

Original Research Article

Postoperative Outcome of Caesarean Section in Closure of Peritoneum with Different Suture Materials

Sharma Avantika¹, Hooja Nupur², Meena B.S³, Shastri Apoorv⁴, Bhargava Smriti⁵, Kumawat Bhomraj⁶

¹Resident (Obst. & Gynae.), ²Professor(Obst. & Gynae.), ³Sr. Professor & HOD(Obst. & Gynae.), ⁴Resident(Gen Surgery), ⁵Assistant Professor(Obst. & Gynae), ⁶Resident(Obst. & Gynae)
S.M.S. Medical College & Hospital, Jaipur (Rajasthan) 302015, India

*Corresponding author

Dr. Nupur Hooja

Email: nupurhooja@gmail.com

Abstract: Caesarean section is the most commonly performed obstetric surgery. It is important to know if any change in the operative technique improves the postoperative outcome. The study was undertaken to compare the effect of closure of parietal peritoneum by Chromic Catgut and Polyglactin on postoperative outcome of the patient. It was a hospital based interventional study done in a tertiary care hospital over one year. Detailed history, investigations, operative details, postoperative outcomes were recorded and analyzed. Chromic catgut is less costly than polyglactin suture. Both groups had no significant difference in terms of timing of first breast feeding, ambulation and return of bowel activity. Women in the polyglactin group had more postoperative pain. Incidence of nausea, vomiting and fever was similar in both the groups. To conclude, closure of peritoneum with Chromic Catgut suture led to less postoperative pain and was also cost effective.

Keywords: caesarean, chromic catgut, closure, peritoneum, Polyglactin.

INTRODUCTION

Caesarean section is the most significant and frequently performed in obstetrics. The increase in the caesarean section rate globally is due to the maternal high risk factors like severe pregnancy induced hypertension, diabetes and HIV infections. Increase detection of fetal distress and intrauterine growth restriction has also led to increased caesarean section rate [1]. Closure of peritoneum is traditionally done in all abdominal surgeries by suturing both the layers of peritoneum. Advantages of peritoneal suturing are restoration of anatomy, establishment of barrier, reduction in wound dehiscence, reducing haemorrhage and minimization of adhesions [2]. National Institute of Clinical Excellence (NICE) guidelines (2011) [3] leave the type of suture to be used to close the peritoneum Polyglactin 910 or Chromic Catgut on the choice of the surgeon. Thus, it is important to know that what suture material is ideal. Very few studies have been done in this part of the country on this issue, hence the present study was undertaken to find the association of the type of suture material used for peritoneal closure with post-operative outcome.

AIM AND OBJECTIVE

The study was undertaken to compare the effect of closure of parietal peritoneum by Chromic Catgut and Polyglactin on postoperative outcome.

MATERIAL AND METHOD

This was a hospital based interventional longitudinal study conducted in the Department of Obstetrics and Gynaecology, S.M.S. Medical College, Jaipur from 1st February 2015 till 31st January 2016. Institutional Review Board Clearance and Ethical committee approval was taken prior to the study. Sample size was calculated at 80% study power and alpha error of 0.05 assuming standard deviation in Visual Analogue Scale (VAS) for pain of 1.48 as obtained in the study of Deshpande Hemant *et al.*; [2]. For minimum detectable difference in mean Visual Analogue Scale (VAS) for pain of one, 18 patients in each group were required as sample size. It was further enhanced and rounded off to 20 patients in each group considering 10% attrition drop out. Cases were selected randomly from pregnant women undergoing caesarean section from women undergoing caesarean section. Women age 18-35 years, Body Mass Index (BMI) 18.5-24.99kg/meter, primigravida with live singleton term pregnancy undergoing lower segment caesarean section under spinal anaesthesia, woman who were willing to give consent and participate in the study were selected. Woman who had undergone any abdominal surgeries in the past, with polyhydramnios, severe anaemia, any sign of sepsis, hypertensive disease of pregnancy, active cardiac, renal, pulmonary or hepatic disease any

neurological disorder or on drugs that cause sedation were excluded. Woman who had any intraoperative complications or postpartum hemorrhage were also excluded from the study.

A written informed consent was taken from all women for the surgery and to participate in the study. The study comprised of 2 groups each consisting of 20 patients. In group A, the parietal peritoneal was closed with Chromic Catgut 1-0, in group B with Polyglactin 910. In both the groups, abdomen was opened by Joel Cohen technique and steps of caesarean section were similar except that parietal peritoneum was sutured with different suture material according to the group allocation. Detailed records of intraoperative and postoperative parameters were made. Pain assessment was done by using visual analogue scale (VAS) ⁴. Presence of fever, nausea, vomiting, timing of ambulation and breast feeding, return of bowel sounds was noted. Duration of hospital stay was also compared in the two groups. Data collected was analysed. Chi

square test and unpaired t test were used for statistical significance and P value <0.05 was taken as significant.

RESULTS

Both the groups were comparable regarding mean age, gestational age and Body Mass Index (B.M.I.). The mean Visual Analogue Scale (VAS) for pain postoperatively was less in group A and difference was highly significant statistically. (Table 1) Incidence of nausea, vomiting and febrile episodes were not significantly different. (Table 2). Most women started breast feeding before five hours. Timing of first breast feeding between the Chromic Catgut and Polyglactin 910 closure group was similar and no statistically significant difference was noted. Between the two groups, there was no significant difference in the time of return of bowel sound or ambulation. Over 75% women took over 24 hours for ambulation. In our study, the duration of hospital stay in the both groups was five to six days. Between the two groups, there was no significant difference in mean duration of hospital stay (Table 3.)

Table 1: Comparison of visual analogue scale in study groups

Postoperative Period (hours)	VAS score		P value
	Group A n= 20	Group B n =20	
8hours	9.4±0.75	9.9±0.0.85	0.0567 (NS)
16hour	6.4±0.49	7.25±0.44	0.00005(HS)
24hour	5.05±0.89	7.50±0.51	0.00001(HS)
32 hour	4.45±0.50	4.80±0.41	0.0219(NS)
40 hour	2.6±0.50	3.25±0.44	0.000104(HS)
48hour	2.0±1.0	2.45±0.60	0.0992(NS)

Table 2: Comparison of postoperative morbidity in the study groups

Postoperative condition	Group A n =20	Group B n =20	Statistical significance
Nausea & Vomiting	3(15%)	4(20%)	P=0.388 Not significant
Fever	3(15%)	4(20%)	P=0.159 Not significant

Table 3: Comparison of postoperative outcome in the study groups

Postoperative patient outcome	Group A n =20	Group B n =20	Statistical significance
Timing of first breast feeding(hours)	4.7+0.80	4.85+0.81	P=0.560 Not significant
Timing of return of bowel sound(hours)	8.0±1.61	8.15±1.22	P=0.762 Not significant
Timing of ambulation (hours)	30.9±8.09	32.1±6.82	P=0.614 Not significant
Duration of hospital stay(days)	5.6±1.38	5.55±1.27	P=0.904 Not significant

DISCUSSION

Postoperative pain can lead to unpleasant physiologic responses ultimately resulting in poor post

operative condition. Postoperative pain can lead to unpleasant physiologic responses including retention of secretion in respiratory system, paralytic ileus and

increased usage of analgesics. Increased pain may cause delayed breast feeding which may cause breast engorgement and may also prolong the hospital stay. Decrease in post-operative pain improves mother's comfort and also the outcome of the new born infant [5].

In the study, pain score was compared between two suture material Chromic Catgut and Polyglactin 910 used for closing the parietal peritoneum. Significantly less pain score was observed when Chromic Catgut was used. This difference was highly significant statistically at 24 hour. Peritoneum is a highly sensitive epithelial lining and responds strongly against any foreign material, releasing many pain mediating cytokines and interleukin causing increased postoperative pain [6]. Polyglactin 910 is a delayed absorbable and synthetic suture material and may induce more amount of foreign body reaction and thus causing more pain.

Deshpande H *et al.*; in 2012 [2] also studied the effect of peritoneal closure with Chromic Catgut or by polyglycolic acid suture but in contrast they concluded that suture material did not have any effect on post-operative pain in caesarean section. Incidence of nausea, vomiting and febrile episodes were not significantly different in the two groups. Early oral intake and ambulation, lesser pain and febrile morbidity resulted in a sense of general wellbeing to the patient and their earlier discharge from the hospital [7]. Difference in time of first breastfeed, return of bowel sound and ambulation was also statistically not significant between the two groups. Both the groups were not different in terms of duration of hospital stay.

CONCLUSION

Parietal peritoneum in caesarean section should be closed with chromic catgut suture. It results in less postoperative pain and being less costly than Polyglactin 910, results in significant cost effectiveness too.

REFERENCES

1. Arias F, Bhide AG, Arulkumaran S, Damania K, Daftary SN, editors. Practical guide to high risk pregnancy and delivery. Elsevier health sciences; 2012 May 14.
2. Deshpande H, Burute SB, Madkar CS, Dahiya P. The effect of suturing and nonsuturing of visceral and parietal peritoneum on postoperative pain in caesarean section. *Int J Pharm Biomed Sci* 2012; 3(4): 164-166
3. National Institute for Health and Clinical Excellence. CG132 Caesarean Section. Available at: <http://guidance.nice.org.uk/CG132> [accessed March 2012].
4. Mehack R, Torgerson WS. On the language of pain. *Anaesthesiology*. 1971 Jan 1; 34(1):50-9.
5. Cheema H K, Singh C, Mehta SS, Suri S. Closure versus Non-closure of peritoneum in cesarean section and evaluation of post-operative pain: A hospital based study. *International Journal of Scientific Study*. December 2014; 2(9):89-92.
6. Farooq MS, Ayyaz M, Khan WH. Non-Closure of Peritoneum Leads to Reduced used of Analgesics and Less Post-Operative Pain as Compared to the Closure of Peritoneum in Appendectomy.
7. Agarwal N, Agarwal BK. Effect of non closure of peritoneum on outcome of caesarean Section - a prospective randomised control study. *IJSR - International Journal of Scientific Research*. June 2015: 806-17.