

Original Research

Risk Factors and Outcome of Early Puerperium Following Caesarean Section

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Abstract

Introduction: The postpartum period, or puerperium, typically lasts six weeks following childbirth and is crucial for the reversal of pregnancy-induced anatomical and physiological changes. This period is often divided into three stages: immediate, early, and remote puerperium. Early puerperium, the first week after childbirth, is critical due to the heightened risk of complications, especially following cesarean sections (CS).

Objective: This study aims to investigate the prevalence and types of early puerperal complications in women undergoing elective and emergency cesarean sections.

Methods: A retrospective observational study was conducted in the Obstetrics and Gynecology department at Enam Medical College Hospital, Savar, Dhaka, Bangladesh. Hospital records from January 2015 to December 2015 were reviewed, including 100 women who had undergone cesarean sections. Data on demographic characteristics, antenatal care, risk factors, and types of early puerperal morbidities were collected and analyzed using SPSS version 20.

Results: The study found that 55% of the participants were aged 21-30 years, 70% belonged to poor socioeconomic backgrounds, and 90% were housewives. A significant 70% of the women had not received any antenatal care. The most prevalent risk factors for early puerperal morbidities were obstructed labor (40%) and prolonged labor (30%). Common complications included wound infections (50%), endomyometritis (45%), and urinary tract infections (35%).

Conclusion: Early puerperal complications are prevalent among women who undergo cesarean sections, particularly those from low socioeconomic backgrounds with inadequate antenatal care. Addressing these issues through improved prenatal and postnatal care and better access to skilled birth attendants can potentially reduce these complications and enhance maternal health outcomes.

Introduction

The postpartum period, also known as the puerperium, typically lasts for six weeks after childbirth. It is a crucial time of adjustment during which the anatomical and physiological changes that occurred during pregnancy are reversed, and the woman's body gradually returns to its pre-pregnancy state¹. Although this phase is of great importance for both the mother and her newborn, it has received comparatively less attention than pregnancy and delivery. When a healthy pregnant

woman without any obstetric or medical risk factors goes into spontaneous labor, the likelihood of a normal delivery is high. Nonetheless, approximately 580,000 women worldwide die from pregnancy and childbirth-related complications each year, with maternal mortality rates in developing countries being 100 times higher than in developed nations². The majority of these deaths and complications occur during the postpartum period. The postpartum period is

typically divided into three stages: the immediate puerperium, the early puerperium, and the remote puerperium. The first week after childbirth is considered the early puerperium¹. Puerperal infectious morbidity affects 2-8% of pregnant women and is among the most prominent puerperal complications. The risk of infectious morbidity is higher for women who have undergone operative delivery and repeated vaginal examinations². In our country, only about 16% of pregnant women receive proper care from skilled birth attendants, such as doctors, paramedics, and trained traditional birth attendants (TBAs), during their delivery². Alarming, 91.6% of deliveries occur at home, with 80% of these childbirths assisted by relatives and untrained TBAs. Factors such as illiteracy, ignorance, early marriage, lack of antenatal care, failure to seek family planning advice due to social taboos, shyness, and poverty contribute to this severe lack of proper care². The ratio of emergency cesarean sections is higher than that of elective cesarean sections³. Most abnormalities during the puerperium are related either to the surgical procedure or to the underlying indications that led to the operation. Consequently, complications are more prevalent following emergency cesarean sections compared to elective procedures. The prevalence of these complications is also higher after cesarean section (CS) compared to normal vaginal delivery. While CS is an important medical technique intended to improve maternal and fetal outcomes, it can affect the health of both the mother and the newborn. Puerperal complications often impact a woman's physical appearance, particularly in cases of CS, which can lead to depression. Despite this well-known fact, few studies have been conducted on the aftereffects of puerperal complications. In addition to mental distress, patients undergoing cesarean section for obstructed labor can develop septicemia, renal failure, and genitourinary fistulas⁴. Cesarean section is the most commonly performed operation in obstetric practice, involving the delivery of the fetus, placenta, and membranes through an incision in the abdominal and uterine walls⁵. There are two types of cesarean sections: elective and emergency, depending on whether the procedure is performed before or after the onset of labor or early complications. While emergency CS has seen increased mortality and morbidity rates, elective CS also carries certain

risks. The present study was conducted to investigate the early puerperal complications faced by women after undergoing either elective or emergency cesarean section.

Methods

This retrospective observational study was carried out in the Obstetrics and Gynaecology department at Enam Medical College Hospital, Savar, Dhaka, Bangladesh with hospital records from January 2015 to December 2015. The study population consisted of women who had undergone cesarean section (CS) and were in their early puerperium (the first week after childbirth). A total of 100 hospital records of women in the early puerperium following CS were included in the current study. To be included, the hospital records had to be complete and contain relevant information pertaining to the early puerperium after CS; hospital records with incomplete or missing data were excluded from the study. The researchers reviewed and extracted relevant data from the eligible participants' hospital records. The collected data were then organized and entered into a database for further analysis. All statistical analyses were performed using SPSS version 20 (IBM Corp., Armonk, NY, USA). Descriptive statistics, such as frequencies, percentages were calculated to summarize the demographic and clinical characteristics of the study participants, as well as the prevalence and distribution of early puerperal complications following CS.

Results

Table 1: Demographic characteristics of the study subjects (n=100).

Variables	No of patients	Percentage (%)
Age Distribution of the patients		
<20 years	25	25
21-30 years	55	55
>30 years	20	20
Socioeconomic Status		
Poor	70	70
Lower	20	20
Middle class	10	10

Occupation		
Housewife	90	90
Service Holder	10	10

Table 1 presents the demographic characteristics of the 100 study participants. In terms of age distribution, the majority (55%) were between 21-30 years old, while 25% were under 20 years, and 20% were over 30 years. Regarding socioeconomic status, a significant proportion (70%) belonged to the poor socioeconomic class, followed by 20% in the lower class and 10% in the middle class. The vast majority (90%) of the participants were housewives, with only 10% being employed in service-based occupations.

Table 2: History of antenatal care among participants (N=100)

Record of Antenatal Care	No of patients	Percentage (%)
Regular	5	5
Irregular	25	25
No care	70	70

Table 2 shows the antenatal care history of the 100 study participants. Notably, the majority (70%) did not receive any antenatal care during their pregnancy. Only a small proportion (25%) received irregular antenatal care, while a mere 5% had regular antenatal check-ups.

Table 3: Risk factor for early puerperal morbidities following caesarean section (n=100).

Risk Group	No of patients	Percentage (%)
Obstructed labor	40	40
Prolonged labor	30	30
Prolonged ruptured member	20	20
Chorioamnionities	10	10

Table 3 outlines the risk factors for early puerperal morbidities following caesarean section among the 100 study participants. The most prevalent risk factor was obstructed labor, accounting for 40% of the cases. Prolonged labor was the second most common risk factor, present in 30% of the participants. Additionally, 20% of the women experienced prolonged ruptured membranes,

while 10% had chorioamnionitis as a risk factor for early puerperal morbidities after undergoing a cesarean section.

Table 4: Types of post caesarean early puerperal morbidities (n=100)

Morbidities	No of patients	Percentage (%)
Wound Infection	50	50
Urinary Tract infection	35	35
Endomyometritis	45	45
Mastitis	5	5
Puerperal Blue	5	5
Obstetric palsy	5	5

Table 4 presents the types of early puerperal morbidities observed in the 100 study participants following caesarean section. Wound infection was the most common morbidity, affecting 50% of the women. Endomyometritis, an inflammatory condition of the endometrium and myometrium, was the second most prevalent morbidity, occurring in 45% of cases. Urinary tract infection was also a common complication, affecting 35% of the participants. Less frequently observed morbidities included mastitis (5%), puerperal pyrexia or "puerperal fever" (5%), and obstetric palsy (5%).

Discussion

The puerperal period is the time following childbirth when the anatomical and psychological changes that occurred during pregnancy begin to reverse. This period is broadly categorized into three stages, with the first week after delivery being considered the early puerperium. During this early postpartum phase, the likelihood of complications increases if proper care is not provided, and the risk is higher after emergency caesarean section (CS) compared to normal vaginal delivery. This heightened risk is primarily due to the lack of preparation in emergency CS cases. While advancements in surgical techniques, asepsis, antibiotics, therapy, blood transfusion, and anesthesia have reduced but not eliminated the risks associated with caesarean section, achieving favorable outcomes requires adherence to appropriate surgical and perinatal conditions and a

thorough understanding of the potential consequences of deviating from the principles upon which this major operation is based. The majority of maternal morbidity occurs during the puerperium period⁶. In a multi-hospital study conducted by Akter T from March 2004 to August 2004, the incidence of early puerperal complications was found to be 22%, which is comparatively lower than previous studies, indicating an improvement in medical technology during that time period⁵. However, despite these advancements, the incidence rate remained relatively high compared to studies from developed countries, where the incidence of puerperal complications was reported to be 1.7% in one study⁷. The present study aimed to collect data on the types of complications in hopes of preventing such occurrences in the future. The majority of puerperal morbidity cases were observed in the age group of 21-30 years, with only 20% being older than 30 years. This pattern might be influenced by the societal tradition of marrying at a young age and starting a family early. Seventy percent of the puerperal complication cases were from poor households, and none were from high-income households, which also affected the relationship between antenatal care and the participants, as only 5% received regular care, and 70% received no antenatal care at all. This disparity could be attributed to the better availability and accessibility of antenatal and medical care for high-income households. Only 10% of the participants were employed in service-based occupations, while the remaining 90% were housewives, reflecting the societal norms that often restrict women's participation in the workforce after marriage. The most common complication observed was wound infection. It should be emphasized that the majority of patients experienced more than one complication concurrently. For example, patients with wound infections also had concomitant endomyometritis or urinary tract infections (UTIs). This study demonstrates that early puerperal morbidity in post-cesarean patients was common among those aged 21-30 years, coming from low socioeconomic backgrounds. This observation aligns with the findings of many other studies⁷⁻¹⁰. In the present study, the incidence of wound infection and endomyometritis was quite high compared to studies from developed countries, where the

incidence of infectious morbidities varied between 2-8%¹¹⁻¹³. The incidence was very common among those with low socioeconomic status, operative delivery, premature rupture of membranes, prolonged labor, and multiple pelvic examinations¹⁴. Gerber B's study showed that UTIs were significantly more frequent in women subjected to catheterization (54.5%) compared to those without catheterization (24.4%)¹⁵.

Limitations of The Study

The study was conducted in a single hospital with small sample size. So, the results may not represent the whole community.

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Ethical approval: The study was approved by the Institutional Ethics Committee

Conclusion

The study highlights the significant prevalence of early puerperal complications following cesarean sections, with a particular focus on the increased risks associated with emergency procedures compared to elective ones. The findings indicate that wound infections, endomyometritis, and urinary tract infections are the most common complications, disproportionately affecting women from low socioeconomic backgrounds who often lack adequate antenatal care. The data underscore the importance of improving prenatal and postnatal care, especially for women undergoing cesarean sections, to mitigate these risks. Effective strategies include better access to skilled birth attendants, enhanced surgical techniques, and comprehensive postpartum care. By addressing these factors, it is possible to reduce the incidence of early puerperal complications and improve overall maternal health outcomes. Further research with larger, more diverse populations is necessary to generalize these findings and develop targeted interventions.

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