THE COMPARISON OF PLACENTAL REMOVAL METHODS ON OPERATIVE BLOOD LOSS

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Background: On an average 1 litre of blood is lost during Caesarean Section. Many variable techniques have been tried to reduce this blood loss. Many study trials have shown the spontaneous delivery of placenta method to be superior over manual method because of reduced intra operative blood loss and reduced incidence of post operative endometritis. The main objective of our study was to compare the risk of blood loss associated with spontaneous and manual removal of the placenta during caesarean section. **Study design:** Quasi Experimental. **Setting and duration of study:** September 2004 to September 2005, a 13 months study at Islamic International Medical Complex Islamabad. **Patients and Methods:** This study was conducted at Department of Obstetrics and Gynaecology, Islamic International Medical Complex, Islamabad from September 2004 to September 2005. All Women undergoing elective or emergency caesarean section were included in the study. Exclusion criteria were pregnancy below 37 weeks, severe maternal anaemia, and prolonged rupture of the membranes with fever, placenta praevia, placenta accreta and clotting disorders. Patients were allocated to the two groups randomly. Group A comprised of women in whom the obstetrician waited a maximum of 5 minutes till the placenta delivered spontaneously. In group B the obstetrician manually cleaved out the placenta as soon as the infant was delivered. The primary outcome measures noted were difference in haemoglobin of >2 gm/dl (preoperatively and postoperatively), time interval between delivery of baby and placenta, significant blood loss (>1000 cc), additional use of oxytocics, total operating time and blood transfusions. Data was analysed by SPSS. Statistical tests used for specific comparison were χ^2-test and Student's *t*-test. **Results:** One hundred and forty-five patients were allocated to two groups randomly. Seventy-eight patients were allocated to group A and 67 patients allocated to group B. Mean maternal age, birth weight, and total operating time were the same in two groups, but blood loss as measured by a difference in haemoglobin of greater then 2 grams/dl was statistically significant. Significant blood loss (>1000 cc) and time interval between delivery of infant and placenta were also statistically significant between the two groups. **Conclusion:** Spontaneous delivery of placenta has significant reduction of blood loss as compared to manual removal at caesarean section.

Keywords: Spontaneous, Manual, Placenta, Blood Loss

INTRODUCTION

On an average 1 litre of blood is lost during Caesarean Section.[1] Many variable techniques have been tried to reduce this blood loss.[2] Such techniques include finger splitting versus scissor cutting of incision,[3,4] in situ stitching verses exteriorization and stitching of uterus,[1] and finally spontaneous or manual removal of the placenta[5]. There are two main methods of placental removal at Caesarean Section which are manual and spontaneous. Many units practice spontaneous removal but in some hospitals manual cleavage is still practiced. Many study trials have shown the spontaneous delivery of placenta method to be superior over manual method because of reduced intra operative blood loss and reduced incidence of post operative endometritis.[6] In one study it was proven that blood loss is reduced by 300 cc.[5] Some trials concluded that no one method is superior over the other and in both methods the out come is the same.[7,8] Regarding the blood loss, endometritis and operating time, Cochrane database system concluded: manual removal of the placenta was associated with a clinically important and statistically significant increase in maternal blood loss; Manual removal was also associated with increased post-partum endometritis.[9]

The main objective of our study was to compare the risk of blood loss associated with spontaneous and manual removal of the placenta during caesarean section.

PATIENTS AND METHODS

This trial was conducted in the department of obstetrics and gynaecology, Islamic International Medical Complex Islamabad from September 2004 to September 2005. The study was approved by the Hospital Ethical Committee. Informed consent was taken from each patient.

All Women undergoing elective or emergency caesarean section were included in the study. Exclusion criteria were pregnancy below 37 weeks, severe maternal anaemia, prolonged rupture of the membranes with fever, placenta praevia, placenta accreta and clotting disorders. Patients were randomly allocated to two groups. Group A contained women in whom the obstetrician waited till

the placenta delivered spontaneously; controlled cord traction was performed (if needed) to help placental delivery. If the placenta did not deliver by 5 minutes or there was uncontrolled bleeding then placenta was removed manually.

In group B the placenta was cleaved out manually as soon as the baby was delivered. The main outcome measures noted were total operating time, total time taken from delivery of baby to delivery of placenta, total amount of blood suctioned, blood transfusion given and additional use of oxytocics. The primary outcome of blood loss was taken to be difference between preoperative and postoperative haemoglobin. Significant blood loss was defined as a fall of 2 gm/dl haemoglobin or greater.

Data was analyzed by SPSS windows. Statistical tests used for specific comparison were Chi-square test and *t*-test for equality of means.

All patients underwent lower uterine segment caesarean section; and received 2 injections of intravenous cephradine 500 mg. each, followed by oral cephradine 500 mg. eight hourly for 5 days.

RESULTS

A total of 145 patients were included in this study. A total of 200 patients underwent caesarean section during the study period in our department. But 55 patients could not meet the inclusion criteria so they were excluded from the study. One hundred and forty-five women were allocated to two groups randomly. Group A contained 78 patients and this was the spontaneous delivery of placenta group and Group B contained 67 patients and this was the manual removal of placenta group.

Demographic details of women in the two groups was almost the same including age, parity, gestational age, primary indications for caesarean section, anaesthesia, birth weight, foetal heart rate monitoring and foetal outcome. Indications for caesarean section were foetal distress, previous caesarean section, dystocia, breech presentation, IUGR, post dates and bad obstetrical history. The demographic details are presented in Table-1.

Primary outcome measures included significant blood loss which was taken to be blood loss more than 1000 cc, difference in haemoglobin of more than 2 gm/dl, blood transfusions, additional use of oxytocics, time interval between delivery of baby and placenta and total operating time.

In spontaneous removal of placenta group 10 (12.82%) patients had significant blood loss of more than 1000 cc and in manual group 18 (26.8%) had significant blood loss, this was statistically significant ($p<0.05$).

Difference in haemoglobin of more than 2 gm/dl was present in 6 (7.69%) patients in group A, and 13 (19.40%) in group B, this was the main outcome measure and this was statistically significant ($p<0.05$). There was no statistically significant difference in additional use of oxytocics and blood transfusion in the two groups.

Table-1: Characteristics of study participants [n (%) or Mean±SD]

Variable	Spontaneous (n=78)	Manual (n=67)
Maternal age (years	26.10±(4.87)	25.57±(5.04)
Mean gestational age (weeks)	38±(1.3)	39±(1.5)
Birth weight (kg)	3.2±(0.447)	3.13±(0.37)
Parity		
Primgravida	17 (21.74%)	15 (22.38%)
Multigravida	44 (56.41%)	42 (62.68%)
Grandmultigravida	14 (17.94 %)	13 (19.40%)
Primary indication for Caesarean Section		
Foetal distress	20 (25.64 %)	18 (26.86%)
Previous Caesarean	17 (21.79 %)	16 (23.88%)
Dystocia	12 (15.38%)	11 (16.41%)
Breech	10 (12.8%)	10 (14.94%)
Others (IUGR, Post dates & BOH)	17 (21.79%)	14 (20.89%)
Types of Caesarean Section		
Elective caesarean	20 (25.64%)	18 (26.86%)
Emergency caesarean	58 (74.35%)	49 (73.13%)
Anaesthesia		
Spinal	71 (91.02%)	63 (94.02%)
Epidural	4 (5.12%)	2 (2.98%)
General	3 (3.84%)	2 (2.98%)

Time interval between delivery of baby and placenta was 2.79±1.43 min. in spontaneous removal of placenta group and it was 1.2±0.45 min. in manual removal group this was statistically significant. Total operating time was 38.88±7.9 min. in group A and 40.06±6.9 min. in group B this was not statistically significant. The primary outcome measures are shown in Table-2.

Table-2: Primary outcome measures

	Spontaneous (n=78)	Manual (n=67)	*p* Value
Significant blood loss >1000 cc	10 (12.82 %)	18 (26.8 %)	0.033
Difference in HB ≥2.0 gm/dl	6 (7.692 %)	13 (19.40 %)	0.037
Blood transfusion	3 (3.846 %)	6 (8.955 %)	0.204
Additional use of Oxytocics	17 (21.79 %)	23 (34.32 %)	0.092
Time interval between delivery of baby and placenta	2.79 ±1.43	1.25 ±0.45	0.050
Total Operating Time (Min)	38.88 ±7.9	40.06 ±6.9	0.349

DISCUSSION

Caesarean Section is an increasingly performed operation. Safety of operation is increasing because of better anaesthesia and improved operative techniques. This trial was conducted to find out whether spontaneous

or manual removal of placenta has any effect on intra operative blood loss. Although the sample size was small it was concluded that spontaneous delivery of placenta during caesarean section reduces significant blood loss without increasing operative time.

Some previous trials showed a difference in estimated blood loss, in one trial a difference of 2.5 gm/dl between preoperative and postoperative haemoglobin was taken to be significant criteria for blood loss,[10] in another study 1 gm/dl difference in haemoglobin was taken to be significant,[11] in some other studies haematocrit values were compared preoperatively and postoperatively[1,6,12] and in some trials volumetric and gravimetric methods of blood loss assessment were used[7,13]. In our study group a difference of 2 gm/dl haemoglobin preoperatively and postoperatively (after 72 hours) was taken to be significant criteria for blood loss. A statistically significant difference in preoperative and post operative haemoglobin percentage was found in the two groups and also the difference in estimated blood loss of more than 1000 cc. The number of blood transfusions and use of additional oxytocics was not statistically significant in the two groups. This was also the case in various previous studies.[10,14]

In some studies only infective morbidity was studied in the two groups without giving prophylactic antibiotics,[15–17] in one study effect of uterine wiping was noted on post operative infection rate[18]. In our study group prophylactic antibiotics were administered to all the patients in both the groups, as that is the normal practice in our hospital so effect of placental removal method on infective morbidity was not studied.

Some studies have also included the outcome of the rate of foeto-maternal transfusions in the two groups. Kleihauer test was used for detecting foeto-maternal transfusion and it was proven that manual method of removing the placenta increases foeto-maternal blood transfusion rate.[10] In our study this parameter was not included.

CONCLUSION

Spontaneous delivery of placenta has significant reduction of blood loss as compared to manual removal. This is a practical intervention which can be implemented in our operative practice without increasing operating time.

REFERENCES

1. Baksu A, Kalan A, Ozkan A, Baksu B, Tekelioglu M, Goker N. The effect of placental removal method and site of uterine repair on post cesarean endometritis and operative blood loss. Obstet Gynecol Surv. 2005;60(9):574–5.
2. Tully L, Gates S, Brocklehurst P, Mckenzie-Mcharg K, Ayers S. Surgical techniques used during caesarean section operations: results of a national survey of practice in the UK, Eur J Obstet Gynecol Reprod Biol 2002;102:120–6.
3. Rodriguez AI, Porter KB, O Brien WF. Blunt versus sharp expansion of the uterine incision in low segment transverse cesarean section. Am J Obstet Gynecol 1994;171:1022–5.
4. Hameed N, Ali M A. Maternal blood loss by expansion of uterine incision at cesarean section a comparison between sharp and blunt techniques. J Ayub Med Coll Abbottabad 2004;16(3):47–50.
5. Mccurdy Jr CM, Magann EF, McCurdy CJ, Saltzman AK. The effect of placental management at cesarean delivery on operative blood loss. Am J obstet Gynecol 1992;167:1363–73.
6. Hidar S, Jennane TM, Bouguizane S, Lassoued L, Bibi M, Khairi H. The effect of placental removal method at cesarean delivery on preoperative hemorrhage: a randomized clinical trial . Eur J obstet Gynecol Reprod Biol. 2004;117(2):179–82.
7. Gol. M, Baloglu A, Aydin C, Ova L, Yensel U, Karci L. Does manual removal of the placenta affect operative blood loss Gynecol Reprod Biol. 2004;112(1):57–60.
8. Chandra P, Schiavello JJ, Kluge JE, Holloway SL. Manual removal of the placenta and post cesarean endometritis. J Reprod Med 2002;47(2):101–6.
9. Wilkinson C, Enkin MW. Manual removal of placenta at caesarean section. Cochrane Database Syst Rev. 2000;(2):CD000130.
10. Morales M, Ceysens G, Jastrow N, Viardot C, Faron G, Vial Y, Kirkpatrick C. Spontaneous delivery or manual removal of the placenta during caesarean section a randomized controlled trial. BJOG. 2004;111(9):908–12.
11. Dehbashi S, Honarvar M, Fardi FH. Manual removal or spontaneous placental delivery and post cesarean endometritis and bleeding. Int J Gynaecol Obstet. 2004;86(1):12–5.
12. MagannEF, Dodson MK, Albert JR, McCurdy CM, Martin RW, Morrison JC. Blood loss at time of cesarean section by method of placental removal and exteriorization versus in situ repair of the uterine incision. Surg Gynecol Obstet.1993;177(4):389–92.
13. Ramadani H. Cesarean section intraoperative blood loss and mode of placental separation. Int J Gynaecol Obstet.2004;87(2):114–8.
14. Magann EF, Washburne JF, Harris RL, Bass JD, Duff WP, Morrison JC. Infectious morbidity, operative blood loss, and length of the operative procedure after cesarean delivery by method of placental removal and site of uterine repair. J AM Coll Surg 1995;181:571–620.
15. Lasley DS, Eblen A, Yancey MK, Duff P. The effect of placental removal method on the incidence of post cesarean infections. AM J Obstet Gynecol. 1997;176(6):1250–4.
16. Atkinson MW, Owen J, Wren A, Hauth JC. The effect of manual removal of the placenta on post-cesarean endometritis. Obstet Gynecol 1996;87(5 pt 1):799–800.
17. Gonik B, Shannon RL, Shawar R, Costner M, Seibel M. Why patients fail antibiotic prophylaxis at cesarean delivery: histological evidence for incipient infection. Obstet Gynecol 1992;79:179–84.
18. Magann EF, Chauhan SP, Martin Jr |JN, Bryant KS, Befkin Lm Morrison JC. Does uterine wiping influence the rate of post-Cesarean endometritis. J Matern Fetal Med 2001;10:318–22.

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