



## SUTURELESS CIRCUMCISION: A QUICK AND ECONOMICAL METHOD FOR MASS CIRCUMCISION.

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### ABSTRACT

Absorbable sutures are used to closed circumcision wounds traditionally. Alternative methods are also being utilized, Like use of Tissue glue (iso amy12-cyanoacrylate) for skin approximation. Use of Plastibells is also in vogue. In this study we used bi-polar cauterization for haemostasis and did not approximate the skin edges, and this technique is compared with traditional absorbable suture technique. In our study we found this technique less time consuming, economical and equally effective in wound healing.

**KEYWORDS** : Sutureless circumcision, Economical method, Bi-polar cautery.

### INTRODUCTION

Circumcision is a commonly performed operation and absorbable sutures have traditionally being used for closure. Bleeding and Wound infection were found to be common post operative complications. Alternative methods are also being utilized, Like use of Tissue glue (iso amy12-cyanoacrylate) for skin approximation. The two most common complications of circumcision are bleeding and wound infection. The cyanoacrylate tissue glue has been claimed to have the advantages of being hemostatic, bacteriostatic and easy to use.

In this study we used bi-polar cauterization for haemostasis and did not approximate the skin edges, and this technique is compared with traditional absorbable suture technique. In our study we found this technique less time consuming, economical and equally effective in wound healing.

The purpose of our study was to compare this sutureless technique as a better alternative to traditional suture technique in terms of Time required both for Anaesthesia, Surgical technique, economy and results. The study was conducted for NRHM cases in Municipal corporation hospitals in 2008 for mass circumcision for children of economical backward religious group. Sedation plus injection Ketamine is used as Anaesthesia and Bi-polar cautery for haemostasis. Skin edges were not approximated and simple dressing was used in this study and in control group skin edges were approximated with catgut as conventional closure. Patients were discharged after 2 hours and followed up after 3 days in OPD. Sutureless group comprised of 75 cases and control group 75 cases.

### MATERIAL AND METHOD

The purpose of our study was to compare this sutureless technique as a better alternative to traditional suture technique in terms of Time required both for Anaesthesia, Surgical technique, economy and results. The study was conducted for NRHM cases in Municipal corporation hospitals for mass circumcision for children (150) of economical backward religious group. Sedation plus injection Ketamine is used as Anaesthesia and Bi-polar cautery for haemostasis. Skin edges were not approximated and simple dressing was used in this study (75-sutureless group) and in control group (75) skin edges were approximated with catgut as conventional closure. Patients were discharged after 2 hours and followed up after 3 days in OPD. Sutureless group comprised of 75 cases and control group 75 cases. In the control group, the mucocutaneous approximation was done by interrupted 3/0 chromic catgut. In the experimental group, cyanoacrylate glue was used for wound approximation. Antibiotic ointment was applied to

urethral meatus to avoid accidental contact with glue. Mucocutaneous approximation was achieved by using pair of toothed forceps holding the two edges of wound firmly together. Oozing blood was cleaned with saline and wound area was dried by gauze as far as possible. After approximation, few drops of iso amy12-cyanoacrylate were applied at interval on one side to facilitate holding, then a thin layer applied through the wound and allowed to dry for about 10-15 s. The width of glue was not wider than 5 mm. Application of glue between the edges was avoided as it could delay the healing. Accidental spillage of glue over glans causes denudation of mucosa in one case, which was managed conservatively. No dressing was used in these cases. Wound healing was followed by repeated observations on 3rd, 7th, and 30th day postoperatively. After one month, assessment of cosmesis was carried out by another surgeon, who had not performed the surgery.

### DISCUSSION

In our study we found this technique less time consuming, economical and equally effective in wound healing. The study was conducted for NRHM cases in Municipal corporation hospitals for mass circumcision for children of economical backward religious group. Sedation plus injection Ketamine is used as Anaesthesia and Bi-polar cautery for haemostasis. Skin edges were not approximated and simple dressing was used in this study and in control group skin edges were approximated with catgut as conventional closure. Patients were discharged after 2 hours and followed up after 3 days in OPD. Sutureless group comprised of 75 cases and control group 75 cases. Sutureless group did not show any inflammatory swelling, bleeding, haematoma. And wound was almost healed on follow up examination. In 3 cases of control (suture technique) group there was haematoma, one case had infection and 5 cases showed delayed healing. Male circumcision is removal of the foreskin (prepuce) from the penis. Early description of circumcision was found in cave drawings and Ancient Egyptian tombs. 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. The prevalence of circumcision varies mostly with religious affiliation, and sometimes due to culture. Adult and adolescent circumcision is carried out using one of the methods: Dorsal slit method or sleeve method. Local anesthesia is the preferred method. The widely used dorsal slit method is used in the present study. All the methods of adult and adolescent circumcision require suturing and dressing. Surgical complications of male circumcision can include excessive

bleeding, hematoma formation, sepsis, unsatisfactory cosmetic effect, lacerations of the penis and injury to the glans, too little or too much of foreskin excised, meatal stenosis, urinary retention, phimosis and buried penis. Among all these complications, hemorrhage and infection are the most common complications. Coover et al., has discovered the adhesive properties of cyanoacrylate adhesive and suggested their use as a surgical adhesive for the first time. Adhesive glue is especially useful for day care surgery like circumcision. Cyanoacrylate is a better alternative to sutures and gained increased clinical popularity due to the ease of application, decreased scarring, decreased pain and better cosmetic results with no discomfort as seen with sutures getting to or snagging the clothings and dressing. Most of the studies done earlier were limited to pediatric age group. Frase and Geode in their study found that 2-octyl cyanoacrylate is the feasible option over suture material for circumcision, especially in children. Similar to our finding, Arunachalam et al. showed that 2-octyl cyanoacrylate is cosmetically superior and its operative time is significantly less in comparison to suture group. In opposition to this, Cheng and Saing concluded that tissue glue has no significant advantage over suturing and time taken was longer in tissue glue group. Recently Jonathan et al. published their wide experience with sutureless circumcision and they concluded that it is safe, efficient, financially beneficial and a cosmetically appealing alternative to sutures which support our finding. Sharma PP in their study showed it as a feasible alternative to suture for adult population with less postoperative pain. In the present study, the cyanoacrylate and the suture group had similar mean age and clinical indication for circumcision. There is no significant difference in pain score or complications in both groups. Wound dehiscence is slightly more in tissue glue group mostly at frenular junction, which is healed without any intervention. The wound separations were mostly in early part of study and were due to faulty application of glue. Although not significant, there was less bleeding in tissue glue group as it may have hemostatic effect. The most striking difference in this study is operation time. On an average, the tissue glue group takes 10 min shorter than the control group. Initially the time taken was more in learning phase but gradually it got reduced. Demerits of this procedure are the following: Less availability of tissue glue in India, storage problem due to short shelf life outside refrigeration (glue harden at temp >25°C), cost (cost of 0.25 ml of glue is Rs. 125 compared to 3-0 catgut Rs. 55), proper application of glue as it may incorporate surrounding tissue. Another advantage of glue is that the stitch marks are absent as compared to sutures. This method obviates the use of traditional dressings like supra tulle, many of which are incorporated within sutures, and hence cause pain during their removal. Absence of sutures also avoids early snagging and gives good cosmetic result.

## RESULT

Sutureless group did not show any inflammatory swelling, bleeding, haematoma. And wound was almost healed on follow up examination. In 3 cases (4%) of control (suture technique) group there was haematoma, 1 (0.75%) case had infection and 5 (6.6%) cases showed delayed healing. No major complication was noted in both the groups. Tissue glue group had higher rate of partial dehiscence as compared to suture group but a comparable or less wound inflammation, bleeding or hematoma rate. However, none of these findings could reach to statistically significant level. The mean time taken for circumcision was 14.2 min (SD 2.42) when tissue glue was used. However, the mean time taken for circumcision was 24.4 min (SD 5.06) when sutures were used. This difference was found as highly significant (t test, P value < 0.0001). Regarding postoperative pain, there was no significant reduction when glue was used and circumcision done in glue group was found to be cosmetically superior than sutured group in which sutured marks are usually seen.

## CONCLUSION

In our study, This study showed that our sutureless technique is

1. Economical
2. Less time consuming

3. Cosmetically superior
4. Safe as compared to conventional suture technique.

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