

Frequency of Wound Breakdown in patients Undergoing Elective Versus Emergency Cesarean Section

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ABSTRACT

Aim: To compare the frequency of the wound breakdown after elective versus emergency cesarean section.

Study design: Prospective, comparative, descriptive study

Place & Duration: Department of Obstetrics & Gynecology, Central Park Teaching hospital, Lahore for six months i.e. 12-2-2019 to 16-8-2019

Methodology: 180 females were enrolled in the study from labour room after fulfilling the inclusion and exclusion criteria. Two groups were formed i.e. emergency cesarean delivery and elective cesarean delivery. The frequency of both types of cesarean deliveries was noted. The risk factors that could lead to impaired wound healing were noted. Then the females were followed-up in OPD for 10 days to evaluate for presence or absence of wound breakdown in both groups. Females with wound breakdown were managed as per hospital protocols.

Results: The mean age of the patients was 29.77±6.16years. The mean gestational age of the patients was 38.94±0.81 weeks. The women with normal BMI were 64 (35.65%), 58 (32.2%) were overweight and 58 (32.2%) were obese. In this study 97(53.9%) women underwent emergency C-section and the remaining 83(46.1%) women underwent elective C-section. There were 19(10.6%) patients with wound breakdown and 161(89.4%) without wound breakdown. Frequency of wound breakdown was significant higher among women who underwent emergency C-section i.e. Emergency: 19.6% vs. Elective: 0%, p-value=0.000.

Conclusion: Frequency of wound breakdown was significantly higher in women who underwent emergency cesarean section.

Key words: Emergency, Elective, Cesarean section, break down, Wound

INTRODUCTION

Childbirth is the most beautiful chapter of married life. This exciting event becomes much traumatic if it is complicated by painful experiences like wound breakdown after cesarean section. Wound breakdown is defined as "the separation of the margins of a closed surgical incision that has been made in skin, with or without exposure or protrusion of underline tissue"¹. In literature wound breakdown is reported to be 2.0-7.6%^{2,3,4,5}. Wound gaping has a significant effect on the physical and psychological health of the patient⁶. It also poses a much economic burden on the whole family and health care system⁷.

The cesarean section was introduced to improve the maternal and fetal outcomes. This procedure is associated with complications such as problems related to anaesthesia, intraoperative complications like haemorrhage, organ damage and postoperative complications such as wound infection and dehiscence⁸. The recommended cesarean section rate is 10-15%⁹. In Pakistan the rate of cesarean section is continuously increasing from 3.2% in 1990 to 19.6% in 2017-18¹⁰. With increase in the cesarean delivery rate, the complications associated with it like surgical site infection (SSI) is also expected to be raised. The reported incidence of SSI is between 3-15%^{11,12,13,14}. Worldwide, rate of SSI differs and it is higher in developing countries as compared to the high income countries possibly due to lack of infrastructure, evidence based practice and deficient implementation of SSI prevention protocols¹⁵.

Many factors contribute to SSI like general health of the patient, her BMI, presence of anemia, medical conditions like diabetes mellitus (DM), hypertension (HTN) and immune status¹⁶. There are some preoperative factors that increase the risk of SSI such as improper preoperative antibiotic prophylaxis, use of razor for hair removal, prolonged labour and ruptured membranes, multiple vaginal examinations and chorioamnionitis^{12,16}. The other significant risk factor of SSI and wound gaping is emergency

cesarean section¹⁷. A higher incidence of wound infection was reported in emergency (38%) as compared to elective cesarean section (15%)¹⁸.

Rationale of this study is to compare the frequency of gaped wound in females underwent elective versus emergency cesarean section. So that we can implement the results of this study in local setting by addressing the causative factors to reduce the occurrence of gaped wound after caesarean section, especially in emergency cesarean deliveries.

MATERIAL AND METHODS

A comparative, prospective descriptive study was done at Obstetrics and Gynaecology Department of Central Park Teaching Hospital, Lahore for 6 months from 12-2-2019 to 16-8-2019 after taking approval from institutional review board. A total 180 cases between the ages 18-40 years who underwent cesarean section both emergency and elective during this study period were included. The patients who presented with gaped wound and cesarean section was done elsewhere were excluded from the study. The patients were divided into two groups, one having emergency cesarean section due to any indication and the other group of patients who underwent a scheduled elective cesarean section. Demographic details (name, age, gestational age, parity and BMI) were noted in both groups. The indication of cesarean section, comorbidities like DM, HTN and Hb% were recorded in both groups. All patients received preoperative antibiotics i.e., intravenous 1G Ceftriaxone and intravenous metronidazole within one hour of delivery. Standard procedure of cesarean section was followed in both groups. Postoperatively, dressing was removed after 48 hours. The wound was observed for any induration, abnormal discharge and swelling. In females who had uneventful postoperative period are discharged on 3rd postoperative day as per department protocol and called for stitch removal between 8th - 10th postoperative day. Females were advised to present in emergency in case of complications with wound. After 8-10 days, wound was evaluated for presence or absence of gaped wound.

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Females with gaped wound were managed as per hospital protocol. All this information was recorded on proforma.

All data was entered and analyzed through SPSS version 21. Quantitative variables like age, gestational age and BMI were calculated as mean and Standard Deviation. Qualitative variables like emergency cesarean section and gaped wound was presented as frequency and percentage. Discrete variable like parity was also calculated as frequency. Gaped wound was compared in emergency and elective cesarean section by using chi-square test. P-value ≤ 0.05 was taken as significant. Data was stratified for age, gestational age, BMI and parity. Post-stratification, chi-square test was applied to compare gaped wound in emergency and elective cesarean section in each strata. P-values ≤ 0.05 was taken as significant.

RESULTS

The mean age of the patients was 29.77 \pm 6.16years. The minimum age was 20 years and maximum was 40 years. The mean gestational age of the patients was 38.94 \pm 0.81 weeks the minimum gestational age was 34 weeks and maximum was 41 weeks. There were 64 (35.65) normal, 58 (32.2%) overweight and 58 (32.2%) obese in this study (**Table-1**). There were 37(20.6%) patients with parity 1, 45(25%) with parity 2, 51(28.3%) with parity 3 and 47(26.1%) with parity. In this study 97(53.9%) patients had emergency C. section and 83(46.1%) had Elective Cesarean Section (Table-2). There were 19(10.6%) patients with gaped wound and 161(89.4%) without gaped wound (Table-3). There was significant association between gaped wound and emergency cesarean section as the p-value was significant (p-value =0.000) (Table-4). There was significant association between Gaped wound and C. Section in the age groups of 20-30 years and 31-40 years (p-values=0.002 and 0.004). There was significant association between Gaped wound and C. Section in the gestational age group of 38 weeks, 39 weeks and also on 40 weeks (p-value=0.010, 0.005 & 0.047). There was significant association between gaped wound and C. section in patients having BMI overweight & obese while there was insignificant association between gaped wound and C. section in the patients who had normal BMI (**Table-5**). There was significant association between Gaped wound and C. section of parity 1, 2 & 3 (p-values=0.019, 0.032, 0.016). But insignificant for parity 4 (p-value=0.108).

Table-1: BMI of patients

	Frequency	%age
Normal	64	35.6
Overweight	58	32.2
Obese	58	32.2
Total	180	100.0

Table-2: Type of C-Section

	Frequency	%age
Emergency	97	53.9
Elective	83	46.1
Total	180	100.0

Table-3: Gaped Wound

	Frequency	%age
Yes	19	10.6
No	161	89.4
Total	180	100

Table-4: Association between C. Section and Gaped Wound

Gaped Wound	C-Section		p-value
	Emergency	Elective	
Yes	19(19.6%)	0(0.0%)	0.000
No	78(80.4%)	83(100%)	
Total	97	83	

Table-5: Association between C. Section and Gaped Wound stratified for BMI

BMI	Gaped Wound	C. Section		P-value
		Emergency	Elective	
Normal	Yes	3(9.1%)	0(0%)	0.086
	No	30(90%)	31(100%)	
	Total	33	31	
Overweight	Yes	9(26.5%)	0(0%)	0.006
	No	25(73.5%)	24(100%)	
	Total	34	24	
Obese	Yes	7(23.3%)	0(0%)	0.006
	No	23(76.7%)	28(100%)	
	Total	30	28	

DISCUSSION

A total of 496 deliveries were conducted at CPTH from February, 2019 to August, 2019. Out of which 316 patients had normal vaginal deliveries and 180 patients underwent cesarean sections. The cesarean section rate in our study was 36.29%. In a study conducted in Pakistan found cesarean section rate of 31.26%¹⁹. A scoping review showed that a rising cesarean section trend is seen in four countries in Asia including Pakistan. It also revealed that cesarean section rate is not uniform nationwide and increased rates were seen among high socioeconomic, literate and women living in urban areas²⁰.

The mean age of the patients in our study was 29.77 \pm 6.16years. This finding is consistent with other study¹⁸. Majority of the patients (53%) were between para2-3. Primigravida were 26% in our study. Multiparity was seen more commonly in other studies as well^{18,21}. In our study 11 out of 19 patients who had wound breakdown were between parity2-3. While another study showed majority of patients with wound gap were primipara⁴.

In this study 97(53.9%) women underwent emergency C-section and the remaining 83(46.1%) women underwent elective C-section. Another study showed more emergency cesareans (65.7%) as compared to elective cesareans (34.3%)¹⁷. Frequency of gaped wound was significantly higher among women who underwent emergency C-section i.e. Emergency: 19.6% vs. Elective: 0%, p-value=0.000. While another study showed that gaped wound was found in 0% with elective caesarean while 0.7% with emergency caesarean (P>0.05)²². R Narang et al and Jahanara Rahman et al in their studies also reported that postoperative wound gaping was seen more in emergency obstetrics cases as compare to elective cases^{3,23}. K. Vijaya and his team members reported more cases of wound gaping in women who underwent emergency C-section 9.18% as compared to elective cesareans (1.03%)²⁴. Another study conducted in India showed 81% incidence of wound dehiscence among emergency surgeries as compared to 18% in elective surgeries⁴. In our study the most common indication of emergency cesarean section was fetal distress followed by previous cesarean in labour.

In this study gaped wound was significantly higher among patients who were obese and underwent emergency cesarean section. This finding is consistent with the findings of Ridhi Narang who reported that obesity was the second most frequent risk factor for wound gap in her study after anemia³. In her study anemia was seen in 71% cases of wound breakdown and obesity was seen in 65% of cases. Another study showed obesity as a significant risk factor for post cesarean non-infectious disruption of wound⁵. Results of Hasan Dhar from Oman depicted three fold increased risk of wound infection after cesarean section in morbidly obese women with BMI>35²⁵.

CONCLUSION

Results of this study showed that frequency of gaped wound was significantly higher in women who underwent emergency cesarean section. Obesity was a significant associated risk factor. Prenatal and antenatal counseling on weight reduction and dietary modification can reduce the problem.

Conflict of interest: Nil

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