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*RESEARCH ARTICLE*

# "THREAD OR STAPLE: A COMPARATIVE ANALYSIS OF SURGICAL TECHNIQUES IN CIRCUMCISION SURGERY"

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## *Abstract*

**Introduction:** Male circumcision was one of the earliest operations performed by humans.The circular stapler, is a new disposal circumcision device discovered in China. It is a novel technique showing quicker procedure time, lesser complication, and sutureless.

**Methods:** A study was conducted on 50 Adult males undergoing circumcision surgery under local anesthesia in a tertiary hospital in Navi Mumbai. They were randomized into 2 groups. In Group A conventional suturing was done and in Group B with staplers. Time efficacy calculated by stopwatch(s). Post-operative complications along with cost-effectiveness between the two techniques. Cost-effectiveness between two techniques.

**Results**: The operative time is quicker in group B compared to conventional suturing. The intraoperative and postoperative pain scores were significantly lower in the stapler group compared to conventional suturing. It is observed that in Stapler group had higher treatment costs than conventional suturing. In group B receiving stapler had fewer post-operative complications than the conventional group.

**Conclusion**: The present study has demonstrated that the stapler circumcision technique is superior to the conventional suturing technique. The stapler technique is quicker and less complicated with good patient compliance. A drawback is a costly approach and training in manual skills that require aÂ precise application. The study needs to be on a larger scale with a larger population for further improvement.



## Introduction:-

Male circumcision, a surgical procedure with ancient origins, is recommended by the World Health Organization (WHO) to be performed using one of three techniques: the dorsal slit method, the forceps-guided method, or sleeve resection. While these methods are generally safe and effective, there is always room for improvement. The circular stapler is a new, disposable device that introduces an innovative approach to circumcision. It offers a quicker procedure time, fewer complications, and is sutureless, potentially enhancing the safety and efficacy of the procedure.

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## Aim:-

The Aimis to compare conventional suturing techniques versus staplers in circumcision performed under local anesthesia at a tertiary care hospital in Navi Mumbai.

## Objectives:-

a. To compare the time efficacy between the two techniques under local anesthesia.
b. To compare post-operative complications between the two techniques under local anesthesia.
c. To compare the cost-effectiveness between the two techniques under local anesthesia.

## Patients and Method:-

A prospective comparative study conducted at a tertiary level hospital in Kamothe with a study population of 50 participants over a period of 6 months. Approval from the Institute Ethics Committee was obtained before the commencement of the study.

Patients age more than 18 years undergoing circumcision surgery are included in the study if they are willing to participate

Patients age less than 18 years,Immunocompromised and are excluded in the study if they are not willing to participate.

**Table 1:-** Mean Age Group.

| | MEAN AGE |
|---|---|
| GROUP A | 47.96 |
| GROUP B | 48.72 |

**Figure 1:-** Mean Age in Study Population.


**Plan of study:**

After obtaining informed written consent from each participant, they were registered in the study. Study population received the same antibiotic prophylaxis 30 minutes before the procedure. Patient outcomes were documented and analyzed. Follow-up was conducted for 30 days postoperative, with assessments on postoperative days 3, 5, 15, and 30.

## Results:-

Around 50 patients were included in the study who fulfilled inclusion criteria after obtaining informed consent. They were randomly assigned to two groups of 25 each using a chit system and followed up regularly to assess the outcomes. The results were recorded and analyzed.

There were no notable differences in patient demographics between the two groups regarding age, incision length, and stay in hospital. The average age in Group A was 47.96 years, whereas in Group B it was 48.72 years.

**Figure 2:-** Time Taken During Procedure.


**Table 2:-** Time Taken During Procedure

| | MEAN TIME TAKEN |
|---|---|
| **GROUP A** | 5.97 |
| **GROUP B** | 32.64 |

The Operative time was less in Group A(stapler) compared to Group B (conventional suturing).

**Figure 3:-** Post Operative Pain In Study Population.

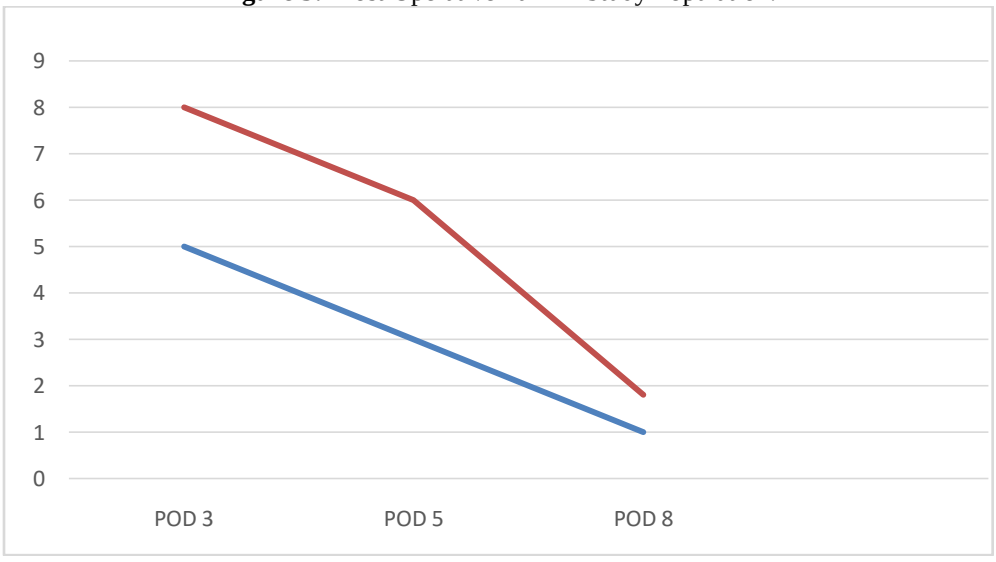


**Table 3:-** Post Operative Pain in Study Population.

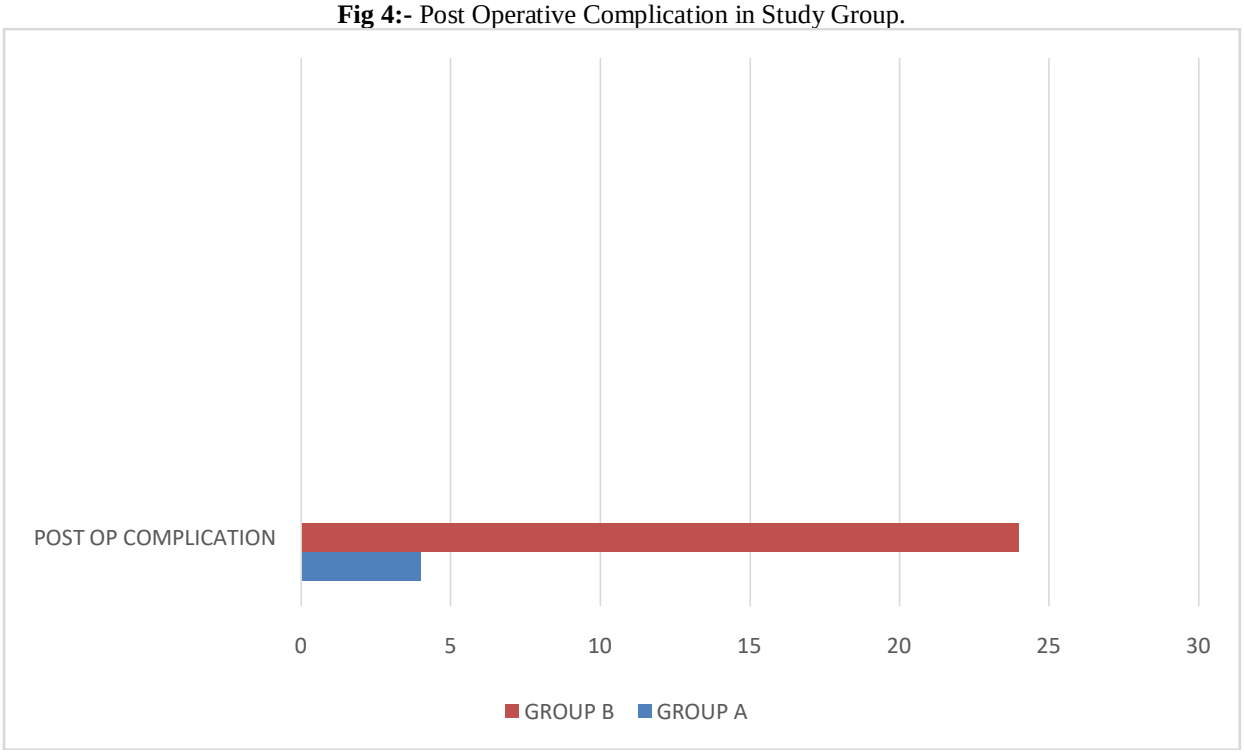
| | POD 3 | POD 5 | POD 8 |
|---|---|---|---|
| GROUP A | 5 | 3 | 1 |
| GROUP B | 8 | 6 | 3 |

The Postoperative pain was comparative lowin the Stapler group compared to Traditional suturing.

**Table 4:-** Post Operative Complication in Study Group.

| | POST OPERATIVE COMPLICATIONS |
|---|---|
| **GROUP A** | 4% |
| **GROUP B** | 24% |

**Fig 4:-** Post Operative Complication in Study Group.




1. In group A receiving stapler had fewer post-operative complications than the conventional group.
2. It was observed that in Stapler group had higher treatment costs than conventional suturing.

## Discussion:-

The study done to demonstrate circular staplers has characteristics that make them an effective alternative to conventional suturing in day-to-day practices.

**Fig 1:-** Measurement scale.

**Fig 2:-** The Inner bell is placed inorder it covers the glans.

**Fig 3:-**The bigger bell is placed outside the inner bell.

**Fig 4:-**Immediate post op (staples insitu).

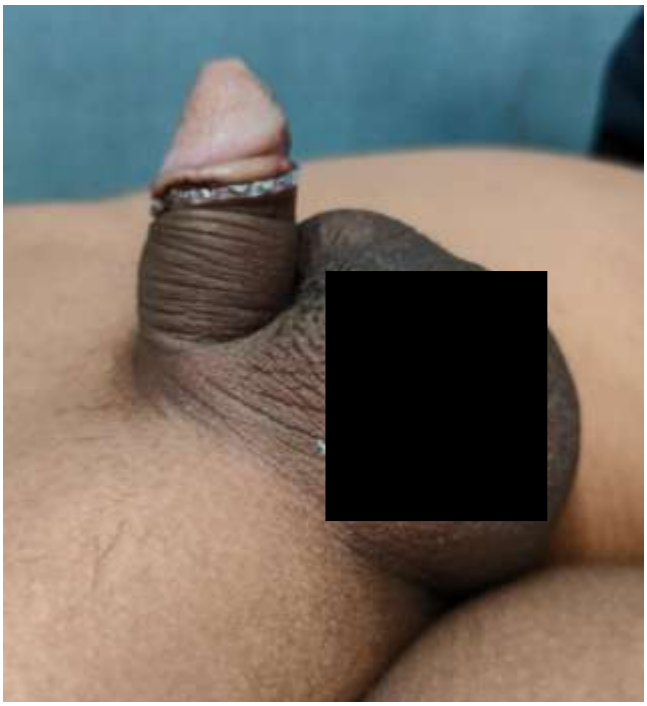


**Fig. 5 A:-** Post operative day 5.

**Fig 5 B:-** Post operative day 8.

According to the current study, the usage of the circular stapler drastically reduced the time required for completion of the procedure. Surgical time is a critical factor, especially when the patient is undergoing the procedure under local anesthesia or regional blocks. The surgical time indirectly reflects the outcome of the procedure.

In a study conducted by Huo ZC et al. in 2015 with 120 patients, it was also demonstrated that the use of staplers reduces the procedure time compared to conventional suturing, which is consistent with our findings.

Our study also observed that postoperative pain was less in the group that received the stapler compared to the group that received conventional suturing. A study by Bo Dang Lv et al. in June 2014, with a study population of 914, reported similar results.

Additionally, our study found that stapler use resulted in better cosmetic effects compared to conventional suturing. Studies by Li S et al. in 2014, Pang GZ et al. in 2015, and Jing ZA et al. in 2014 also concluded that staplers provided superior cosmetic outcomes compared to conventional suturing.

Overall satisfaction levels were higher in patients who had closure with staplers compared to those who had closure with sutures. The broad adoption of this innovative approach allows circumcision to be performed as a bedside or outpatient department (OPD) procedure under local anesthesia.

Furthermore, our study found that stapler circumcision had fewer complications than conventional suturing concerning wound dehiscence and tissue edema. However, a drawback of the stapler method is that it is more costly and requires precise application know-how.

## Conclusion:-

The circular stapler is a novel technique that demonstrates superior outcomes compared to conventional circumcision. In our study, it was found that the stapler techniqueis associated with shorter operative times, reduced blood loss, fewer complicated outcomes and improved patient satisfaction compared to Traditional method performed under local anesthesia.

However, a notable drawback of this technique is its high cost and the significant learning curve required for precise application. To further validate these findings, studies need to be conducted on a larger sample size across multiple centers with a more extensive population for continued improvement and evaluation.

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