Original Research Article

Study of adult male circumcision with circular stapler

Abstract

Background: Male circumcision consist of surgical removal of foreskin of penis, circular stapler a new circumcision devise has been developed for commercial use it has two parts inner bell designed to protect glans and outer bell comprises a circular blade to cut the foreskin and staples to close wound for hemostasis

AIMS: Study of adult male circumcision with circular stapler

OBJECTIVES: Study of adult male circumcision with circular stapler in term of Operative time, Pain score, Blood loss, Healing time, Patient satisfaction, Postop stay, and Postop complications

Methodology: study was conducted on total 20 patients data was collected from detailed history, clinical examination, preop investigation, duration of procedure, duration of hospital stay, and postop complications

Result: In study of 20 patients with circumcision 2 patients have phimosis, 8 have recurrent balanoposthitis and 6 have recurrent UTI ,13 patients have sexual satisfaction , average operating time was 6.8 min, average bloodloss is 1.8ml,average pain score is 4,average healing tme is 12.5 days, average hospital stay 2.2 day ,

Conclusion: stapler circumcision reduce operative time, reduce pain score, reduce bloodloss, reduce postop stay, reduce postop complications, and increase healing time

Key words-circumcision, circular stapler

Introduction

Male circumcision consists of the surgical removal of some or all of the foreskin of penis. It is one of the most common procedure of the world. It has been practiced since as early as 4000 BCE.

In the United States, the procedure is commonly performed in neonatal period. Male circumcision (MC) was one of the earliest operations performed by humans. This procedure has the potential to decrease the risk of sexually transmitted diseases such as human papilloma virus, genital ulcer disease, and human immunodeficiency virus (HIV) infection [1]

Additionally, it improves penile topical hygiene and reduces the incidence of balanitis and penile cancer. Conventional MC as recommended by the World Health Organization includes three techniques: the dorsal slit, the forceps guided method, and sleeve resection of foreskin. However, complications such as bleeding, edema, and unsatisfactory cosmetic results are still common in patients who undergo conventional MC. Moreover, conventional MC is time consuming [2].

The Chinese Shang Ring was recently introduced worldwide. The use of this device is associated with a shorter operative time, lower blood loss volume, and fewer postoperative complications than in conventional MC.However, use of the Shang Ring also has some drawbacks: more time is required for wound healing, patients must endure pain for 7 to 16 days until the ring can be removed, and wound dehiscence is relatively common after the ring is removed because the procedure is sutureless [3].

The circular stapler, a new disposable circumcision device, has been developed for commercial use in China. It includes two parts: an inner bell and an outer bell. The inner bell is designed to protect the glans. The outer bell comprises a circular blade to cut the foreskin and staples to close the wound for simultaneous hemostasis.

Aims and Objectives

AIMS – Study of adult male circumcision with circular stapler

OBJECTIVES-Study of adult male circumcision with circular stapler in term of Operative time, Pain score, Blood loss, Healing time, Patient satisfaction, Postop stay, and Postop complications

Methodology

Study design-prospective observational study

Study site-department of general surgery at SMT SMS Multispecialty hospital

Source of Data- Patients admitted to SMS Hospital and presenting as case of Phimosis, balanopasthitis, recurrent balanoposthitis, balanitis xerotica obliterans, recurrent UTI

Sample size-20 cases of stapler circumcision

Inclusion Criteria;

1. Religious or cultural
2. Balanitis Xerotica Obliterans
3. Phimosis
4. Balanoposthitis
5. Recurrent balanoposthitis
6. Recurrent UTI
7. Age >18 years

Exclusion Criteria;

1. Hypospadias
2. Concealed penis
3. Sexually Transmitted Diseases
4. Paraphimosis
5. Age <18 years

Study was based on prospective randomized clinical trial. All those cases which satisfy inclusion criteria were included in study. Data was collected from detailed history, clinical examination and preoperative investigations, duration of procedure, duration of hospital stay, total expenditure, postoperative pain, postoperative immediate and delayed complications, using a standard, semi-structured, pre-validated case record proforma.

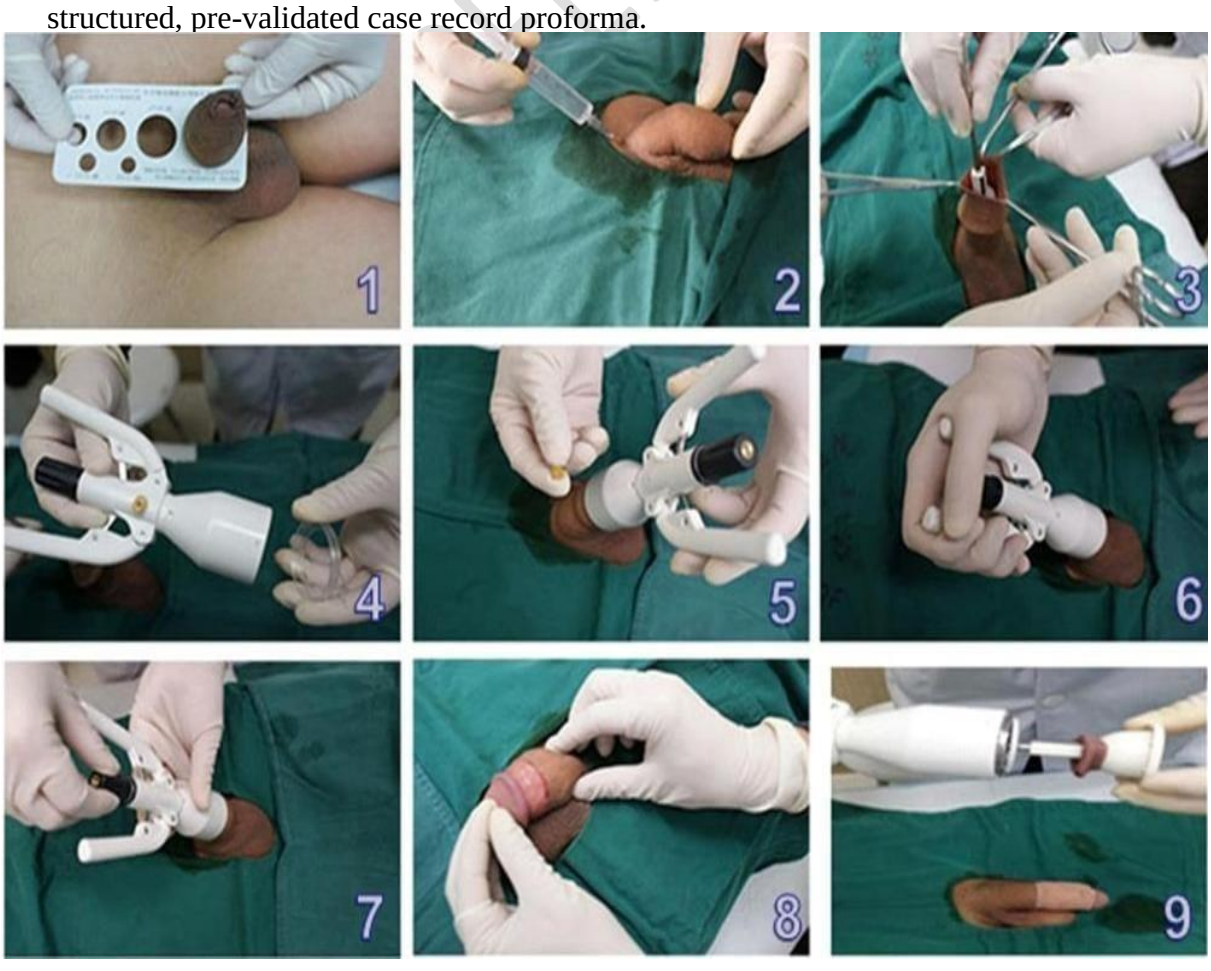

Figure: 1) The penis is measured just below the glans to determine the appropriate size of the stapler device.

After surgically scrubbing the penis with povidone-iodine, a dorsal penile nerve block and circumferential block are performed with 1% lidocaine.

The inner bell is placed inside the foreskin to cover the glans; the edge of the bell is at the level of the coronal sulcus. If the patient has severe phimosis, a dorsal slit should be made to correctly position the inner bell.

The safety shield is removed from the outer bell.

The outer bell is placed over the inner bell. The frenulum should be kept intact. The safety bolt is then removed.

The screw is rotated clockwise to sandwich the foreskin tightly; the handles are triggered to cut the foreskin and the wound is closed by staples at the same time.

The device is unscrewed and removed.

The wound in the foreskin is checked and pressed with gauze for 1 to 2 min to stop any bleeding.

Hemostasis is achieved with a compression bandage.

Results

Age distribution;

In the present study we assessed the age distribution of the study subjects. We observed that majority of the study subjects belonged to the age group of 26 to 35 years (40%) followed by 36 to 45 years (20%).

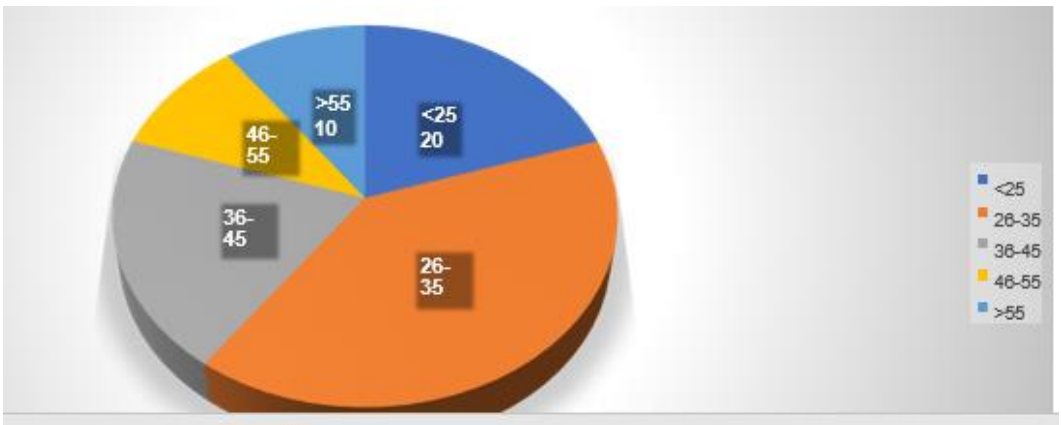

Fig .2 Pie chart showing age distribution

Diagnosis;

In the current study we assessed the Diagnosis among the study subjects. We observed that Balanitis Xerotica Obliterans was reported in 4 subjects, congenital phimosis was reported in 2 subjects, recurrent balanoprosthatitis was reported in 8, and Recurrent UTI was reported in 6 subjects.

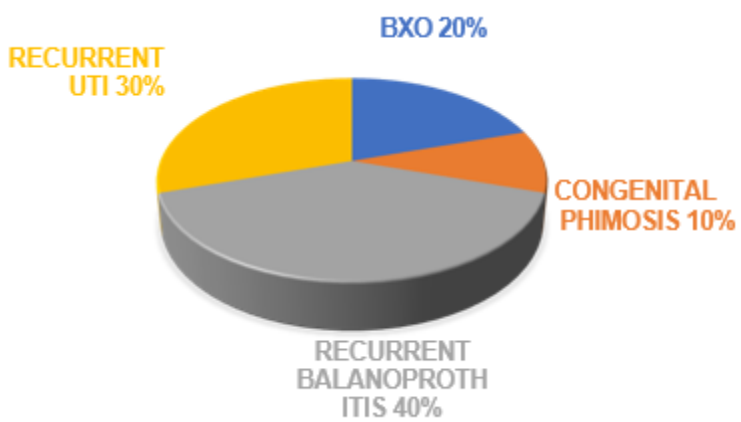

Fig .3 Pie chart showing treatment diagnosis

Sexual satisfaction;

In the current study we assessed Sexual satisfaction among the study subjects. We observed that 65% patients have sexual satisfaction.

Intra operative parameters;

In the current study we assessed Intra operative parameters among the study subjects. We observed that Mean Operating time was 6.8 min, Mean Blood loss was 1.8 ml, Mean Pain score was 4.

Table 1 : Intra operative parameters

Parameters	Patient group	Significance
Mean Operating time	6.8 ± 1.5 min	The t-value is 18.66649. The p- value is < .00001. The result is significant at p < .05.
Mean Blood loss	1.8 ± 0.68 ml	The t-value is 19.86633. The p- value is < .00001. The result is significant at p < .05.
Mean Pain score	4 ± 0.70	The t-value is 6.23149. The p-value is < .00001. The result is significant at p < .05.

Post-operative parameters;

In the current study we assessed Post operative parameters among the study subjects. We observed that Mean Healing time was 12.5 days, Mean Satisfaction was 92%, and Post-operative hospital stay was 2.2 days.

Table 2 : Post-operative parameters

Parameters	Patient group	Significance
Mean Healing time	12.5 ± 1.05 days	The t-value is 5.06803. The p-value is .000017. The result is significant at p < .05.
Mean Satisfaction	92 ± 1.77 %	The t-value is 3.1225. The p-value is .002315. The result is significant at p < .05.
Post-operative hospital stay	2.2 ± 0.43 days	The t-value is 6.94022. The p-value is < .00001. The result is significant

Complications;

In the current study we assessed Complications among the study subjects. We observed that 15% case have complication of post op edema, 10%bleeding, 0%wound deheance and 5%postop infection.

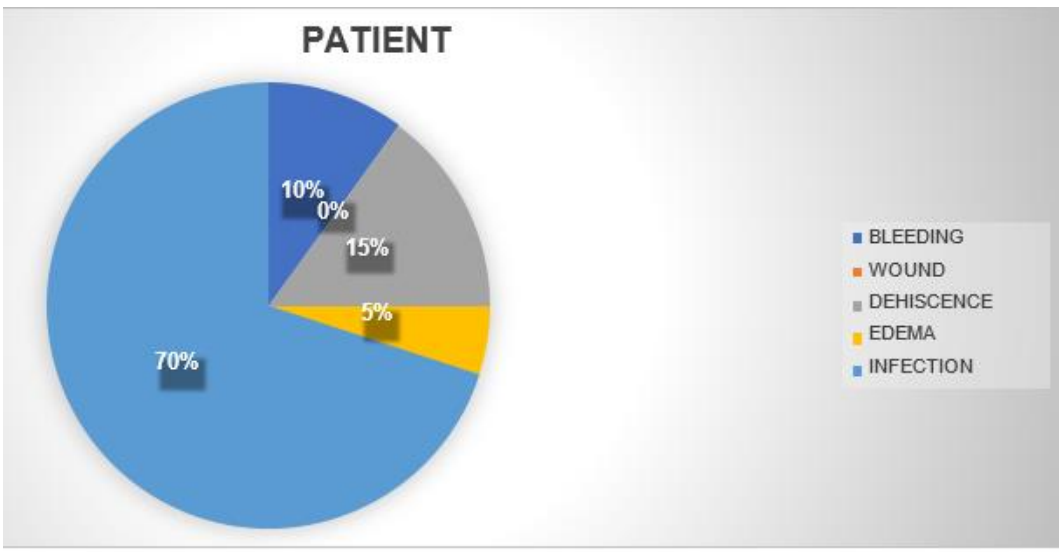

Fig. 4 : Pie chart showing patient complications

Discussion

Male circumcision is removal of the foreskin (prepucial skin) from the penis. According to the World Health Organization (WHO), global estimates suggest that 30% of males are circumcised. In India incidence of circumcision in general population is approximately 33%. Most circumcisions are performed during adolescence for cultural or religious reasons [4].

The circular stapler is a new device used to perform circumcision. It was commercially developed in China and is applied in some Chinese hospitals. In line with a study by Yuan et al., our data show that MC with a stapler has some advantages: a short operative time, minimal pain, and a low blood loss volume comparable with those of another new circumcision device, the Chinese Shang Ring. Therefore, the stapler also has the potential to be used in high-volume settings by health care providers with minimal training and experience because of its simplicity, short operative and recovery times. Currently, its most substantial deterrent to widespread use is cost. A reusable version of the circular stapler might be a solution [5].

MC is the most frequently performed procedure by urologists. Approximately 1.4 million MC procedures are performed annually in US medical settings. The WHO recommends three conventional methods to perform circumcision, and these techniques are used worldwide. However conventional circumcision still has some drawbacks: it requires training, it may have a high complication rate, especially in some African countries, where circumcision is often performed by poorly trained and underequipped health workers; and it takes time, even when

performed by experienced surgeons, which challenges the medical MC scale-up for HIV prevention in Africa. The circular stapler is a new device used to perform circumcision [6]. It was commercially developed in China and is applied in some Chinese hospitals. In line with a study by Yuan et al. the stapler also has the potential to be used in high-volume settings by health care providers with minimal training and experience because of its simplicity and short operative and recovery times. Currently, its most substantial deterrent to widespread use is cost. A reusable version of the circular stapler might be a solution. Our study has shown that stapler circumcision is associated with fewer complications than conventional circumcision, especially with respect to severe edema and wound dehiscence. These advantages of stapler circumcision may be due to the short operative time, minimal tissue injury, and lack of electrocautery [7, 8].

A comparison of the frequency of complications across studies has been hampered by the use of different research methods and lack of standardization. Based on the literature and our experience. We believe that the stapler still has some advantages over the Shang Ring. First, the foreskin is cut completely with the stapler, which causes less pain after the operation. In contrast, patients who undergo circumcision with the Shang Ring experience pain for 7 to 16 days until the ring is removed. Based on patients' self-reports, this postoperative pain can be very severe when spontaneous or nocturnal erection occurs [9]. Second, patients who undergo stapler circumcision have shorter healing time, in patients treated with the Shang Ring. Removal of the foreskin is obtained by necrosis, which leads to a relatively ischemic edge. Third, patients who undergo stapler circumcision have less wound dehiscence. Patients treated with the Shang Ring have a greater possibility of wound dehiscence because no suturing is performed around the wound. Wound dehiscence usually develops when spontaneous or nocturnal erection occurs. However, these advantages should be further tested in a well-designed head-to-head randomized clinical trial. In children in some countries, circumcision is mainly performed for religious reasons. One study showed that neonatal MC is cost-effective for disease prevention [10]. The herein-described circular stapler may eventually be applied to children and infants because of its simplicity and short operative and recovery times.

Conclusion

Balanitis Xerotica Obliterans, Recurrent balanoposthitis, Recurrent UTI, and Congenital phimosis were the commonest presentations of the patients. The stapler circumcision is an easy and user-friendly technique for performing male circumcision. It is associated with a shorter operative time, lower blood loss volume, and fewer postoperative complications. This new technique may greatly facilitate and standardize circumcision procedures.

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