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Comparison of Early Post-Operative Complications Between Elective and Emergency Caesarean Sections

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Abstract

Introduction: *Caesarean section is one of the most common obstetric surgeries that can be performed either as an elective one or as an emergency due to maternal or fetal complications. Complications, such as wound infection, haemorrhage, and anaemia, that arise shortly after the operation can be a reason for an extended hospital stay and delayed recovery. Through this paper, the authors tried to find out whether there are differences in the early post, operative complications between elective and emergency caesarean sections. They also looked at factors associated with such complications including the reason for the operation and duration of the hospital stay after the operation.*

Methods: *This hospital based comparative observational study took place in the Department of Obstetrics and Gynaecology at Popular Medical College, Dhaka, Bangladesh from January 2025 to December 2025. A total of 240 women who had undergone caesarean section were consecutively enrolled and divided into two groups depending on the type of procedure they had: elective caesarean section (n = 72) and emergency caesarean section (n = 168). The data were processed by using the Statistical Package for Social Sciences (SPSS) version 26.0.*

Result: *Most of women didn't undergo early post, operative complications; however, complications in the emergency group were more frequent (15.5 % vs 8.3%), with wound infection, postpartum haemorrhage, and anaemia being the most common ones. Only the emergency group experienced severe complications such as puerperal sepsis and burst abdomen. The proportion of post, operative hospital stay beyond five days was significantly higher among emergency caesarean sections, indicating a higher degree of early morbidity in the emergency group.*

Conclusion: *Emergency caesarean sections were performed more often than elective ones, and it been found that they are linked to a higher rate of early post, operative complications such as wound infection, postpartum haemorrhage, and anaemia, among other things, as well as longer hospital stays. Even though the majority of complications were of a mild nature and could be treated, the results point out the higher risks associated with emergency caesarean deliveries.*

Keywords: *Post-Operative Complications, Elective Caesarean Sections, Emergency Caesarean Sections*

I. Introduction

Caesarean section (CS) is one of the most frequent surgical interventions done in obstetrics worldwide and is a vital tool for saving lives of mothers and babies when used correctly [1]. Over the last several decades, the overall rate of caesarean delivery in the world has gone up significantly and this rise has been seen in both elective as well as emergency surgeries [2]. A CS, while potentially life, saving, can lead to a variety of post, operative complications which account for a large share of maternal morbidity, particularly in low, and middle, income countries. An elective caesarean is a surgical delivery that is planned and done before labour starts, while an emergency caesarean is the one which is performed due to the urgent medical needs of the mother or baby after labour has begun. Whereas, these two methods of delivery vary greatly in terms of the clinical setting, the amount of preparation, the urgency, and the peri, operative management, all of which can affect the post, operative results [3]. Emergency CS is a type of operation that is usually done under worse conditions, i.e., the mother may have been in labour for a long time, the baby may be in distress, there may be an infection, or the mother may be exhausted, etc. All these conditions may elevate the risk of the mother developing early post, operative complications. Early post, operative complications, which are those that arise within the first week of operation, may be wound infection, postpartum haemorrhage (PPH), puerperal sepsis, wound haematoma, abdominal

distension, anaemia, and burst abdomen. Besides prolonging the hospital stay, these problems also add to the healthcare costs and may result in poor maternal health in the long run [4]. Surgical site infection alone constitutes a major portion of post, caesarean morbidity and is said to occur more often after emergency operations [5]. Compared to elective CS, emergency caesarean section has been found to be linked to a higher rate of maternal complications in numerous studies. Some of the complications that have been raised in observational and cohort studies are wound infection, febrile morbidity, excessive blood loss, need for blood transfusion, and postpartum sepsis after emergency caesarean delivery [6, 7]. Among others, the unavailability of proper preoperative preparation, the long time between deciding and delivering, and the greater number of difficulties during the operation are blamed for these harmful effects [8]. Post, operative complications are still a major issue, especially in resource, poor settings, although there have been advances in surgical techniques, antibiotic prophylaxis, and peri, operative care. In Bangladesh, for example, where emergency CS makes up a large percentage of caesarean deliveries, a thorough assessment of early post, operative outcomes is needed to enhance maternal care and lower the number of preventable morbidities [9]. Studies comparing elective and emergency CS are helpful in risk stratification and clinical decision, making. This study, hence, is focused on comparing early post, operative complications within seven days between elective and emergency caesarean sections.

II. METHODS

This hospital, based comparative observational study in the Department of Obstetrics and Gynaecology at Popular Medical College, Dhaka, Bangladesh and was conducted over a one-year period from January 2025 to December 2025. A cumulative total of 240 women who underwent caesarean section were consecutively enrolled and divided into two groups, based on the type of procedure: elective caesarean section (n = 72) and emergency caesarean section (n = 168). Inclusion criteria consisted of women with singleton term pregnancies who were willing to participate, whereas patients with major medical disorders, intrauterine fetal death, congenital fetal anomalies, or incomplete clinical records were left out. Baseline socio, demographic and obstetric parameters were obtained through a structured data collection form. Early maternal complications, including wound infection, postpartum hemorrhage, wound hematoma, anemia, puerperal sepsis, abdominal distension, burst abdomen, and duration of post, operative hospital stay, were assessed by following participants for seven days post, operatively. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 26.0. Categorical variables were demonstrated as frequencies and percentages and compared by the Chi, square test, while continuous variables were reported as mean standard deviation and compared by the independent sample t, test. A p, value of <0.05 was considered statistically significant. The study obtained ethical clearance from the Institutional Review Board of ----------, and all participants gave their written informed consent.

III. RESULTS

The average age of participants was almost equal in both groups and no statistically significant difference was found. The proportion of women aged below 25 years was higher in the emergency caesarean section group (42.9%) as compared to the elective group (36.1%). There were more primigravida women in the emergency caesarean section group (52.4%) than in the elective group (38.9%) whereas women who were multigravida dominated the elective group. However, the differences were not statistically significant [Table 1]. Most caesarean sections were carried out as emergencies (70.0%), whereas less than one, third (30.0%) were elective ones [Table 2]. Previous caesarean section was the first deciding factor for elective caesarean section and made up nearly half of all elective procedures (47.2%). On the other hand, fetal distress (31.0%) and prolonged labour (17.9%) were the most common reasons for emergency caesarean section. Malpresentation cases were mostly handled by elective caesarean section, while emergency cases were mainly due to acute intrapartum complications [Table 3]. Most women in both groups did not have any early post, operative complications. Yet, there were more women who had at least one complication in the emergency caesarean section group (15.5%) than in the elective group (8.3%). This difference, which was quite marked, was not statistically significant [Table 4]. The common early post, operative complication in both groups was wound infection and its incidence was higher in emergency cesarean sections. Furthermore, postpartum haemorrhage and anaemia also occurred more frequently in emergency procedures. Severe complications like puerperal sepsis and burst abdomen were only experienced by the emergency group. None of the individual complications were statistically significantly different between the two groups [Table 5]. A post, operative hospital stay of five days or less was more typical after an elective caesarean section. On the other hand, a significantly larger percentage of women who had an emergency caesarean section had to be hospitalized for more than five days, which is indicative of an increased early post, operative morbidity in this group [Table 6].

Table 1: Socio-Demographic and Obstetric Characteristics of the Study Participants (n = 240)

Variable	Elective (n=72)	Emergency (n=168)	p value
Mean age (years)	26.8 ± 4.2	25.9 ± 4.6	0.184
Age <25 years	26 (36.1%)	72 (42.9%)	0.327
Primigravida	28 (38.9%)	88 (52.4%)	
Multigravida	44 (61.1%)	80 (47.6%)	0.061

Table 2: Distribution of Study Participants by Type of Caesarean Section (n = 240)

Type of Caesarean Section	Number	Percentage
Elective	72	30.0%
Emergency	168	70.0%
Total	**240**	**100.0%**

Table 3: Indications for Caesarean Section Among Study Participants (n = 240)

Indication	Elective (n=72)	Emergency (n=168)
Previous caesarean section	34 (47.2%)	28 (16.7%)
Cephalopelvic disproportion	12 (16.7%)	34 (20.2%)
Fetal distress	4 (5.6%)	52 (31.0%)
Prolonged labour	0 (0.0%)	30 (17.9%)
Malpresentation	14 (19.4%)	12 (7.1%)
Others	8 (11.1%)	12 (7.1%)

Table 4: Overall Early Post-Operative Complications Within 7 Days (n = 240)

Complication Status	Elective (n=72)	Emergency (n=168)	p value
No complication	66 (91.7%)	142 (84.5%)	0.142^{ns}
Any complication	6 (8.3%)	26 (15.5%)	

Table 5: Distribution of Specific Early Post-Operative Complications (Within 7 Days) (n = 240)

Type of Complication	Elective (n=72)	Emergency (n=168)	p value
Wound infection	2 (2.8%)	12 (7.1%)	0.281^{ns}
Postpartum haemorrhage	1 (1.4%)	8 (4.8%)	0.312^{ns}
Wound haematoma	1 (1.4%)	4 (2.4%)	0.651^{ns}
Anaemia	2 (2.8%)	6 (3.6%)	0.764^{ns}
Puerperal sepsis	0 (0.0%)	4 (2.4%)	0.214^{ns}
Burst abdomen	0 (0.0%)	2 (1.2%)	0.338^{ns}

Table 6: Duration of Post-Operative Hospital Stay (n = 240)

Duration of stay	Elective (n=72)	Emergency (n=168)	p value
≤5 days	60 (83.3%)	120 (71.4%)	0.048*
>5 days	12 (16.7%)	48 (28.6%)	

IV. DISCUSSION

In this research, it was found that emergency caesarean section accounted for 70.0% of the total caesarean deliveries while elective caesarean section made up only 30.0%. The high number of emergency operations agrees with the research results of Begum et al. in Bangladesh, where 64.4% of caesarean deliveries were emergency cases [9]. Also, Nuaim found that 68.2% of caesarean sections were emergency operations, depicting a similar level of unplanned surgical deliveries in healthcare systems of developing countries [11]. The marginally greater ratio seen in our study could be explained by the delayed referral and late presentation of labour complications. In terms of socio, demographic and obstetric characteristics, in our study, the average age of women having elective and emergency caesarean section was similar (26.8 ± 4.2 vs 25.9 ± 4.6 years). Primigravida women made up 52.4% of emergency caesarean sections versus only 38.9% of elective procedures. Raees et al. found a similar trend with primigravida status present in 55.0% of emergency caesarean sections and 41.0% of elective caesarean sections [6]. Agrawal and Agarwal also reported that primigravida women made up 58.0% of emergency caesarean sections as opposed to 40.0% of elective ones, thus supporting the idea that first pregnancies are more prone to intrapartum complications which require emergency intervention [7]. Examination of the reasons for

caesarean section revealed that previous caesarean section was the leading reason for elective caesarean section in our study (47.2%), while fetal distress (31.0%) and prolonged labour (17.9%) were the main reasons for emergency caesarean section. Raees et al. reported that previous caesarean section was the indication for 49.0% of elective cases and fetal distress for 34.0% of emergency cases [6]. Similarly, Agrawal and Agarwal reported fetal distress in 29.5% of emergency caesarean sections, which is almost the same as the findings of this study [7]. In our study, emergency caesarean sections had a 15.5% incidence of post, operative complications in contrast to 8.3% of elective sections. Farag et al. recorded higher incidences as complications occurred in 21.4% cases of emergency caesarean sections as compared to 9.6% elective procedures [12]. Even though the overall complication rates in our study were a bit lower, the proportional difference between emergency and elective procedures was the same. When looking at specific early post, operative complications, infection of the wound was the main complication in our group, with 7.1% of emergency caesarean and 2.8% of the elective cases getting infected. Wloch et al. stated that the rate of surgical site infection was 8.9% in emergency caesarean section versus 3.2% in the elective procedures [5]. Farag et al. found that the rate of puerperal sepsis was 3.1% in emergency cases [12]. A post, operative hospital stay longer than five days was necessary for 28.6% of women having emergency caesarean section, whereas only 16.7% of elective cases needed it. Begum et al. found that the hospital stay was prolonged in 31.0% of emergency caesarean sections versus 18.0% of elective cases, a result very much in line with the current study [9].

Limitations of The Study

This research was carried out at only one tertiary care hospital and as such the results may not be applicable in other settings. The number of participants, which was sufficient, was on the lower side for the identification of uncommon post, operative complications. The duration of the follow, up was only the first seven post, operative days and therefore late complications and long, term maternal outcomes were out of the scope of this study.

V. CONCLUSION

There were more emergency caesarean sections than elective ones and they were linked to a greater occurrence of early post, operative complications, such as wound infection, postpartum haemorrhage, and anaemia, as well as longer hospital stays. Most complications were mild and could be handled, however, the results point out the higher risk of injury associated with emergency caesarean deliveries.

VI. RECOMMENDATION

Strategies to reduce emergency caesarean sections should be put in place. These include better antenatal monitoring, timely recognition of high, risk pregnancies, and early decision, making.

Detailed perioperative care, rigorous infection control, and proper post, operative monitoring are necessary to lower the maternal complications and thus will lead to a quicker discharge from the hospital.

It is recommended that further multicenter studies with larger samples and longer follow, up be conducted to verify the present findings and to provide guidance on the best practices in the management of caesarean section.

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