

Comparison of Maternal Complications of Emergency vs Elective Caesarean Section for Placenta Previa

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Abstract

Background: Placenta previa, being an obstetric emergency, is managed via either emergency or elective cesarean section depending upon clinical presentation of women. Multiple maternal and neonatal complications are associated with cesarean section varying with type of cesarean section.

Objective: The study was designed to evaluate maternal complications of emergency vs elective cesarean section for placenta previa.

Material and Methods: This cohort study was conducted in Gynecology and Obstetrics Department, Lady Reading Hospital Peshawar after obtaining ethical approval from the Institutional Review Board in January 2024 till required sample size achieved April 2024. About 95 women with singleton pregnancy undergoing cesarean section (emergency or elective Cesarean section for placenta previa, with any maternal age included. Women were divided into two groups, emergency cesarean section (group 1) and elective cesarean (group 2). Maternal complications including post-partum hemorrhage (PPH), need for blood transfusion, post-operative fever and wound infection were recorded.

Results: The study showed mean age of 29.1±6.2 and 29.6±6.4 years for Group 1 and Group 2 respectively. Statistically significant differences were found between emergency cesarean and elective cesarean section groups with respect to postpartum hemorrhage (47.9% vs 17% (P = 0.01), need for blood transfusion 91.6% vs 17% (P = 0.000), and postoperative fever (47.9% vs 12.7% (P = 0.001), while non significant difference observed for wound infection (4.1% vs 2.1% P=0.19).

Conclusion: Many maternal complications like postpartum hemorrhage, blood transfusion and postoperative fever were significantly higher in emergency cesarean compared to elective cesarean group for placenta previa.

Keywords: Placenta previa, emergency cesarean section, elective cesarean section, complications.

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Introduction:

Placenta previa (PP) is an obstetrical emergency prevalent in 10% of pregnant women, where placenta lies abnormally in the uterus near cervical os from internal side. Previous cesarean sections (CS), miscarriages, dilatation and curettage, myomectomy, multi-parity and advanced maternal age, are most likely risk factor for PP.^{1,2} Turkuman observed the incidence of PP to be 0.95% pregnancies.³ Early detection of PP antenatally show importance of multidisciplinary approach and management guidelines for controlling associated maternal and neonatal complications including mortality. Women with PP Experience maternal and neonatal issues often due to

excessive hemorrhage, preterm birth and intrauterine growth restriction. Best delivery time is debatable for PP. Elective (Elec) CS is recommended between 36 and 37 weeks of gestation. Women with PP are at high risk of emergency (Emg) CS although risk factors for emergency CS have not been thoroughly studied in the literature.⁴

PP leads to development and growth of new blood vessels in lower uterine segment which predispose women to increased risk of intra-operative haemorrhage during CS compared to those for normal pregnancies. Careful intra-operative hemorrhage management during a CS is crucial for reducing avoidable postoperative Complications i.e. PPH, blood transfusions, fever, wound infection.⁵

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CS is most commonly performed procedure with its inherent maternal and neonatal risks like hemorrhage, surgical site infection, and venous thrombo-embolism. Emg CS is a completely different entity from Elec CS with respect to facilities and preparations done. Maternal outcomes are affected in these two different circumstances. However, modern anesthetic, peri-operative, and postoperative care have rendered the process extremely risk-free.^{6,7}

The aim of the study is to determine whether maternal complications are higher in emergency or elective CS for PP. This study will help to attain local evidence for early screening of PP to avoid unnecessary emg CS and its complications.

Materials and Methods:

This cohort study was carried out in Gynecology and Obstetrics department of Lady Reading Hospital Peshawar after obtaining ethical approval from the Institutional Review Board in January 2024 till required sample size achieved April 2024. A sample size of 86 was calculated by taking expected wound infection burden of about 33.5%, with confidence limit of 95%, power 80% via Open-epi online calculator.⁸ In order to manage lost to follow up cases, sample size was increased to 95 (10% of total sample size added). women of any age with ≥ 24 weeks of gestation, with diagnosis of PP were included. Exclusion criteria was morbidly adherent placenta, previous CS, abruptio-placentae, chronic or gestational hypertension, pre-eclampsia, renal dysfunction, bleeding disorders, multiple fetuses, anemia. Trans abdominal ultrasound was used to diagnose PP. About 95 women admitted via OPD or emergency department enrolled via non-probability consecutive sampling technique. Cases of PP were revealed either by ultrasound during routine antenatal check up or presented with vaginal bleeding in emergency department. Written Informed consent was obtained and detailed history of demographics, medical, surgical, obstetric, family, drug and present pregnancy recorded in the pre-designed proforma. The gestational age calculated either from last menstrual period and/or early ultrasonography. Women's vital signs i.e. pulse rate, blood pressure, respiratory rate, temperature, systemic and obstetric examination were documented. Women were divided into two groups i.e. 48 cases in Group 1 as emergency (Emg CS) performed if active labor or bleeding started and 47 cases in Group B as elective (Elec CS group) planned at 38 weeks of gestation. All enrolled cases were followed up till discharge and then at fortnightly interval for another one month. Maternal outcomes including primary postpartum hemorrhage (PPH), blood transfusion, postoperative fever and wound infection were recorded. PPH measured by using pre-weighed gauze swabs and kidney trays. Recorded data was analyzed by using SPSS version 25. Mean, standard deviation for quantitative and percentages for categorical calculated. Maternal outcomes were compared in both groups by

using chi square test and P-value of <0.05 was kept as significant.

Results:

The mean age of women was about 29.1 ± 6.2 years for Emg CS Group1 and 29.6 ± 6.4 years for Elec CS Group 2. The mean gestational age was 32.4 ± 2.3 weeks for Group 1, while 37.8 ± 1.4 weeks for Group 2. Primi gravidas were 20 (41.66%) in Group 1 compared to 14(29.78%) in Group 2 while multigravidas were 28(58.3%) in Group 1 compared to 33(70.2%) in group 2.

Baseline characteristics		Emergency CS(Group 1)	Elective CS(Group 2)
Age (Years)		29.1±6.2	29.6±6.4
Gestational age		32.4±2.3	37.8±1.4
Gravidity	Primigravida	20(41.66%)	14(29.78%)
	Multigravida	28(58.33%)	33(70.21%)

OUTCOMES		GROUPS				P value
		GROUP 1		GROUP 2		
		NO	%	NO	%	
Wound infection	yes	2	4.1	1	2.1	0.19
	No	46	95.8	46	97.8	
PPH	YES	23	47.9	8	17.0	0.01
	NO	25	52.0	39	82.9	
Postoperative fever	yes	23	47.9	6	12.7	0.001
	NO	25	52.0	41	87.2	
Blood transfusion	yes	44	91.6	8	17.0	0.000
	NO	4	8.3	39	82.9	

Table 2 shows statistically significant association between Emg CS group and postpartum hemorrhage (47.9% vs 17% P = 0.01), postoperative fever (47.9% vs 12.7% P = 0.001) and blood transfusion (91.6% vs 17% P=0.000) compared to Elec CS group while non significant association for wound infection for both groups (4.1vs 2.1% P = 0.19).

Discussion:

The current study observed more complications in emergency versus elective CS groups in PP cases. Early diagnosis of PP and good follow up is essential concern to avoid a series of complications of emergency situation. The observed mean age of our study participants for Emg VS Elec CS was comparable to findings of Sardar et al (30.80 ± 4.3 vs 31.06 ± 3.7 yrs).⁹ The increasing maternal age and rate of women being multiparous may add to the development of PP. Our findings of, maximum patients undergoing Emg CS and

elective CS were multigravidas (58.3% and 70.21%) compared to primigravida, are in contrast to results of Benton M reporting more Emg CS in primigravidas.¹⁰ PP is consistently found to be more common in middle age women. The mean gestational age in our Emg CS group (32.4±2.3 weeks) was comparable to observations of Abid et al (31 weeks).¹¹

CS is safe and appropriate delivery option for PP but has its inherent risks. Risk of unscheduled and preterm deliveries, bleeding episodes and need for blood transfusion is raised by lengthening pregnancy and thus requiring special caution to reduce hazards. For central PP, risk of hemorrhage is more either due to placenta crossing or bleeding from placental bed with poorly contractile lower segment. Reema et al observed comparable findings for significant association of PPH with emg CS (77.8% in emergency CS vs 32.4% in elective CS, $p = 0.002$) while Wasim et al found PPH in 76.04% and need for <5 pints of blood transfusions in 91.66% non-morbidly adherent PP cases.^{12,13,14.}

Our results of non-significant association of wound infection with emg CS were comparable to those of fatma (p value = 0.498).¹⁵ Durukan et al observed reduced rate of blood transfusion, shorter hospital stay and better maternal outcomes with planned CS.¹⁶ Antenatal care of booked patients allowed timely arrangement of blood and involvement of multidisciplinary team which led to reduced rate of complications like wound infection even for Emg CS. Large number of booked patients is strength of our study. Limitation of study is cases from single tertiary centre only.

Conclusion;

Postpartum hemorrhage, fever and need for blood transfusion are the most prominent maternal complications of Emergency compared to Elective Cesareans for placenta previa.

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