

Comparison in the Mean Change in Haematocrit by Blunt Versus Sharp Expansion of Uterine Incision at Caesarean Delivery

ABROO FATIMA¹, NOSHEEN MAQSOOD², SANA SHARIF³, SUMERA CHAUDARY⁴, SABA TUFAIL⁵, UZMA MANZOOR⁶

¹⁻⁶Senior Registrar, Gynae & Obs. Allied Hospital, Faisalabad

Corresponding author: Abroo Fatima, Email: drabroofatima@gmail.com, Cell: 0333-6872599

ABSTRACT

Objective: To compare the mean change in haematocrit by blunt with sharp expansion of uterine incision at caesarean delivery.

Methodology: In this Randomized Control Trial, at Department of Obstetrics/Gynaecology, Allied Hospital, Faisalabad during the years 2020, we included 200 cases (100 in each group) who fulfilled the inclusion/exclusion criteria. Two equal groups were formed by dividing patients randomly, A & B. Routine process of history, physical and systemic examination was completed before proceeding for the procedure. Sharp expansion was made in cases of Group-A whereas blunt expansion of uterine incision was done in Group-B cases. Blood loss in both groups was recorded by comparing haematocrit (%), pre-operative and 48 hours after the procedure.

Results: Mean pre-operative haematocrit levels were recorded as 36.29+2.64 in Group-A and 36.93+2.32 in Group-B. Mean post-operative haematocrit levels were recorded as 35.06+2.18 in Group-A and 32.09+2.41 in Group-B. Comparison of mean change in haematocrit levels were calculated and recorded as 3.097+0.339 in Group-A and 5.368+4.923 in Group-B. P-value was computed as 0.0001 which shows a significant difference in both groups.

Conclusion: The results of the study concluded that there is a significant higher mean change in haematocrit by blunt expansion of the uterine incision as compared to sharp expansion at caesarean delivery.

Keywords: Caesarean section, blunt expansion, sharp expansion, haematocrit

INTRODUCTION

Principally there are two modes of deliveries, vaginal delivery and caesarean section. C-section is defined as a surgical procedure in which incisions are made through mother's abdomen (laprotomy) and uterus (hystrotomy) to deliver one or more babies.¹ Caesarean delivery is a common procedure all over the world and varies in rates across the countries. WHO suggest a C-section rate of 7-21% but it ranges 10-40% in Pakistan.²

Major indications for caesarean sections are previous C-section, dystocia, malpresentation and suspected acute fetal compromise. Some relative indications are multifetal pregnancy, placental abruption, placenta praevia, pre-eclampsia, suspected macrosomia, maternal disease and maternal request.³ The main intraoperative complications of C-section are hemorrhage, fetal trauma and cervicouterine laceration. Rate of intraoperative complications due to C-section is 12%.⁴

The rising trend of C-section can be lower by appropriate counseling of the patients regarding risks and benefits for trial of labor and evaluation of the patients.² Several surgical techniques have been developed to reduce intraoperative blood loss during caesarean section deliveries. One of these techniques that remain debatable is expansion of uterine incision either by sharp or blunt methods. Different surgeons based on their own experience have advocated each method.

In a study carried out at mother and child health center Pakistan institute of medical sciences Islamabad, fall in haematocrit in blunt group was 2.5% ± 1.4 vs 5.8% ± 3.1% in sharp group (p value 0.001).⁵ A metaanalysis conducted on six randomized controlled trials shows a lower drop in postoperative haematocrit in blunt uterine expansion (p value 0.05).⁶ While another metaanalysis was done on three different studies in which one study favors blunt uterine expansion (p value <0.05) while other two studies show no significant difference in haematocrit. (p value 0.51).⁷

As there is still a controversy in literature, this study will highlight the technique of uterine expansion that is associated with lesser intraoperative blood loss.

METHODOLOGY

This randomized control trial include all females with (20-40 years) having primary caesarean section with singleton pregnancy, longitudinal lie, term pregnancies > or equal to 37 wks and spinal anesthesia was administered whereas we excluded all those cases with polyhydramnios, Hydrocephalus, Uterine atony, Morbid adherent placenta, anemia, PIH, Chorioamnionitis, Grandmultiparity, and those with bleeding diathesis. Two equal

groups were formed by dividing patients randomly, A & B. Routine process of history, physical and systemic examination was completed before proceeding for the procedure. Sharp expansion was made in cases of Group-A whereas blunt expansion of uterine incision was done in Group-B cases. A transverse incision in the lower uterine segment of approximately 2cm in length was made with scalpel and uterine incision was then expanded by the designed method. Estimation for blood loss was done by comparing haematocrit (%) levels after 48 hrs of the surgery with immediate preoperative levels. The collected data was evaluated through SPSS-20.

RESULTS

Of two hundred patients, mean age was 29.66+2.956 years with minimum age 24 years and maximum was 39 years, mean age of patients in group-B was 29.65+ 3.157 years and in group-A was 29.67+ 2.756 years with P-value of 0.962, mean gestational age was 38.52+1.098 weeks with minimum 37 weeks and maximum was 40 weeks, mean parity was 2.50+1.360 with minimum parity of 1 and maximum was 6. Mean pre-operative haematocrit levels were recorded as 36.9260+2.32490 in Group-B and 36.2900+2.64038 in Group-A with P-value 0.072. Mean post-operative haematocrit levels were recorded as 32.0870+2.41053 in Group-B and 36.0590+2.17854 in Group-A with P-value 0.147.

Comparison of mean pre & post operative haematocrit levels were calculated that shows mean change in haematocrit as 5.3680+4.92358 in Group-B and 3.0970+0.33918 in Group-A. P-value was computed as 0.0001 which shows a significant difference in both groups.

Table1 : Comparison Of Mean Pre & Post Operative Haematocrit Levels In Both Groups

	group	N	Mean	Std. Deviation	p-value
pre-hematocrit	blunt	100	36.9260	2.32490	0.072
	sharp	100	36.2900	2.64038	
post-hematocrit	blunt	100	32.0870	2.41053	0.147
	sharp	100	36.0590	2.17854	
change in haematocrit	blunt	100	5.3680	4.42358	0.0001
	sharp	100	3.0970	0.33918	

DISCUSSION

Various surgical procedure are developed for controlling for intraoperative blood loss during caesarean delivery. Some authors are in favour of blunt incision, others are in favour of sharp expansion of uterine incision, but in clinical practice it is seen that

mean decrease in hematocrit is more in blunt expansion of uterine incision, however, this study was done to evaluate the procedure with less intraoperative blood loss.

During this study, majority of the patients 60.5%(121) in both groups i.e. in Group-A and Group-B were between 20-30 years of age, mean age was calculated as 29.67+2.756 and 29.65+3.157 years in Group-A and B respectively. Mean pre-operative haematocrit levels were recorded as 36.29+2.64 in Group-A and 36.93+2.32 in Group-B. Mean post-operative haematocrit levels were recorded as 35.06+2.18 in Group-A and 32.09+2.41 in Group-B. Comparison of mean change in haematocrit levels were calculated and recorded as 3.097+0.339 in Group-A and 5.368+4.923 in Group-B. P-value was computed as 0.0001 which shows a significant difference in both groups.

The findings of the study are in agreement with a study carried out at combined Military Hospital, Peshawar, where fall in haematocrit was greater in blunt group (2.86+0.4) than sharp group (2.57+/-1.3).⁸ In contrast, another study, by Kosar Hospital, Qazvin (Iran)-maternal-blood-loss-and post operative hematocrit drop were higher in sharp group (4.18 + /-2.8) than in blunt group (3.36+/-2.7),⁹ the reason of difference is unknown.⁶ while another metaanalysis was done on three different studies in which one study favors blunt uterine expansion(p value <0.05) while other two studies show no significant difference in hematocrit. (p value 0.51)⁷.

A study done by Rodriguez,¹⁰ revealed that maternal hemoglobin was reduced 2.8g/dl in blunt procedure group and 2.2g/dl in sharp incision group. In both groups, no case was recorded for massive haemorrhage, fetal trauma, cesarean hysterectomy and mortality. This may be due to well-selected booked cases with good antenatal care. However, cervical tears, intraoperative haemorrhage and haemodynamic instability was found in blunt group.

Finally, the hypothesis that "there is a difference in mean decrease in haematocrit by sharp expansion of the uterine incision as compared to blunt expansion at caesarean delivery" is justified.

CONCLUSION

The results of the study concluded that there is a significant higher mean change in haematocrit by blunt expansion of the uterine incision as compared to sharp expansion at caesarean delivery.

REFERENCES

1. Baker PN. Operative intervention in obstetrics. In: Baker PN, Kenny LC, editors. *Obstetrics by ten teachers*. 19th ed. London: CRC Press; 2011.p.224-40.
2. Khuhro BN, Zahoor S, Hussain R. Maternal and Perinatal Outcome in Women having VBAC. *Pak J Med Dent* 2014; 3:21-5.
3. Barber EL, Lundsberg L, Belanger K, Pettker CM, Funai EF, Illuzzi JL. Contributing indications to the rising cesarean delivery rate. *Obstet Gynecol*. 2011; 118: 29–38.
4. Meher-un-Nisa, Sadia, Nawaz R. Intra-operative maternal complications of emergency cesarean section done in advanced labor. *Ann king Edward Med Univ*.2013;19:5-10.
5. Mahmud G, Rafiq F, Tabassum A, TasnimN. Comparative analysis of modified MISGAV ladach and conventional caesarean section. *Ann Pak Inst Med Sci*. 2013; 9:153-8.
6. Saad AF, Rahman M, Costantine MM, Saade GR. Blunt versus sharp uterine incision expansion during low transverse cesarean delivery: a metaanalysis. *Am J Obstet Gynecol*. 2014;211:684.e1-11.
7. Xu LL, Chau AMT, Zuschmann A. Blunt vs sharp uterine expansion at lower segment cesarean section delivery: a systematic review with metaanalysis. *Am J Obstet Gynecol*. 2012;208:1.e1-1.e8.
8. Available from <http://www.ayubmed.edu.pk/JAMC/PAST/16-3/Nazli.htm>
9. Dabagh T, Javadi A, Rohani M. Intraoperative hemorrhage by blunt versus sharp expansion of the uterine incision at caesarean delivery. *J Qazvin Univ Med Sci* 2007;11:33-7.
10. Rodriguez AI, Porter K.B,O'Brien WF.Blunt versus sharp expansion of the uterine incision in lower segment transverse caesarean section. *Am J Obstet Gynecol* 1994; 171:1022-5.
- 11.