

Circumcision and the Contribution of Unani Surgeons in the Development of its Operative Procedure-A Review

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Abstract

Circumcision is one of the oldest known surgical procedures which are practiced around the globe. During Circumcision foreskin of male penis is excised for social, cultural, religious and medical reasons. Ritual circumcision is one of the major determinants for its practice. Traditionally it is undertaken as a mark of cultural as well as religious identity and integrity. It not only improves penile hygiene but also reduce the risk of infections like urinary tract infection, HIV and other sexually transmitted diseases. It also reduces the risk of penile cancer when performed in neonates. According to an estimate one in every three males are circumcised worldwide. Although it is universally practiced but it is not clearly known how this practice came in to existence? Many theories and explanation have been given to answer this question. Before the evolution of the modern system of the medicine, the health system was fully dependent on the traditional system of medicine. Amongst them Unani system of the medicine was most popular. Physician and surgeons of this system of medicine laid down the concept of medicine and surgery and greatly emphasized on their progress. Like other surgical procedure, surgeons of Unani medicine made remarkable contribution in the development of operative procedure of the circumcision. The main aim of this paper is to review the global practice of circumcision, its historical background, its traditional and modern methods and the input of Unani surgeons in their evolution.

Keywords : Circumcision; Unani medicine; Unani surgeons; Abu-al-Qasim-al-Zahrawi; Ibn-al-Quff

Introduction

In Unani system of medicine *Tat-heer* is the term used for the surgical procedure known as circumcision. The word "circumcision" comes from a Latin word *circumcidere* which means to cut around. In Arabic it is also known as *Al-Tohour* or *Tahera*, meaning purification [1]. Circumcision is one of the oldest known surgical procedures which are practiced around the globe. It is a surgical procedure in which foreskin of the penis is excised for social, cultural, religious and medical reasons. The Purposes of circumcision are multidimensional and its benefits are multifaceted. Ritual circumcision is one of the major determinants for its practice. Traditionally it is undertaken as a mark of cultural and religious identity and integrity. It not only improves penile hygiene but also reduces the risk of infections like urinary tract infection, HIV and other sexually transmitted diseases. It also reduces the risk of penile cancer when done in neonates. According to an estimate one in every three males worldwide are circumcised and approximately 30% of total male's population are circumcised worldwide. According to WHO, in year 2007 about 664,500,000 males aged 15 years and above were circumcised and out of them, 70% were Muslim [2]. Several randomized controlled trials have shown that circumcision reduces the risk of acquiring HIV infection in heterosexual males and thus WHO has recommended for considering circumcision as a part of comprehensive HIV prevention programme [3]. Many countries with a high prevalence of HIV are now expanding their access to the practice of safe male circumcision. The majority of circumcisions are carried out traditionally by people who are not medically trained. Therefore to make the procedure safer and efficient, adequate knowledge and proper training is needed.

Historical background

It is not clearly known how this practice came in to existence. Many theories and explanations have been put forward to answer this question. Literature writings of ancient era are not sufficient enough to draw an inference of its evolution for the health benefits and for the surgical and medical importance. An English Egyptologist, Sir Graham Elliot Smith

suggested that it was the features of a heliolithic culture about 15000 years ago. The earliest Egyptian mummies of approximately 1300 BC were circumcised [4,5]. In Egypt circumcision was customary several thousand years ago. The wall paintings of ancient Egypt depicted this practice [5,6]. Some historians of Nineteenth century suggest it as an ancient ritual for the social control. Others believe that circumcision aroused as a mark of defilement or slavery [7]. In ancient Egypt all the captured warriors were circumcised as a mark of humiliation and compromise and thereafter all the male descendants were circumcised. Phoenicians and Jews were among largely enslaved community; they adopted the practice of circumcision and ritualized it. In some tribal communities circumcision evolve as a mark of sacrifice to the God, an offering in exchange for a good harvest. In biblical times rituals circumcision in new-born was performed by their mothers but gradually it was taken over by Mohel, a man who had the requisite religious and surgical knowledge. After a prayer the Mohel used to circumcise and bless the child. In ancient Egyptian society, it was Priest who used to perform the circumcision by his gold-impregnated thumb-nail [8]. Muslims are among the largest community practicing ritual circumcision on very larger scale. They inherit this practice as a "sunnah" of prophet Hazrat Ibrahim (R.A.). According to them, it is preferably best to perform the circumcision on or before 7th day of the birth. According to Islamic literature, the circumcision evolved with a motive of personal hygiene. According to their *Hadith*, circumcision is the part of the five fundamental methods of cleanliness for maintaining personnel hygiene, first being the practice of circumcision, second

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removal of pubic hairs, third cutting of the nails, and fourth removal of hairs in the armpit and fifth being trimmed of moustache.

Journey from a Myth to Surgery

Only in very few mediaeval medical texts, description of circumcision could be seen. In early 19th century only short descriptions of adult circumcision for the treatment of phimosis can be seen and this practice had not entered the domain of English surgeons. In 1267 AD 'Theodoric' suggested the removal of the prepuce for the treatment of black warts and tubercles [9]. In 1833, Baillie described gonococcal phimosis and recommended that the initial treatment was nugatory (inoperative) which included washing of the penis and prepuce with soap and tepid water, followed by the application of calomel ointment [10]. In 1865 the first case of circumcision was reported at St Bartholomew's Hospital [11]. In 1878 Curling described circumcision as a cure of impotence resulting from phimosis in men. In 1928 Abernathy, a reluctant surgeon reported the use of the bistoury (knife) for circumcision in men with gonococcal phimosis [12]. He advocated that the posthitis should be allowed to 'soothe and allay' before surgical intervention. Both Abernathy and Baillie recognized recurrent phimosis, recurrent stricture or suppuration at the site of circumcision as the post circumcision complications.

Anatomy and Physiology of the Prepuce

Functions of prepuce are to keep the glans penis moist and to protect the penis during development in-utero. The foreskin develops during the third month of intra-uterine life. A fold of skin develops at the base of the glans penis and begins to grow distally and this fold of skin become the prepuce. The dorsal aspect of the prepuce grows more rapidly as compared to ventral aspects, so initially only the dorsum of glans penis is covered with foreskin. Closer of the ventral prepuce is marked by the formation of frenulum. In about 10% of cases the prepuce still remain un-retractable by the age of three years [13]. The phenomenon of incomplete separation is commonly termed as adhesions. During the circumcision this adhesion is broken with a blunt probe or gauze dissection. Beneath the prepuce a sebaceous secretion called as smegma get deposited which includes combination of exfoliated epithelial cells, transudated skin oils and moisture which may harbour the bacteria. Persistent deposition of smegma may irritate the glans penis and eventually produce inflammation. Smegma is also thought to be the cause of penile cancer [14].

Indications for Circumcision

Ritual circumcision is one of the major indications in paediatrics as well as in small children. The most frequent indication for circumcision is phimosis or untreatable paraphimosis. Less common indications for circumcision are balanitis, balanoposthitis xerotica obliterans and early carcinoma of prepuce or glans penis. In addition to all above, presence of excessive skin and tears of the frenulum are also rare indications for the adult circumcision [15,16].

Circumcision in Unani System of Medicine

Unani system of medicine is an age old traditional system of medicine. It was founded by the great Greek scholar, philosopher and physician of the time, "Hippocrates" or in Unani dialect, "Buqrat" who is regarded as the father of medicine. A large number of physicians and surgeons of this system greatly contributed in the evolution and progression of surgery. Abu-al-Qasim-al-Zahrawi (Albucasis), Ameen-ud-daula abu-al-faraj ibn-al-Quf-al-maseehi and Ibn-e-haisham are the few prominent names.

Abu-al-Qasim-al-Zahrawi (Albucasis)

Abu-al-Qasim-al-Zahrawi who is best known as Zahrawi was the pioneer of surgery in Unani system of medicine. Zahrawi has

described the operative procedures of circumcision on the basis of his observations. He advocated a number of precautions regarding circumcision. He greatly emphasized on the marking of the prepuce before the start of the procedure to prevent the excessive removal of prepuce. According to Zahrawi, excision of the prepuce with a pair of scissors, followed by suturing of edges with a thread is the best technique of circumcision. He said that prepuce is bi-layered structure, its excision with knife results in its incomplete removal and more often the inner layer remained un-excised. When excision is done after the eversion of the prepuce, there is a chance of urethra getting injured. The major mistake which is committed during the circumcision is the eversion of the whole of the internal layer of the prepuce, instead it should be excised. He denied the practice of circumcision with thumb nails, as it could results in the spread of infection to wound and in the surrounding skin. He also recommended for indulging the older children in discussion at the time operation in order to divert their attention from the ongoing procedure. He emphasized on the proper cleaning of prepuce, glans and urethral meatus prior to the procedure.

Zahrawi's Methods of Circumcision

He said that two threads should be tied on the prepuce. The first thread is tied just proximal to the glans penis and second thread just distal to the first one. Thumb and index finger presses the proximal thread and the foreskin is excised in between the two threads. The cut edges are opened with the help of a forceps to expose the glans penis. A wet bandage is applied over the cut edges, and an ash obtained from combustion of bombyx mori or in Unani dialect *abresham* is sprinkled over it. If some swelling appears below the glans penis, prepare an ointment by adding a *Qabiz Zaroor* (fine powder of astringent drugs) in egg yolk and *Arq-e-ghulab*. Apply this ointment with *roghan-e-ghul* and leave the same for two days. If the swelling is not resolved within three days than leave it, till acute stage of inflammation subsides [16].

Ibn-al-Quff's Methods of Circumcision

Ameen-ud-daula abu-al-faraj ibn-al-Quf-al-maseehi (1233-1286) has mentioned four different methods of circumcision.

First method: In this method the prepuce is excised with a knife after introducing it in to a small ring (*mashqas*). The main purpose of the ring is to protect the glans during excision of the prepuce.

Second method: in this method prepuce is excised with knife after rolling a ring over the glans and shaft of the penis underneath the prepuce so that ring act as a shield for the glans and protect it from getting injured during excision of fore skin.

Third method: in this method a thread is tied over the prepuce just proximal to tip of glans and prepuce is excised just distal to the thread.

Fourth method: in this method a device the edges of which are not sharp called as *marood* is inserted into the prepuce followed by the insertion of *mashqas* in such a way that *mashqas* lies between the prepuce and *marood*. The prepuce is excised and ash of dry pumpkins is sprinkled over the excised edges. Dressing is done with a *Zaroor* with *habis-al-dum* property [1].

Circumcision in Modern System Surgery

In children it is usually done under general anaesthesia but in adult it is done under local anaesthesia. After proper cleaning and draping local anaesthetic agent lignocaine 1% is injected circumferentially near the root of penis. Dorsal skin is cut up to the corona and later circumferentially and ventrally. The skin is cut with inner layer. Care should be taken to see only optimal skin is cut ventrally to prevent the occurrence of chordee. Frenular artery is transfixed and ligated ventrally using chromic catgut. Small bleeder is also ligated. Skin is approximated to cut edge of corona using interrupted chromic catgut suture 3-0. Post operatively antibiotics and analgesics are given [17].

Plastic cup-Hollister Bell Cap Technique

This cap is fitted over the glans penis and the prepuce rolled over it. A tight ligature is tied over it near the base of prepuce. In about seven days prepuceal skin slough off and is shed off with the cup. Bleeding will not occur due to thrombosis of prepuceal vessels. This technique can be used for ritual circumcision, balanoposthitis without phimosis. It is contraindicated in phimosis and paraphimosis [17].

Dorsal Slit of Prepuce

Dorsal slit is indicated in paraphimosis and to do biopsy from a growth underneath the prepuce either in the glans or in prepuce. After cleaning and draping, xylocain plain 1% is injected in to the root of the penis circumferentially. Using two mosquito forceps oedematous prepuceal skin is held. Dorsally skin in midline is cut. Fibrous ring constricting/constriction ring proximally is identified and is cut. Once released properly skin will move freely 'V' shaped edge is sutured with continuous plain/ chromic catgut. Dressing is placed over the wound. Patient needs formal circumcision at later period, once oedema subsides [17].

Contraindications of Circumcision

Absolute contraindication is refusal to give consent for the procedure. Relative contraindications are haematological disorders like haemophilia, severe anaemia, jaundice and any congenital abnormality of the penis, including hypospadias and epispadias, umbiguous genitalia and curvating of head of penis [17].

Complications of Circumcision

Like any other surgical procedure, it is also associated with certain complication. Complication can be grouped in to intra-operative complication and postoperative complication. The most common early intra-operative complications are pain, bleeding, swelling or inadequate skin removal. However, serious complications can occur during the procedure, which include death from excessive bleeding and amputation of the glans penis if the glans is not shielded during the procedure. Postoperative complication includes haematoma formation, oedema of the glans penis, formation of a skin bridge between the penile shaft and the glans, delayed wound healing, wound infection, urinary retention, meatal ulcer, fistulas formation, loss of penile sensitivity and sexual dysfunction.

Conclusion

The precautions regarding circumcision which Abu-al-Qasim-al-Zahrawi had described in the 10th century AD, has been described by Sir Frederik traves in 19th century AD by the name of comprehensive basic surgical principles of circumcision. The precautions stated by

Zahrawi are still very relevant and are well practiced by modern day surgeons. The methods of circumcision as described by Ibn-al-Quff in 13th century AD might have formed the basis of modern day technique of the dorsal slit, the Mogen clamp, the Gomco clamp and Hollister bell cap technique of circumcision. All these techniques are just a modified form of the ancient technique as described by Ibn-al-Quff and Abu-al-Qasim zahrawi.

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