ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 05 | May - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

"A COMPARASION STUDY BETWEEN SUBCUTICULAR SUTURE VERSUS INTERRUPTED MATTRESS FOR SKIN CLOSURE IN PFENNESTIAL INCISION IN CESAREAN SECTION"

Obstetrics & Gynaecology

Dr. Rita D Prof And Hod, Department of Obstetrics and Gyneacology, Navodaya medical college and research centre.

Dr. Kapu Shanthi Reddy* Junior resident, Department of Obstetrics and Gyneacology, Navodaya medical college and research centre. *Corresponding Author

Dr. Bandaru Tejeswini Junior resident, Department of Obstetrics and Gyneacology, Navodaya medical college and research centre.

ABSTRACT

Background: Caesarean section is the commonest surgery performed worldwide. Most of the caesarean section surgeries are performed by Pfannenstiel incision. The purpose of suturing is wound closure. Ideally, suturing should approximate the wound edges so that final scar is aesthetic and functional. Currently there is insufficient evidence regarding rates of wound infection, pain, or optimal cosmesis to guide surgeons in their choice of skin closure technique in Caesarean section or other procedures employing Pfannenstiel incisions. The present study aims to compare the two commonly used methods of skin closure i.e., mattress and subcuticular sutures to decide which is superior with regards to wound healing and cosmesis. **Aims and Objectives:** The objective of the study is to compare the outcome of interrupted mattress sutures vs subcuticular sutures in Pfannenstiel incision in caesarean section at NMCH & RC, Raichur. **Methods:** A prospective randomised control study was done on 60 pregnant .Women undergoing elective or emergency Caesarean section through Pfannenstiel incision were included in the study after written informed consent from the patient, and satisfying the inclusion and exclusion criteria are taken and were grouped under A with subcuticular skin closure and B interrupted mattress. **Results**: A total of 60 women (30 cases in each group) were included in the study.8(13.3%)mattress sutures experienced wound complications. Majority of the patients ie., 27(93.33%) were satisfied with subcuticular sutures. **Conclusion:** In present study it was observed that subcuticular absorbable suture is superior to interrupted mattress stitches with regard to many variables like nutritional , anemic status of the patient for a better wound outcome with less wound complications, good patient satisfaction, less hospital stay , cost effective and good cosmesis.

KEYWORDS

Pfannenstiel incision, caesarean section, subcuticular sutures, interrupted mattress sutures.

INTRODUCTION

Cesarean section is the commonest surgery performed worldwide. Most of the Cesarean section surgeries are performed by Pfannenstiel incision. Pfannenstiel incision was first described and performed by Hermann Pfannenstiel in 1897. It is a low transverse suprapubic incision which involves dissection of rectus muscle from overlying rectus sheath, after incising skin and rectus sheath. Since its introduction it has rapidly become popular and is the incision of choice in many obstetric and gynecologic surgeries.[1]

Ideally, suturing should approximate the wound edges so that final scar is aesthetic and functional. As far there has been no such ideal skin closure technique which causes good approximation , minimum postoperative pain, quick to apply, with minimum complications reduced need for secondary suturing, minimal hospital stay,cost effective and satisfactory cosmetics.[2]

The transverse incision is generally believed to have superior strength and healing outcomes and may be less prone to infection than vertical midline incisions.[3]

Currently there is insufficient evidence regarding the choice of skin closure technique in Caesarean section or other procedures employing Pfannenstiel incisions. With Caesarean section rates exceeding 25% and continuing to climb, clarifying wound complication rates associated with mattress and subcuticular sutures is essential to optimize healing and patient satisfaction.

However existing skin closure studies have been limited by study design and small numbers. The present study aims to compare two commonly used methods of skin closure i.e., subcuticular and interrupted mattress sutures to decide which among them is superior with regards to wound healing and cosmesis.

AIMS AND OBJECTIVES

The objective of the study is to compare the outcome of subcuticular sutures vs interrupted mattress sutures in Pfannenstiel incision in cesarean section at NMCH & RC, Raichur.

MATERIALS AND METHODOLOGY

All the pregnant women undergoing elective or emergency Caesarean section through Pfannenstiel incision were included in the study after obtaining ethical committee clearance from the institute and written informed consent from the patient.

Study site: NMCH & RC
Study design: Prospective randomized controlled trial
Study period: 12 months
Sample size: 60

Inclusion criteria:
The pregnant women undergoing elective or emergency Caesarean section through Pfannenstiel incision were included in the study after written informed consent.

Exclusion criteria:
History of autoimmune diseases such as diabetes, rheumatological and other skin diseases
Long term steroid intake history
History of suture substance allergies
Coagulation disorder
HIV infection
Past history of surgical wound infection

Group A – 30 patients having skin closure with subcuticular suture with Monocryl 3-0 (absorbable suture)

Group B – 30 patients having skin closure with mattress suture with ethilon 2-0 (non absorbable suture)

Women from both groups were questioned regarding amount and intensity of pain and need for analgesics in the early postoperative period. The dressing was removed on post op day 4 of surgery and the condition of the wound regarding, union, discharge, bleeding, hematoma and indurations were noted.Wound was reassessed at the end of one week and after one month for the nature of scar, infection, indurations, pain and cosmoses. Duration of hospital stay and cost of stay was noted. Wound outcome, pain and cosmetic appearance were compared in the both groups after fourth, seventh day and one month.

RESULTS

A total of 60 women (30 cases in each group) were included in the study.

Table 1- Age group Distribution (n = 60)

AGE (yrs)	SUBCUTICULAR	INTERRUPTED
<25	11(36.67%)	12(40%)
26-35	19(63.33%)	18(60%)
TOTAL	30	30

The above table summarizes baseline characteristics of the study groups, approximately 60% of women belong to the age group 26-35 yrs.

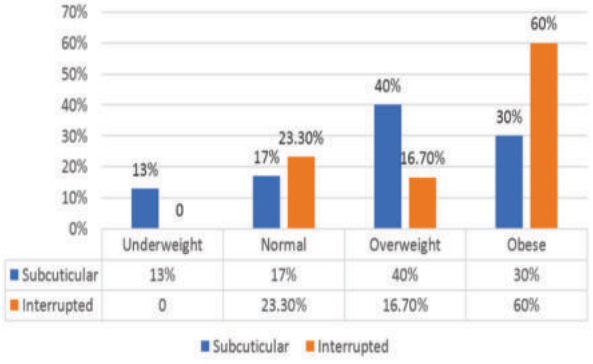

Figure 1- Women belonging to different BMI

Figure 1 depicts women belonging to different BMI , for 40% overweight women subcuticular suturing ,60% obese women interrupted suturing was done.

Table 2 - Frequency of anemia among the participants (n=60)

	FREQUENCY	PERCENTAGE	P VALUE
ANEMIC	14	23.3%	0.0146
NON ANEMIC	36	60%	

Table 2 depicts frequency of anemic and non anemic cases shows significant p value 0.0146.

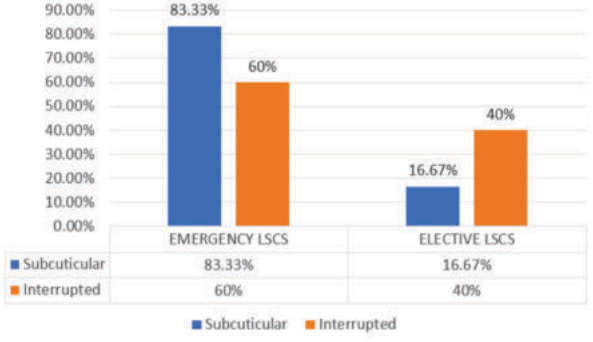

Figure 2 - Category of LSCS

Figure 2 depicts among EMERGENCY LSCS 83.33% had subcuticular suturing ,60% interrupted suturing. In ELECTIVE LSCS 40% had interrupted suturing ,16.67% had subcuticular suturing

Table 3 - Wound complications (n=60)

WOUND COMPLICATION	SUBCUTICULAR	INTERRUPTED	P VALUE
YES	2(3.33%)	8(13.3%)	0.037
NO	28(96.7%)	22(86.7%)	
TOTAL	30	30	

Table 3 describes the wound complications, 8 (13.3%) mattress sutures experienced wound complications like, indurations, serosanguinous discharge, non-union or dehiscence which was significant.

Table 4 – Satisfaction among patients (n=60)

SATISFACTION	SUBCUTICULAR	INTERRUPTED	P VALUE
YES	27(93.33%)	20(86.67)	0.0283
NO	3(6.67%)	10(13.33%)	
TOTAL	30	30	

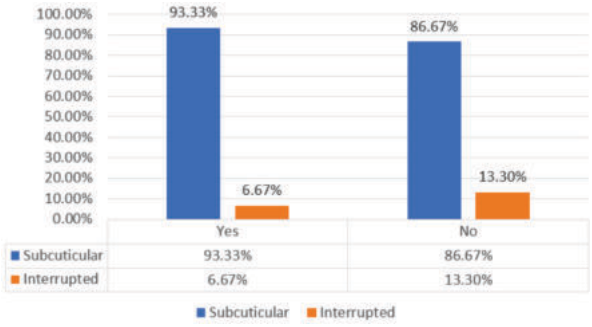

Figure 3 - Satisfaction among patients

Table 4 and figure 3 describes majority of the patients ie., 27(93.33%) were satisfied with subcuticular sutures and 10 (13.33%) were not satisfied with interrupted sutures.

DISCUSSION

Pfannenstiel incision has become more popular in recent times in younger women for better cosmetic results. Various methods and materials have been tried for skin closure in these incisions .

A total of 60 women (30 cases in each group) were included in the study. Group A with subcuticular suture experienced lesser pain, needed fewer analgesics. After post op day 4 majority of wounds appeared to be well approximated, with less induration and bleeding edges in group A.

Women with subcuticular suture (group A) had clean well healed united skin, without induration, oozing or infection by end of first week. Since this group had absorbable suture they were discharged early thereby reduced hospital stay and cost. More women from group B who had interrupted mattress sutures experienced wound complications like, indurations, serosanguinous discharge, non-union or dehiscence. These women were discharged from hospital after seventh .

WOUND OUTCOME	
Present study	96.7%
Choudhary A et al (2017)	92%

The present study showed that women who had subcuticular suturing technique had less postoperative pain, better wound outcome and more satisfaction compared to interrupted suture technique.

A study by Choudhary A, et al. in 2017 revealed that subcuticular absorbable suture is superior to interrupted mattress when wound outcome is considered. Time taken for skin closure was less and approximation was better without tension. Women were discharged earlier as there was no need for suture removal.

Comparision Of Wound Outcome

A study by Dasanayake et al 2020 describes that women's satisfaction score was much higher in subcuticular group than interrupted group. less postoperative pain and minimal wound related morbidity was noted in subcuticular group than interrupted group. [4]

Comparision Of Wound Satisfaction

WOUND SATISFACTION	
Present study	93.3%
Dasanayake et al (2020)	64.5%

Makeen, et al. in their systematic review of Cochrane database on techniques and material for closure of caesarean section found that nonabsorbable staples had increased risk of separation and resuturing than absorbable subcuticular suturing. In present study subcuticular suture with absorbable material offered better skin approximation and healing than the interrupted suture, which needed re-suturing more often.[5]

A study by Clay et al analyzed randomized control trials for subcuticular versus staples for closure in c-sections described that subcuticular suturing was beneficial as compared to staples in terms of wound outcome an observation similar to our findings[6]

In another prospective randomized trial performed by Brown JK et al

where they compared subcuticular suture to skin adhesive, observed that there was no difference in cosmetic outcome in subcuticular suture and skin adhesive and subcuticular stitch provided adequate skin apposition for proper healing. Skin adhesive on the other hand is more expensive to suture though it reduces operating time. It was found that subcuticular suture is not only cost effective but it also saves operating time when compared with interrupted mattress stitches.[7]

Absorbable subcuticular sutures when used in subcutaneous tissues eliminate the dead space, reducing potential spaces for collection of blood and serum. It brings the edges closer for tension free apposition of skin. When epidermis is closed it avoids direct needle contact with skin surface, allowing better healing. Synthetic monofilament material has less tissue reaction hence are better for skin closure. Mohan Kudur et al in their extensive description of suture materials and suturing techniques praised the subcuticular running suture as a fast and useful technique with enhanced cosmetic results.[8]

In present study it was observed that subcuticular absorbable suture is superior to interrupted mattress stitches with regard to many variables for the wound outcome. Approximation was better and without tension. Women were discharged earlier since there was no need for suture removal. It was found that subcuticular suture is not only cost effective but also had good patient satisfaction when compared with interrupted mattress stitches.

CONCLUSION

The best way of closing the mother's skin layer after caesarean section is not exactly known. Improvements in health from optimizing caesarean section techniques are likely to be more significant in developing countries because the rates of postoperative morbidity in these countries tend to be higher. Given the very high number of caesarean sections performed, even small differences like obesity, anemic status, diabetes may be important for better wound outcome.

In present study subcuticular sutures had better outcome than interrupted mattress sutures with less wound complications, good patient satisfaction, less hospital stay, cost effective and good cosmesis.

REFERENCES

1. Choudhary A, Bansal N, Chaudhari P. Closure of Pfannenstiel skin incisions in cesarean sections: comparison of wound outcomes with interrupted mattress vs. subcuticular suture. Textbook of Williams obstetrics, Int J Reprod Contracept Obstet Gynecol, 2017; 6: 2964-8
2. Deepa Joshi , Kamal Gajria Indian Journal of Obstetrics and Gynecology Research 2016;3(4):410-413
3. Alon D. Altman, MD,1 Victoria M. Allen 2009 Jun;31(6):514-520. doi: 10.1016/S1701-2163(16)34213-X.
4. 4.Dasanayake DLW ,Jodhi AK , Roomadu KUGA , Saumya GK alle Medical Journal, Vol 25: No.1, March 2020
5. Mackeen AD, Berghella V, Larsen ML, Techniques and materials for skin closure in caesarean section. Cochrane Database Syst Rev, 2012; 11: Cd003577.
6. Clay FS, Walsh CA, Walsh SR. Staples vs. subcuticular sutures for skin closure at cesarean delivery: a metaanalysis of randomized controlled trials. Am J Obstetric Gynecol. 2011;204(5):378-83.
7. Brown JK, Campbell BT, Dronogowski RA, Alderman AK, Giger JD, Teitlbaum DH, et al. A prospective, randomized comparison of skin adhesive and subcuticular suture for closure of pediatric hernia incisions: cost and cosmetic considerations. J Pediatr Surg. 2009;44(7):1418-22.
8. Kudur MH, Pai SB, Sripathi H, Prabhu S. Sutures and suturing techniques in skin closure. Indian J Dermatol Venereol Leprol. 2009;75:425-34.