted in the year 169 before Christ. Doyle (6 pp280–281) wrote out that Antiochus IV Epiphanes (king of Syria of the Seleucid dynasty from around 175 BC–164 BC), besieged Jerusalem in 169 BC, quartered his troops inside the temple, and declared the circumcision to be unlawful and temporarily abolished the practice.

Circumcision was also practiced in ancient Rome. This is justified by what was published in the medical treatise written by Aulus Cornelius Celsus (25 B.C-50 A.D) where it was explained that given the impossibility of exposing the glans, the skin that covers it should be surgically opened [1].

In 660 A.D., Muslims practiced circumcision. Despite the fact that the Quran does not mention circumcision by name, it has come to be seen as an essential component of that faith [1, 6].

2.2 Circumcision in the middle ages

In the Middle Ages, an outstanding Italian surgeon, Theodoric Borgognoni, in his book published in 1267 and called “Theodoric’s Surgery”, recommended that in order
to treat certain penile diseases such as warts and tubercles, “the last component of the penis should be removed”. It is believed that this author was describing circumcision as a treatment for certain diseases of the penis [5]. The French surgeon Guy de Chauliac (1360 AD) referred to the fact that circumcision in this period was performed to prevent the accumulation of dirt at the base of the glans. Another medieval Ottoman surgeon Serefeddin Sabuncuoglu (1385–1470 AD) offers one of the earliest descriptions of Muslim circumcision [5].

2.3 Circumcision in the modern and contemporary age

   Early in the 19th century, textbooks start to include brief explanations of adult circumcision for phimosis. Dr. John Abernethy recounts using the scalpel (knife) to perform circumcision on men with “gonococcal” in 1828, despite the fact that surgical techniques are rarely reported in detail. Additionally, he said that any bleeding must be “sealed with iodoform and boric,” which may mean that no sutures were used [5].

   The appearance of circumcision for medical reasons dates to the mid-19th century. This increase can be attributed to two events. First, within Victorian thought, everything that had to do with sexuality was considered sinful. According to this, masturbation was seen as the cause of many diseases. As physicians in the second half of the 19th century believed that circumcision would prevent masturbation, circumcision spread rapidly during that period, particularly in the Anglo-American world. Second, surgical treatments were attempted for many ailments at the time, after all, the real cause was unknown [9].

   Figure 1.
   Egyptian wall carving showing a circumcision scene, Sakkara. Wellcome collection. Attribution 4.0 international (CC BY 4.0). Public domain mark.
The first circumcision reported [5] in surgical accounts from St Bartholomew’s Hospital was in 1865. One of the staunchest advocates of circumcision for medical reasons was the American physician PC Remondino [9, 10]. In his 1891 book, “A History of Circumcision,” circumcision is described as a measure to prevent or cure many diverse ailments [5, 9, 10, 12], including alcoholism, syphilis, epilepsy, inguinal hernia, and asthma. Remondino’s views are well illustrated by his comment: “It really seems that the foreskin is always a dangerous risk, and life insurance companies may classify the use of a foreskin under the heading of dangerous risks” [9].

The change from the 19th to the 20th century was also an important moment to lay the foundations of the surgical technique. Sir Frederick Treves (1903) gives us a complete description of the basic surgical principles that are maintained today. In the 20th century, many events happened that still influence us now. The first of them was Britain’s switch to a nationalized healthcare system in 1948, which required a reevaluation of whether procedures were actually necessary for light of the new cost-benefit analysis. Circumcision rates fell sharply throughout Europe after Gairdner’s 1949 article on the natural history of the foreskin [5].

In the early 1970s, the Australian Pediatrics Association and the Canadian Pediatric Society recommended against routine circumcision, and rates subsequently declined in those countries as well. Alanis and Lucidi [10] explained that the rates of circumcision fell only slightly in the United States despite official policy statements by the American Academy of Pediatrics (AAP) Task Force on Circumcision in 1971, 1975, and 1977 that circumcision “offered no medical benefit during the neonatal period”. These authors [10] also wrote that in 1989, the AAP modified its position on circumcision after more evidence came to light that it effectively reduced male urinary tract infections and sexually transmitted diseases, and in 1999 the AAP returned to a more negative view on routine circumcision with the following official policy statement: “Existing scientific evidence demonstrates potential medical benefits of newborn male circumcision; however, these data are not sufficient to recommend routine neonatal circumcision”. On the other hand, the 2012 AAP statement stated that an assessment of the most recent research indicates that the health benefits of neonatal male circumcision exceed the risks and that the procedure’s advantages warrant access to it for families who choose to have it [13]. The reduction of penile cancer, genital herpes, and some sexually transmitted illnesses, such as HIV, were among the specific advantages noted.

3. Circumcision from a ritual or religious perspective

3.1 Judaism

Judaism is a culture that practices circumcision in a ritual religious manner. Several authors [1, 3, 6, 7, 9–12, 14, 15] explain in the following paragraph when religious practice began and how it remains in force until our times. Bris Milah, or Jewish ritual circumcision, is performed on the eighth day of life to fulfill the Covenant between God and Abraham in which God set his seal on Abraham and his descendants (Gen. 17:10–14). Just as Abraham circumcised his son Isaac (Gen. 21:4), so the child’s father must ensure that his children bear the mark of this covenant, which distinguishes Israel as God’s chosen people (Figure 2). Without this symbol of recommitment and cleansing, neither the Paschal celebration (Ex. 12:48), which celebrates Israel’s freedom from...
slavery in Egypt nor the making of a covenant with a Jewish family, could be commemorated (Gen 34:14–16). The mohels, or master circumcisers, incorporated specialized tools, the Izmel, a double-edged knife to excise the prepuce, and later, the Mogen shield to protect the glans. Both Orthodox and Reformed Judaism still conduct circumcisions on all males worldwide. While Reform Jews permit a doctor to execute the process, in Orthodox Judaism the rite is carried out by a mohel, an ordained authority. It is thought that God will punish the father by reducing his lifespan if he fails to carry out this duty to have his child circumcised. Exceptions to the circumcision obligation are mentioned in the Talmud, the codification and interpretation of the Torah, recorded by Jewish scholars in the 4th, 5th, and 6th centuries AD. For example, in case of illness, circumcision should be postponed until the boy is better. It is also described in the Talmud that if a woman loses two sons or if two sisters each lose a son because of circumcision, which in most cases is caused by exsanguination, the following sons of her or other sisters within the same family do not need to be circumcised. This is considered the first reference to hemophilia, a condition inherited through the maternal line.
3.2 Christianity

As can be read in the New Testament, Jesus of Nazareth was circumcised (Gospel according to Luke, chapter 2) (Figure 3). John the Baptist was also circumcised (chapter 1). Furthermore, Jesus of Nazareth never spoke against circumcision. However, circumcision has not become part of Christian traditions. This is attributed to Paul, who emphasizes in several of his letters that physical circumcision is not a prerequisite for salvation but involves spiritual circumcision of the heart (‘Letter to the Romans’, chapter 2) [9].

3.3 Islam

Muslims adopted ritual circumcision as well. Usually carried out by older boys as a pubertal transition to adulthood. Although the Koran makes no mention of circumcision, its development can be traced to the Sunnah (the sayings and deeds of the prophet Mohammed) [1, 6, 7, 10]. Other authors [9, 15] are of the opinion that the practice is attributed to the prophet Abraham, whom Muslims, like Jews, revere as patriarch. Muslims are divided into six different schools of thought within Islam and there are differences of opinion between these schools about the rules for circumcision. Among the schools, only the Shafiites consider it obligatory while for the others it is simply recommended. The Prophet Mohammed recommended performing circumcision on the 7th day after birth, but it can be performed up to 7 years [3, 7, 9, 15].

3.4 Other cultures

Two of the oldest still-practicing versions of Christianity are practiced by Coptic Christians in Egypt and Ethiopian Orthodox Christians, who maintain many aspects of early Christianity, such as male circumcision (for example, 97 percent of Orthodox men in Ethiopia are circumcised). While some Christian congregations in South
Africa reject the practice and view it as a sacrificial activity, others, like the Nomiya Church in Kenya, demand circumcision as a condition of membership. In Malawi and Zambia, some groups expressed similar views that Christians should perform circumcision since Jesus underwent the procedure and the Bible endorses it [3 p. 4].

Numerous ethnic groups around the world have all practiced circumcision for non-religious purposes for many centuries, including the Australian Aborigines, the Aztecs, and the Mayans, as well as communities of the Philippines, eastern Indonesia, and several Pacific islands, including Fiji and the Polynesian islands. Although it may have initially been a test of fortitude and endurance, circumcision is now a necessary component of a rite of passage into manhood in the majority of these societies. As boys of the same age are circumcised at the same time, circumcision also contributes to social cohesion, masculinity, self-identity, and spirituality.

4. History of circumcision techniques

4.1 Description of the technique in ancient times

In the Eberst papyrus (Egypt) and later in the Bible (Exodus, chapter 4:25–26 and Joshua, chapter 5:2–8) only reference is made to circumcision being performed with a knife [1, 9].

4.2 Medieval medicine

In the Middle Ages, the circumcision technique was described by the French surgeon Guy de Chauliac (c. 1360). Circumcision is performed by taking the foreskin between the fingertips and pulling it over the glans towards the end of the penis. The foreskin is excised distal to the glans with a scalpel, after which hemostasis is performed with red powder or by cauterization [9].

One of the earliest descriptions of Muslim circumcision is given by the 15th-century Ottoman surgeon Serefeddin Sabuncuoglu. He recommends creating two ligatures, between which the foreskin can be safely cut. During the procedure, the wound is covered with dry pumpkin ash or white flour, and then a bandage is applied [9].

4.3 From the 19th century up today

The first surgical papers detailing circumcision started to appear in medical texts in the mid-19th century. The fundamental surgical principles that are still in use today are fully described by Sir Frederick Treves in his work from 1903 (Figure 4) [1, 5]. Like the majority of his colleagues, he used scissors to remove the foreskin (Figure 5), and he states that adult patients must have the frenular artery tied. He makes it very clear that you must leave enough inner skin exposed because doing otherwise can lead to synechiae. Treves also asserts that interrupted fine catgut sutures must be used for the skin's appositional sutures [1, 5].

The antihemorrhagic triradiate continuous circumcision suture line was described by the French surgeon E. Doyen and his English co-author H. Spencer-Browne. Three circular sutures made of no. 1 silk, each one-third the circle of the glans, were employed to “coaptate” the borders of the skin. To enable expansion of the area between the two skin layers if necessary, the ends were left untied (Figure 6) [1, 5].
These modifications in suture application are meant to reduce hemorrhage, which is the most common acute consequence. In fact, Charles Chetwood’s well-known urological text from 1921 advised leaving long, interrupted horse-hair sutures in place (Figure 7). Up to Sir Alec Badenoch’s Manual of Urology in 1953 [5], variations of what came to be known as “Chetwood’s dressing” were documented.

At the beginning of the 20th century, techniques for circumcision in neonates began to be described. Carrying out the procedure in the neonatal period, it was shown that the manual compression of the surgical bed was able to control the
hemorrhage. Subsequently, with this acquired knowledge, instruments were created for hemostatic purposes to perform surgery in this group of patients [1]. The first device was Doyen’s E’craseur (1920). The foreskin was compressed and then cut by this instrument, which controlled bleeding after surgery without the need to use a hemostatic suture. This technique is also used in adults (Figure 8) [1, 5].

Many circumcision clamps were available for use on neonates by the 1930s. The Winkelman prototype was first presented in 1935, and as of this writing, it still
maintains a mostly unchanged appearance (Figure 9) [1, 5]. In 1940 another circumcision device was introduced (Figure 10) [1]. The Gomco clamp offers excellent esthetic results with little to no bleeding, shorter surgical times, and a short learning curve. It is, however, only applicable during the newborn period [1, 16]. The device featured a bell and a base plate. The Gomco bell was placed over the glans at the level of the crown and the foreskin was brought back into the anatomical position. A tensioning bar that looped under a T-shaped part at the top of the bell and was fastened to the metal plate kept the foreskin in place. After the foreskin had been sufficiently strangled, the prepuce was cut using a scalpel [17, 18].

In 1939, Dr. Cecil J. Ross patented steel circumcision rings, and from this invention came the idea of using a tourniquet method for circumcision [18]. The “Plastibell gadget” was developed in the 1950s (Figure 11). In 1956 it began to be used for neonates.
and later its use was extended to the present for all pediatric patients [1, 5, 9, 16]. A plastic bell is placed covering the glans and then the foreskin covers the bell and a ligature is made around the foreskin. Placing the ligature around the foreskin breaks the handle of the cup, which is left open until it falls off, which happens in about 7 to 10 days [17, 18].

Dr. Harry Bronstein introduced The Mogen clamp as a different tool in 1955 (Figure 12) [16]. This clamp has a small slit through which the foreskin is placed once it is slid and separated from the glans, and then pulled with a hemostatic

Figure 9.
The 'Winkelmann' circumcision clamp. Reproduced with permission of Aesculap surgical products.

Figure 10.
The Gomco technique.
clamp. After placement, it is cut with the scalpel, when there is the confidence that the glans is not included. The incision is simply wrapped to establish hemostasis; no stitches are used [17, 18].

In 2003 a new circumcision device was invented. The device made in China was called the Shang Ring by its creator J. Shang (Figure 13). This device facilitated its widespread use due to its easy applicability and was incorporated in several countries with the aim of preventing HIV infection, for which the World Health Organization approved its use. It presents a short learning curve for health personnel who incorporate it into their practice [17, 18]. The device features two rings, one internal and one external. The inner ring is placed in the coronal sulcus, and the foreskin is placed over the inner ring. The outer ring is then placed and the excess foreskin is removed with scissors. In 7 days the hemostatic ring can be removed. This technique does not use sutures [17, 18].

Another device manufactured for use in adults on a large scale was the PrePex device. It was patented in 2011 and the objective of its creation was also to apply it massively in HIV prevention programs. The device has a ring that is inserted into the
foreskin on the glans and another elastic outer ring. The compression generated by these two rings generates necrosis and subsequent fall of the foreskin approximately 7 days after placement (Figure 14) [17, 18].

There are other devices created for circumcision that have been validated but have not gained as much popularity as those described above. One interesting is the “Circumplast” is one of them used in neonates and pediatric patients and consists of a plastic bell provided with a handle with its ligature. A characteristic of the instruments is that allow the physician to see the glans. Additionally visible through the skin is the Circumplast’s proximal lip, which serves as a visual cue to confirm the device’s correct positioning. If the ligature is positioned improperly or if there is too much internal mucous membrane, the surgeon can change its position [19].

5. Conclusion

Circumcision, a procedure at least 5000 years old, with profound religious and cultural significance, will predictably continue as a feature of human living for many generations to come.

More research is necessary to determine which culture first initiated the circumcision practice, so we think that all of the theories mentioned are probably partially correct.

It has been done for many reasons from religious, passage of rituals, traditional and hygienic reasons and for prevention of diseases ranging from sexually
transmitted diseases. Independientemente del motivo de su realización hoy en día es una práctica frecuente tanto como causas religiosas, médicas o rituales.

For medical causes in which circumcision is indicated, there has been a major technological advance since the first description of the technique in medical books. These advances try to facilitate the use of devices that can be used by medical and non-medical personnel for the prevention of sexually transmitted diseases in places where the incidence of them is worrying.

Despite all, circumcision seems to permeate all of humanity from early ancient times to the technologically developed modern world.

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Conflict of interest

“The authors declare no conflict of interest.”

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