

## Safety profile of open versus bone cutter circumcision

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### Abstract:

**Objectives:** To compare open and bone clamp circumcision in terms of complication such as bleeding and infection to find out a better method of circumcision.

**Study design:** Randomized control trial (true experimental study)

**Setting and duration of the study:** Surgical unit of Sheikh Khalifa bin Zayed/Combined Military Hospital (SKBZ/CMH), Muzaffarabad, Azad Kashmir. From June 2016 to July J 2018

**Material & Methods:** It was a true experimental of study (randomized control trial), conducted at the surgical unit of SKBZ/CMH, Muzaffarabad, Azad Kashmir. From June 2015 to July 2017. Total 150 patients were selected from the out patient department of the surgical unit on the basis of purposive (non-probability) type of sampling. Patients were divided into two groups according to random number table. Post-operatively tincture gauze dressing was applied and oral cephradine (antibiotic) along with oral analgesia was prescribed to each patient. Parents were instructed to provide twice daily sitz bath and to follow up after one week, earlier if needed, to assess the complication of infection.

**Results:** Total 150 patients were registered between the age of 1 month to 18 months. Total 7% of all the patients got significant bleeding out of which 4% were in group-A, and 3% were in group-B, and total 5% of all the patients got infection, of which 3% in group-A and 2% in group-B. Group-A had circumcision by open method and group-B had circumcision by bone cutter method.

**Conclusions:** The study concludes that there is no significant difference between the two methods in terms of complications like bleeding and infection. So both of these procedures can be performed for circumcision but by trained people and under hygienic conditions with sterilized instruments.

**Keywords:** Bone cutter circumcision, safety profile, open circumcision

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### Introduction:

Circumcision, one of the most commonly performed operation, is the surgical removal of the fore skin from the human penis.<sup>1</sup> Historical background of circumcision dates from ancient Egyptians', Australian aborigines, and African bushmen.<sup>2</sup> Now-a-days circumcision is one of the most commonly performed operation of the males and worldwide data shows that 1 in every 3 males is circumcised.<sup>3</sup> Medical indication of circumcision are phimosis, balanitis xerotica obliterans, recurrent balanoprosthetitis,

recurrent urinary tract infections and failure to retract during intercourse.<sup>4</sup> American Academy of Paediatricians published a recent technical report about risks and benefits of early neonatal circumcision, which shows that circumcision reduces risks of recurrent urinary tract infections, human immunodeficiency virus (HIV) and some other sexually transmitted diseases.<sup>5,6</sup> In case of reduction of human immunodeficiency virus (HIV) with circumcision, circumcision is promoted as a preventive measure against human immunodeficiency virus (HIV) and mass cir-

cumcision was proposed.<sup>7</sup>

Although there are multiple scientific reasons for circumcision but in case of muslims and Jews, circumcision is considered as a religious tradition. About 98% of Jews living in United Kingdom are circumcised and almost all the muslim males living in any part of the world are circumcised, making about two third of all circumcised males are muslims.<sup>8</sup>

In Jews time of circumcision is specified and it is always 7<sup>th</sup> day of birth but in case of muslims there is no specified time.<sup>2</sup> Although multiple studies have shown that circumcision at an early age has multiple benefits including prevention against recurrent urinary tract infections, faster healing, lower complication rate and also cost effectiveness.<sup>2,7,8</sup> In muslim majority countries a systemic review of prospective studies suggests complication rate ranging from 1.4 to 16%.<sup>5</sup>

Multiple methods of circumcision are used worldwide like Gomco-clamp, Plastibell and Mogan Clamp.<sup>5</sup> In Pakistan two popular methods are, one is open method of circumcision and other is circumcision with application of bone clamp. In open method prepuce is held between two clamps and then divided between clamps under vision. In case of bone clamp prepuce is stretched and bone clamp is applied in its base and then divided blindly.<sup>4</sup>

As Pakistan is a 98% muslim country and every muslim male of Pakistan has to undergo circumcision so, rationale of the study is to find out a method of circumcision which should have less complications in terms of bleeding and infection.

#### **Material and Methods:**

This study was conducted at surgical unit of SKBZ/CMH, Muzaffarabad, patients were selected from out patient department of surgery. This study was done from June 2015 to July 2017, i.e. over the 2-years. Purposive (non-probability) sampling was used for collection of 150 patients. Then then were divided into two groups randomly using random no. table, for

two different procedures. All healthy male patients, up to the age of 18 months, demanding cbircumcision only for religious purpose, were included in the study. Patients with congenital urogenital anamolies, neonatal jaundice or having deranged coagulation profile.

Before starting this study, permission from hospital ethical committee taken. All patients for this study was taken from out patient department, after taking history and doing detailed clinical examination, basic investigations was carried out including CBC and coagulation profile and urine analysis. The patient were divided in to two groups by purposive (non-probability) sampling. Whole procedure was explainned to the attendant of the patient and also its complications. After which informed consent was taken and patient was submitteds for circumcision according to group A and B.

The same type of dressings was applied after every circumcision and same antibiotics and analgesics to all the patients. The patient was kept for 5 hours to observe any significant bleeding, then allowed home. The patient was followed up on 6<sup>th</sup> day to observed for any infection.

Data was entered in SPSS version 23 for descriptive statistics and inferential statistics. Mean and standard deviation was calculated for age, frequency was calculated for categorical data i.e. bleeding and infection. Chi-square test was used to compare the difference in complication by two procedure. Complication for which we used Chi-square test were bleeding and infection.  $P < 0.05$  was considered statistically significant difference.

#### **Results:**

A total of 150 patients fulfilling the criteria were included in the study. These patients were divided into two groups (A&B) according to random number table, 75 patients in each group. Group-A was circumcised by open method and group-B was circumcised by bone cutter (clamp) method.

Bleeding was considered more than normal

Table-1: Comparison of Bleeding between two Groups

Bleeding	Group A	Group B	Total
Yes	6 (8%)	5 (6.7%)	11 (7.3%)
No	69 (92%)	70 (93.3%)	139 (92.7%)
Total	75 (50%)	75 (50%)	150 (100%)

Table-2: Comparison of Infection between two Groups.

Infection	Group A	Group B	Total
Yes	4 (5.3%)	3 (4%)	7 (4.7%)
No	71 (94.7%)	72 (96%)	143 (95.3%)
Total	75 (50%)	75 (50%)	150 (100%)

Table-3: Frequency distribution of patients by age and bleeding in these groups

		Bleeding		Total
		Yes	No	
Age in Months	≤ 2	76	6	82
	3 - 4	51	4	55
	5 - 6	10	1	11
	7 - 8	2	0	2
	Total	139	11	150

Table-4: Frequency distribution of patients by age and infection in these groups.

		Infection		Total
		Yes	No	
Age in Months	≤ 2	79	3	82
	3 - 4	51	4	55
	5 - 6	11	0	11
	7 - 8	2	0	2
	Total	143	07	150

when measures, more than simple application of pressure bandage, were required to control bleeding post-operatively. Total 7% of patients got more than normal bleeding (4% of total patients in group A and 3% of total patients in group B). This is shown in table 1. Value of P was > 0.05. Chi-square test was applied and it was found that there was no significant difference between two groups.

5% of the patients suffered from infection, 3% of total patients were with open circumcision (group-A) and 2% of total patients with bone cutter circumcision (group-B), results are shown in table-2. P value remained > 0.05. Chi-square test was applied and again it was found that there was no statistically significant differ-

ence between two groups.

### Discussion:

Circumcision is a Latin word, derived from circumcidere, meaning “to cut around”.<sup>8</sup> Circumcision is one of the most commonly performed operation of males between infancy and early twenties, and almost 37% to 39% of males all over the world are circumcised. Among these two third of males are circumcised for cultural and religious reasons.<sup>10</sup>

Although circumcision is common in muslims and Jews for religious reasons but there are multiple medical indications of circumcision like phimosis, refractory balanoprostitis, balanitis xerotica obliterans and recurrent UTIs.<sup>11</sup> World health organization promotes circumcision for the prevention of female to male transmission of HIV, in areas where HIV is common.<sup>12</sup>

There are multiple problems due to which circumcision should be performed by a doctor or directly under the supervision of a doctor because there are some special conditions in which circumcision is contra-indicated like abnormalities of urethral opening (hypospadias or epispadias), abnormal curvature of shaft of penis (chordae) or ambiguous genitalia. In almost all these conditions this fore skin is used for reconstruction.<sup>13</sup> Along with these structural abnormalities there are also some abnormalities of blood coagulation like Haemophilia, which can lead to excessive bleeding after circumcision. Coagulation profile should be checked before procedure.<sup>14,15</sup>

Almost all the muslims all over the world, who don't have any contra-indication, undergo circumcision as a religious practice. Circumcision commonly called as “Khitana” is not mentioned in The Holy Quran but Prophet Hazrat Muhammad (PBUH) practiced it in his life following Prophet Hazrat Ibrahim so it is considered as a sunnah (Prophet's tradition). It is considered important for hygiene and control over one's baser self (nafs). There is no specific age recommendation in Islam for circumcision but mostly it is performed in early neonatal life or around

sixth or seventh year of life. In many areas circumcision is celebrated as a special occasion with invitation of all family members and serving them with lavish foods.<sup>16,17</sup>

There are multiple surgical procedures for circumcision one is conventional (open technique), which is also called as cut & stitch method and other by use of multiple special instruments like plastibell, gomco clamp, Morgan clamp and bone cutter.<sup>18</sup> Complications of circumcision are divided as early and late complications, early complications include bleeding especially in patients with bleeding disorders, where it can lead to death, infection, over cutting of prepuce, under cutting of prepuce and another serious complication of damage or amputation of glans (common with bone cutter).<sup>19</sup> Late complications of circumcision include concealed penis, epidermal inclusion cyst, suture sinus tract, penile webbing, urethro-cutaneous fistula and meatal stenosis.<sup>20</sup>

Irrespective of any argument, in a country like Pakistan all muslims males should be circumcised. But unfortunately there are no laid down standards for this procedure. Circumcision should be performed by surgeon. In our circumstances circumcision is being performed by technician, barbers, general practitioners, gynecologist and obstetrician. It is a common observation that most of these people have not had appropriate training in the principles of performing this procedure.

Since circumcision is a surgical procedure, it requires application of all the principles needed in performing a surgical procedure. This means aseptic technique with sterilized instruments, drapes, antiseptic solution, disposable syringe and local anaesthetic agent for all patients. In older children proper general anaesthesia is also desirable.

Although hemorrhage and infection are the main causes of morbidity, the variety of complications is enormous. The literature suggested increased morbidity and even death<sup>18</sup> as a result of circumcision.

Total 150 patients fulfilling the criteria were identified and divided into two equal groups (A&B) according to random number table, group A was circumcised by open method and group B was circumcised by bone cutter (clamp) method. After sending home patients were called on 7<sup>th</sup> post-operative day for re-assessment and observing presence or absence of infection. Bleeding occurred in 7% of patients. There was no significant difference found between the two procedures. Mild superficial infection was observed in 5% of cases.

This study proved that there is no difference between these two methods and both are good methods for circumcision. But it is very necessary that circumcision should be performed by trained personnel under hygienic conditions and with sterilized instruments, also proper post-operative care should be given to the patients.

#### **Conclusion:**

The study concludes that no significant difference was found between the two procedures in terms of complications like bleeding and infection. So both of these procedures can be performed for circumcision but by trained and qualified surgeons under hygienic conditions with sterilized instruments not by quacks like barbers and technicians under unhygienic conditions with dirty instruments.

Like constant evolution and refinements of other surgical procedures one must also search and establish the newer techniques of circumcision which should be safe with minimal complications.

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#### **Role and contribution of authors:**

Dr Naheed Akhtar, conceived the idea and did the initial write up

Dr Farzana Sabir, helped in collecting the data and references and also helped in introduction writing

Dr Seemab Zafar, helped in collected the data and also helped in discussion writing

Dr Ahmed Mehmood, critically review the article and did useful changes

Dr Amir Zeb, critically review the article and made the final draft.

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