Original Article

Comparison of Intra-Operative Hemorrhage by Blunt and Sharp Expansion of Uterine Incision at the Cesarean Section

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ABSTRACT

Objective: To compare the mean drop in hemoglobin in patients undergoing cesarean section in blunt versus sharp uterine incision.

Study Design: Randomized controlled trial.

Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynecology, Lady Aitchison Hospital, Lahore from June 2017 to December 2017.

Materials and Methods: One hundred patients are divided into two groups undergoing lower segment caesarean section through pfannenstiel incision.50 patients are randomized to blunt incision group and 50 patients to sharp incision group.

Results: Indications for cesarean sections and maternal demographic factors were similar in both groups and significant fall in hemoglobin seen between two groups. Hemoglobin fall in sharp uterine incision is more as compared to blunt uterine incision and the difference between the groups is statistically significant. Mean Hemoglobin fall was 0.79±0.19 in group A versus 1.21±0.19 in group B. The difference was statistically significant among 2 groups p value=0.00(<0.05)

Conclusion: In lower segment cesarean section less hemoglobin fall noticed in blunt uterine incision as compared to sharp group so blunt expansion of uterine incision is better than sharp incision.

Key Words: Caesarean section, blunt uterine incision, sharp uterine incision

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INTRODUCTION

Cesarean section is the most common obstetric operative procedure with continuously increasing rate. There are certain complications and morbidities associated with procedure which can be reduced by adopting appropriate techniques[1] but there is little data available about proper technique for uterine incision to adopt.[1-3]

Cesarean deliveries are associated with more complications than vaginal deliveries.

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Hemorrhage is most common life threatening complication in cesarean section which can be reduced by reducing extent of bleeding preoperatively and postoperatively by adopting several techniques for example; manual versus spontaneous placental extraction, intra-abdominal versus extra-abdominal uterine incision repair, blunt versus sharp uterine incision which is less debated.[4,5] Uterine incision at cesarean section can be expanded by sharply cutting it laterally or by bluntly tearing myometrium with fingers. Some studies favor blunt surgery due to advantage of reduced mean blood loss at time of procedure, due to better protection of uterine vessel[2] and due to speed and less risk of causing injury to fetus. But disadvantage is if fingers of surgeon swept too far laterally up to uterine vessel.[6,7] Whereas sharp expansion associated with increase intraoperative blood loss and need for blood transfusion but advantage is controlled extension of length and direction of incision with scissor.[2]

One study showed a (preoperative hemoglobin in blunt group was 12.5±1.4 in sharp group was 13.0±1.7, P>0.05 and postoperative hemoglobin in blunt group was 11.6±1.3 in sharp group 10.5±1.1, P<0.05) significant difference in mean hemoglobin before the surgery and 24 h later in two groups, mean difference was 1.1±0.9 in blunt group versus hemoglobin mean 3.0±1.2 in sharp group P < 0.05).[3]

MATERIALS AND METHODS

This randomized controlled trial was carried out at Department of Obstetrics and Gynecology, Lady Aitchison Hospital, Lahore from June 2017 to December 2017. One hundred patients are divided into two groups undergoing lower segment caesarean section through pfannenstiel incision.50 patients are randomized to blunt incision group and 50 patients to sharp incision group. Women age between 19 to 38 years, undergoing primary, elective lower segment cesarean section, parity 4 and less and placenta located in upper segment on ultrasonography were included. Those women have factors that can lead to postpartum hemorrhage for example, multiple pregnancy on USG, anemic patient with hemoglobin less than 10, pregnancy with fibroid diagnosed on USG, history of any thromboembolic disorder in past or family and severe medical and surgical disorders, bleeding disorders and anemia were excluded. All women subcutaneous incision and opening was performed with the scalpel, with the blunt dissection of tissue layers. A transverse uterine incision in the lower uterine segment of approximately 1-2 cm in length was made with the scalpel and then expended bluntly in Group A .Blunt expansion of primary incision was done by pulling the fingers apart laterally. Sharp expansion of the primary incision was done by cutting laterally with scissors in group B. Placenta was removed by control Cord traction method and active management of third stage of labour was done by giving inj.syntocinon 10 IU I/V. Uterus will be stitched with catgut in two layers with additional sutures to secure hemostasis if needed. Peritoneum was closed. Rectus sheet was approximated and skin was closed by subcuticularor interrupted sutures. Drop in hemoglobin was assessed by comparing the immediate preoperative hemoglobin with the hemoglobin obtained 24 hrs after the operative procedure. Hemoglobin reduction more than 1 g/dl was considered as significant blood loss. All data were entered and analyzed using SPSS-20.

RESULTS

Demographics including age (p=0.63), parity (p=0.53) and gestational age (p=0.97) were similar between two groups. Both groups were also similar in terms of indication of cesarean section. Main outcome measures were the mean hemoglobin fall among 2 groups (Table 1). Mean preoperative hemoglobin was 11.3±0.945 in group A and 11.1 ±1.01 in group B. Statistically the difference was not significant (P>0.05) [Table 2). Mean postoperative hemoglobin was 10.59±0.95 in group A and 9.88±1.05 in group B. Statistically the difference was not significant (P>0.05) [Table 3). Mean hemoglobin fall was (mean 0.79± 0.195) in-group A versus (1.216± 0.19) in-group B. The difference among two groups was statistically significance (P<0.05) (Table 4).

Table No.1: Demographic profile of the women

Variable	Blunt uterine incision	Sharp uterine incision	P value
Age (years)	25.44±4.32	25.02±4.45	0.6332
Parity	0.38±0.87	0.5±1.04	0.5333
Gestational age (weeks)	38.82±1.05	38.82±0.77	0.9741

Table No.2: Comparison of preoperative hemoglobin between two groups

Preoperative hemoglobin	Blunt uterine incision	Sharp uterine incision	P value
	11.38±0.945	11.10±1.01	0.153

Table No.3: Comparison of postoperative hemoglobin between two groups

Postoperative hemoglobin	Blunt uterine incision	Sharp uterine incision	P value
	10.59±0.95	9.88±1.05	0.001

Table No.4: Comparison of mean hemoglobin fall between two groups

Hemoglobin mean fall	Blunt uterine incision	Sharp uterine incision	P value
	0.79±0.19	1.21±0.19	0.000

DISCUSSION

Cesarean section rate is increasing worldwide. Different techniques are used for uterine incision at cesarean section. Our study was performed to conclude better technique of uterine incision by comparing the two methods, blunt versus sharp uterine incision. Many studies are done on uterine incision techniques but these studies include primary, repeated, elective and emergency cesarean section with prolonged labour, grand multiparity, which are the risk factor for increase bleeding and can bias the results. Our study was done on primigravida women with no risk factor to reduce the bias. Blood loss was also measured by laboratory method to reduce the subjective error.

Our results showed that blunt expansion of uterine incision is associated with less maternal blood loss and less fall in hemoglobin level as compared to the sharp uterine incision. In this study blood loss was measured by mean fall in hemoglobin level. Our study favors the blunt expansion of uterine incision as a better technique because mean hemoglobin fall in blunt expansion of uterine incision was 0.79±0.195 as compared to sharp uterine incision was 1.21±0.19 and statistically significant (P<0.05). It is comparable to the results of Sekhavat et al[3] where fall in hemoglobin in blunt group was 1.1±0.9 as compared to 3.0±1.2 in sharp group. Sekhavat et al[3] and Maggan et al[5] favor blunt expansion of uterine incision as there is more blood loss

associated with sharp incision due to bleeding from incised edges, traumatized blood vessels, extension of uterine incision. No difference was seen in term of blood transfusion in both groups in Sekhavat et al[3] study but Maggan et al[8] results shows more blood transfusion was required in sharp group. Similar study was done by Rodriguez et al[9] in 1994 on 286 patients. He postulated that drop in hemoglobin was more with sharp technique of uterine incision but results were not statistically significant, this study lack the information about blood transfusion.

In 2008 Cochrane review regarding various surgical techniques on uterus at cesarean section showed that blunt uterine incision has reduced blood loss during cesarean section in comparison with sharp -43.00, 95% (CI) - 66.12 to -19.88 but statistically no difference was seen in term of blood transfusion.[10,11] It includes the result of three randomize control trails of Sekhavat et al[3], Maggan et al[5] and Hidar et al[12] comparing the blunt versus sharp uterine incision. The results showed that blunt technique is associated with reduced operation time and reduce maternal blood loss with blunt expansion of uterine incision as compare to sharp incision. In these trails blood loss was measured by volume estimation and laboratory method. Blood loss was significantly less when measured by volume estimation but results are not statistically significant by laboratory method which require further studies to reach final conclusive results. Extension of primary uterine incision was also compared in both groups in this meta-analysis which showed blood loss was also less due to decrease chances of extension of primary uterine incision in blunt group.[13]

Shamsi et al[14] in 2005 done a study on 100 patients comparing two groups showed that blunt expansion of uterine incision is associated with more blood loss as compared to sharp. Their study was different from our study because she applied blunt technique of uterine incision on more number of the patients with previous cesarean section but the results are not statistically significant between two groups.

CONCLUSION

Blunt type of uterine incision is better than sharp because hemoglobin fall is less as compared to sharp incision of uterus.

Author's Contribution:

Concept & Design of Study:	Shysta Shaukat
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Data Analysis:	Aleena Sarwar, Shagufta Amin, Maheen Mansoor
Revisiting Critically:	Shysta Shaukat, Mahham Janjua
Final Approval of version:	Shysta Shaukat

Conflict of Interest: The study has no conflict of interest to declare by any author.

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