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COMPLICATIONS OF EXTERIORIZED VERSUS IN SITU UTERINE REPAIR DURING CAESAREAN DELIVERY UNDER SPINAL ANAESTHESIA IN A TERTIARY CARE CENTRE

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ABSTRACT:

BACKGROUND: The most performed major operation in the world is Caesarean section**.** Uterine exteriorization repair in Caesarean section is the most popular technique among the obstetricians. But safety of the technique still remains a question. Short term and longterm advantages of the various caesarean techniques are under debate till date.

AIM:

The aim of the study is to find the complications of Exteriorized Versus Insitu Uterine repair during Caesarean delivery.

METHODOLOGY: A total of 200 pregnant women who underwent Elective LSCS in Sree Mookambika Institute of Medical Sciences were included. They were grouped into two, with 100 in each group. Group A included mothers who underwent Caesarean with Exteriorized uterine repair whereas Group B had mothers who underwent Caesarean with In situ uterine repair. This comparative cross-sectional study was conducted in the Department of Obstetrics and Gynaecology fromFebruary 2023 to January 2024. Detailed baseline history, clinical examination, laboratory investigations and ultrasound reports were taken.The obtained data was entered in the MS Excel Windows 10.Statistical analysis was done with SPSS 23.Continuous data was expressed in terms of Mean and Standard deviation.Categorical data was expressed in terms of Numbers and Percentages.Test of Association for Categorical data was Chi square test and for Continuous data was T test or Anova test. P value <0.05 is considered as statistically significant.

RESULTS: Majority of the study participants were >27 years of age in both groups. Primigravida mothers were predominant in both the groups. Most of the study participants were more than 38 weeks of gestation. The time taken for closing uterine incision was found to be more in Group B (12.2±2.60 minutes) and statistically significant. Intraoperative nausea was more in group A(13%). 13% of study participants reported post operative complications in Group A whereas in Group B, it was only 8%.

CONCLUSION: It was concluded that both the groups in study showed similar safety and morbidity profiles, with complications being a little higher on the Group B side. However,it

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was the choice of Surgeons whose experience and preference determined the method of uterine repair.

KEYWORDS: Caesarean section, Complications, In situ, Exteriorized, Uterine repair

INTRODUCTION:

Delivering fetus through the surgically created incision in the anterior uterine wall is known as Caesarean section (1). It is one of the most commonly performed surgical procedures across the world (2). The most significant operative intervention in the area of Obstetrics is represented through Caesarean section. Countless mothers and infants have been saved by the development and application of Caesarean section. Over recent years Obstetrics has evolved along with the parallel and steady increase in the Caesarean section rate.

The Caesarean section's global rate was estimated to be 15%. In Asia, the average Caesarean section rate was found to be 15.9%(3). In India, the overall Caesarean section was found to have increased from 14.8% in the year 1993-1994 to 25.4% in the year 2020-2021(4).

The obstetrician would decide either to close with Uterine exteriorisation or through in situ repair based on the surgical time,pain,blood loss and febrile complications(5)**.** Short term complications reported in Caesarean section were intrapartum hemorrhage and postpartum hemorrhage, whereas its long term post operative complications included wound infection,high fever, recurrent urinary tract infections and endometritis(6,7,8)**.** Septicemia, pelvic abscess, septic shock,necrotizing fasciitis and septic vein thrombophlebitis have also been reported(9).Operative injuries and vascular thromboembolism were reported in few cases too.

AIM:

Theaim of the study is to compare the complications of Exteriorized Versus In situ Uterine repair during Caesarean delivery.

METHOD:

This was a prospective study carried out in the Department of Obstetrics and Gynaecology, Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanniyakumari district, for a period of one year from January 2023 to December 2023. The study was performed among 200 study participants, who were divided into 2 groups (Group A with exteriorization repair of uterine incision and Group B with in situ repair of uterine incision). Detailed history including age, parity, booking status, years of marriage, last menstrual period, gestational age, past medical, surgical and obstetric history were recorded. Informed written consent was obtained from all the women under study. Laboratory investigations like Blood grouping, Rh typing, Complete blood count, fasting blood sugar, complete urine analysis and coagulation studies were done. Clinical examination was done thoroughly followed by ultrasound for all the women. Postoperative pain was assessed by VAS(Visual Analogue Scale) score. The study was approved by our Institutional Ethics and Research Committee.

INCLUSION CRITERIA:

ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 07, 2024

- Elective caesarean deliveries
- 37 weeks of gestation or more
- Cephalic presentation
- Singleton fetus

EXCLUSION CRITERIA:

- Mothers with risk of uterine atony and /or postpartum haemorrhage i.e with placenta accreta, multiple gestation, placenta previa, eclampsia, pre-eclampsia and uterine leiomyoma.
- BMI more than 35 Kg/$m2$
- Cases in active labour or requiring Emergency Caesarean section
- Patients with coagulopathy

STATISTICAL ANALYSIS:

The obtained data was entered in the MS Excel Windows 10.Statistical analysis was done with SPSS 23.Continuous data was expressed in terms of Mean and Standard deviation. Categorical data was expressed in terms of Numbers and Percentages.Test of Association for Categorical data was Chi square test and for Continuous data was T test or Anova test. P value <0.05 is considered as statistically significant.

RESULTS:

TABLE 1: BASELINE CHARACTERISTICS OF THE STUDY PARTICIPANTS

Variables	**Group A (Exteriorized uterine repair) N=100**	**Group B (In situ-repair) N=100**	**P value**
Age category			
24-26 years	**48**	**49**	0.44
=>27 years	**52**	**51**	
Parity			
Primigravida	**57**	**52**	0.23
Multigravida	**43**	**48**	
Gestational age			
=37 weeks	**36**	**38**	0.38
>38 weeks	**64**	**62**	

In both Group A and Group B most of the study participants were more than or equal to 27 years. Primigravida were found to be more in both the groups. Majority of the study participants who underwent Caesarean section were more than 38 weeks of gestational age. Though there was mild difference in these data, between the two groups, the difference was not found to be statistically significant.

TABLE 2: INTRA-OPERATIVE AND POST-OPERATIVE FINDINGS AMONG THE STUDY PARTICIPANTS:

Variables	**Group A**	**Group B**	**P value**

ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 07, 2024

	(Exteriorized uterine repair) N=100	(In situ-repair) N=100	
Uterine incision closure time (minutes)	**11.2±2.53**	**12.2±2.60**	0.006
Intraoperative Nausea or vomiting	**13**	**9**	0.18
Pre-operative Haemoglobin	**12.12±0.83**	**11.92±0.73**	<0.001
Post operative Haemoglobin	**11.66±0.71**	**10.51±0.78**	<0.001
Additional postoperative analgesia required	**19**	**9**	0.02
Pain perceived by study participants (Moderate to severe)	**34**	**22**	0.02
Time taken for return of bowel sounds **6-8 hrs** **>8 hrs**	 **94** **6**	 **98** **2**	 0.04 0.07
Mean hospital stay duration in days	**5.02±0.18**	**5.16±0.52**	0.01
Complications **SurgicalSite infections** **Endometritis** **Fever Morbidity**	 **4** **1** **8**	 **2** **2** **4**	 0.2 0.2 0.1

The uterine incision closure time was found to be more in the Group B (In situ group)12.2±2.60 minutes compared to Group A being 11.2±2.53 minutes and the difference was found to be statistically significant.The intraoperative nausea or vomiting was found to be more in the Group A being 13% compared to Group B where only 9% of the study participants reportedly had vomiting.It was not statistically significant. Preoperative haemoglobin was found to be little higher in Group A (12.12±0.83**)** compared to Group B (11.92±0.73**)** and the difference was found to be statistically significant. Postoperative haemoglobin was found to be little higher in Group A (11.66±0.71**)** compared to Group B (10.51±0.78**)** and the difference was found to be statistically significant.

Additional postoperative analgesia requirement was found to be more in Group A (19%) compared to Group B (9%). The difference was found to be statistically significant. Moderate to Severe pain was found to be more in Group A (34%) compared to Group B (22%) and was found to be statistically significant. In majority of the study participants, the bowel sounds returned within 6-8 hours (Group B-98% and Group A-94%) and the difference

ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 07, 2024

was found to be statistically significant. Hospital stay duration was found to be more or less equal in both groups. 13% of study participants reported complications in Group A whereas only 8% reported in Group B.

DISCUSSION:

Among Obstetric Community the ideal surgical technique for C section is still a debate (10,11). In my study, the majority of the study participants were >=27 years of age. Similar results were also seen in Chauhan et al study (12). Primi gravidae were predominant in our study and most of them were >38 weeks of gestation. Similar results were also noted in Chauhan et al study (12). In my study, the time required for the wound closure for group A was found to be 11.2± 2.53 minutes and that of Group B was found to be 12.2± 2.60 minutes. Similar results were also seen in Chauhan et al study where the mean time in Group 1 was 11.40 minutes and in Group 2 was 12.40 minutes. In my study, more time was consumed in Insitu group, which was in par with Chauhan study. This may be due to better visualization and easier repair of uterine incision in the Exteriorization group. Similar results were also seen in Shiya et al(13) and Khayat E et al study(14). This was in contrast to Hershey and Quilligan study where similar duration surgery was observed between two groups (15).

The incidence of postoperative pain - moderate to severe was found to be more in Group A (34%) compare to Group B (22%). The difference was found to be statistically significant. The results were similar to Chauhan et al study (12). The pain was found to be increased in Group A may be due to increased stretch in the parietal peritoneum and uterine ligaments. Khayat E et al (14) study also reported similar results (Group 1- Exteriorization-33% and in Group 2 - Insitu-23%).

In my study, 19% required additional analgesia in Group A whereas only 9% required in Group B and the difference was found to be statistically significant. This was similar to Chauhan et al study. The post operative pain was found to be less in the Group B insitu group. Zaphiratos V et al in his systematic review and meta- analysis stated that improved pain outcome was observed in In-situ group.

Intraoperative nausea and vomiting were found to be more in Group A (13%). Similar finding was also seen in Chauhan et al study (12), Khayat et al study (14) and Edi-Osagie et al study(17). There was decrease in the intraoperative blood loss with Group A and it was reflected by postoperative haemoglobin level.This was in contrast to Chauhan et at results where the difference was not significant (Group A-0.37±0.10,Group B-0.52±0.18). In my study the decrease in Haemoglobin was less in exteriorization group. This was in par with Zaphiratos V et al study.

Endometritis was found to be more in Group B(2%). Similar result was also seen in Chauhan et al study where 3% have endometritis in Group 2 and 2% in Group 1. In Countinho IC et al study exteriorization group reported 1.7% endometritis and 2% in Insitu group. The difference in both groups were not statistically significant. Febrile morbidity was also found to be more in Group A (8%), in contrast to Chauhan et al study and Edi-Osagie et al study.

ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 07, 2024

The duration of hospital stay was almost the same in both the groups. Similar result was also seen in Chauhan et al study, whereas in Das et al study longer stay was reported in Insitu group.

In 2012, Gode et al did a study comparing institu uterine repair and exteriorized uterine repair and he concluded that insitu repair of uterus was the best technique for the repair of uterine incision as it is faster, easier and had only shorter surgical time and bowel movements also appeared in shorter time. Similar results were also seen in Doganay et al study (19).

CONCLUSION:

Ideal technique of uterine repair is a debatable subject.Both the groups in study showed similar safety and morbidity profiles. But finally, the surgeons' experience and preference determine the choice.No evidence suggested that exteriorization of uterus is harmful or not better than insitu repair.

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ISSN: 0975-3583,0976-2833 VOL 15, ISSUE 07, 2024

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