



Incidence and Maternal Outcome of All Caesarean Hysterectomy in Tertiary Level Hospitals

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Abstract

Background: Cesarean hysterectomy is a significant obstetric intervention, often performed in life-threatening circumstances. Understanding its incidence, demographic patterns, and associated complications is essential for improving maternal and neonatal outcomes. **Material & Methods:** This observational study was conducted at a tertiary level hospital, analyzing cesarean hysterectomy cases over a six-month period. The study employed purposive consecutive sampling, including all patients undergoing the procedure during the study period. The methodology focused on examining the incidence, patient demographics, indications for surgery, and subsequent maternal and neonatal outcomes. **Results:** Among 9205 total deliveries, cesarean hysterectomies constituted 0.39%, increasing to 1.05% of the 3441 cesarean deliveries. The majority of patients were aged 27-33 (50%), primarily from low-income backgrounds (75%). Major indications included major degree placenta previa (41.67%) and fetal distress/oligohydramnios (38.89%). Significant complications were observed, with all patients experiencing massive obstetric hemorrhage, 86.11% requiring blood transfusions, and severe outcomes like stillbirths and neonatal deaths recorded at 13.89% and 2.78%, respectively. **Conclusions:** The study offers critical insights into the incidence and outcomes of cesarean hysterectomy in a tertiary hospital setting. The findings emphasize the importance of effective management strategies and comprehensive care to address the complexities and risks associated with the procedure, aiming to enhance maternal and neonatal health outcomes.

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INTRODUCTION

Caesarean hysterectomy, a critical surgical intervention in obstetrics, involves the removal of the uterus during or immediately after a cesarean section. This procedure, essential for managing severe childbirth complications, is

increasingly significant due to evolving maternal healthcare challenges. Globally, the rate of cesarean sections has seen a marked increase, with varying figures across different regions.^[1,2] In Bangladesh, cesarean section rates have escalated, reflecting a global trend towards more surgical deliveries.^[2] Abnormal



placentation, characterized by the placenta's failure to detach from the uterine wall, is a leading indication for caesarean hysterectomy.^[3,4] This condition, along with other complications such as atonic uterus, uterine rupture, and specific cancers like cervical and endometrial cancer, necessitates the removal of the uterus to safeguard maternal health.^[5] Notably, cervical cancer, prevalent in pregnancy, often requires a hysterectomy during cesarean delivery to reduce anesthesia exposure and expedite cancer treatment. The incidence of caesarean hysterectomy remains a concern globally. Although the procedure is relatively rare, its frequency has been increasing, particularly in settings with high rates of cesarean sections. In developed countries, the incidence ranges from 0.2% to 0.8% of all cesarean deliveries, underscoring its role as a life-saving measure in obstetric care.^[6,7] Similarly, in developing nations like Bangladesh, the rates are likely reflective of global trends, although specific data may vary due to different healthcare infrastructures and practices. Risk factors for caesarean hysterectomy are multifaceted, including smoking, cocaine use, advanced maternal age, previous cesarean sections, recurrent abortions, male fetuses, and infertility treatments.^[8,9,10] In Bangladesh, these factors might be compounded by unique demographic and healthcare system characteristics, influencing the incidence and outcomes of the procedure. Adverse outcomes associated with caesarean hysterectomy are significant. These include increased maternal morbidity and mortality, a heightened need for blood transfusions, and prolonged hospital stays.^[11] Additionally, the psychological impact on women undergoing this surgery cannot be overlooked, as it involves

the loss of reproductive capacity and potential long-term health implications. This study aims to delve into the incidence and maternal outcomes of caesarean hysterectomy in tertiary level hospitals, with a particular focus on the Bangladeshi context. By assessing cases, indications, patient profiles, risk factors, and associated morbidity and mortality, this research seeks to contribute to a deeper understanding of caesarean hysterectomy's role in modern obstetrics.

MATERIAL AND METHODS

This observational study was conducted at the Department of Obstetrics & Gynaecology, Dhaka Medical College Hospital, Dhaka, Bangladesh, over a six-month period from 1st January 2019 to 30th June 2019. Utilizing a purposive consecutive sampling design, the study included 36 patients who underwent caesarean hysterectomy in the Inpatient Department during this timeframe. Patients were selected based on purposive sampling, focusing on those who met specific inclusion criteria: a) undergoing caesarean hysterectomy at DMCH within the study period, b) diagnosed with placenta accreta (confirmed by ultrasound or MRI) in the context of previous caesarean sections, c) incidental preoperative diagnosis of placenta accreta with a history of caesarean section, and d) presence of ovarian or cervical malignancies. Exclusion criteria centered on patients with medical conditions significantly impacting maternal outcomes, ensuring a focus on the effects of caesarean hysterectomy alone. Ethical measures were rigorously upheld throughout the study. Initially, the research protocol received approval from the ethical committee at Dhaka Medical College Hospital. Before participating, all patients, or parents in

the case of minors, were thoroughly informed about the study's aims, procedures, methods, potential risks, and benefits in an easily understandable local language. Informed written consent was then obtained from each participant. To maintain confidentiality and uphold ethical standards, all patient information and records were assured to be kept confidential.

RESULTS

Among the total 9205 deliveries between the study period, only 0.39% (36) were cesarean hysterectomies.

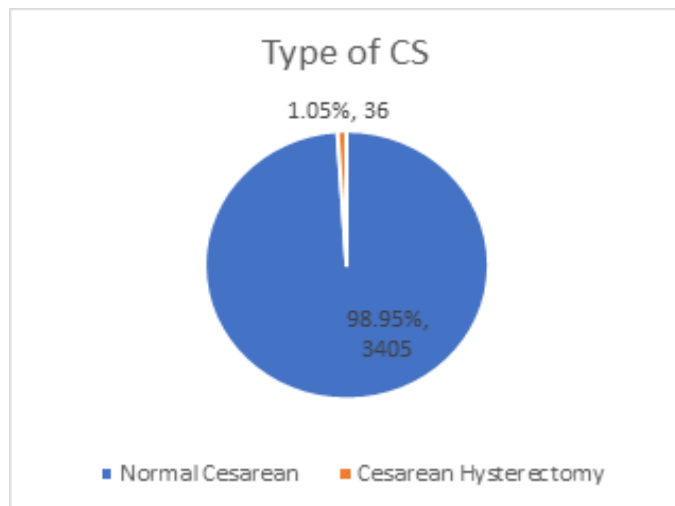


Figure 1: Incidence of cesarean hysterectomy among total cesarean deliveries (N=3441)

Among the total 3441 cesarean deliveries conducted at the study hospital between the study period, 1.05% (36) were cesarean hysterectomies.

[Table 2] presents the distribution of participants according to baseline demographic characteristics among the 36 cases of cesarean hysterectomy examined in our study.

Regarding age, the majority of participants fell within the 27-33 age group, comprising 50.00% of the total. Those aged 20-26 accounted for 30.56% of the participants, while individuals aged 34-40 constituted 19.44%. In terms of socioeconomic status, a significant proportion of participants belonged to the low-income bracket, representing 75.00% of the total. Middle-income individuals comprised 25.00% of the participants, whereas none were classified under the upper-income category. With regard to education, the distribution varied among participants. A small percentage (11.11%) were categorized as illiterate, while 19.44% had education up to primary level. A larger proportion (38.89%) had education up to secondary level (SSC), followed by 27.78% who had education up to higher secondary level (HSC). Only a single participant (2.78%) had attained a graduation level of education.

[Table 3] outlines the distribution of obstetric characteristics among the participants who underwent cesarean hysterectomy in our study, with a total sample size of 36 individuals. Regarding parity, the majority of participants had a parity of 2, constituting 47.22% of the total. Parity 1 accounted for 27.78% of participants, while those with a parity greater than 2 represented 25.00% of the cohort. In terms of previous cesarean section (CS) history, the distribution varied, with 38.89% of participants having undergone one previous CS, 50.00% having undergone two previous CS, and 11.11% having a history of three previous CS. Notably, the vast majority of previous CS procedures (97.22%) were performed at tertiary centers by senior surgeons, with only one participant (2.78%) having their previous CS performed at a peripheral center by junior

surgeons. Regarding gestational age at the time of caesarean hysterectomy, participants were fairly evenly distributed across different gestational age categories. Approximately 25.00% of cases occurred before 34 weeks of gestation, while 38.89% occurred between 34 to 36 weeks. The remaining 36.11% of cases occurred at 37 weeks of gestation or beyond.

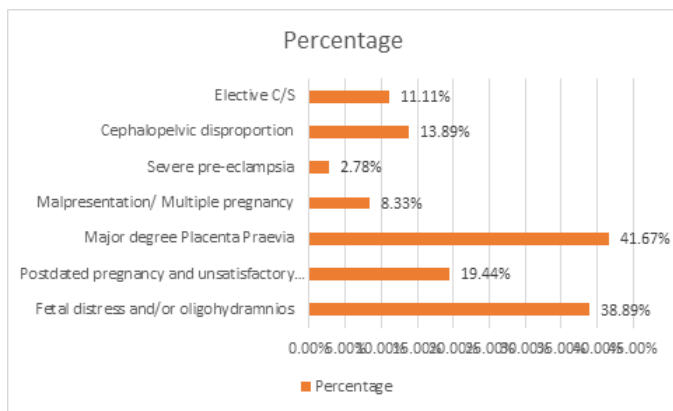


Figure 2: Distribution of participants by indication of cesarean section (N=36)

[Figure 2] illustrates the distribution of participants based on the indications for cesarean section (CS) among the 36 cases of caesarean hysterectomy analyzed in our study. The most common indication for CS among the participants was major degree placenta previa, accounting for 41.67% of cases. Following closely behind, fetal distress and/or oligohydramnios constituted 38.89% of indications. Postdated pregnancy and unsatisfactory progress of labor were the reasons for CS in 19.44% of cases. Other indications included cephalopelvic disproportion (13.89%), malpresentation/multiple pregnancy (8.33%), severe pre-eclampsia (2.78%), and elective CS (11.11%). It's worth noting that participants may

have had more than one indication for cesarean section.

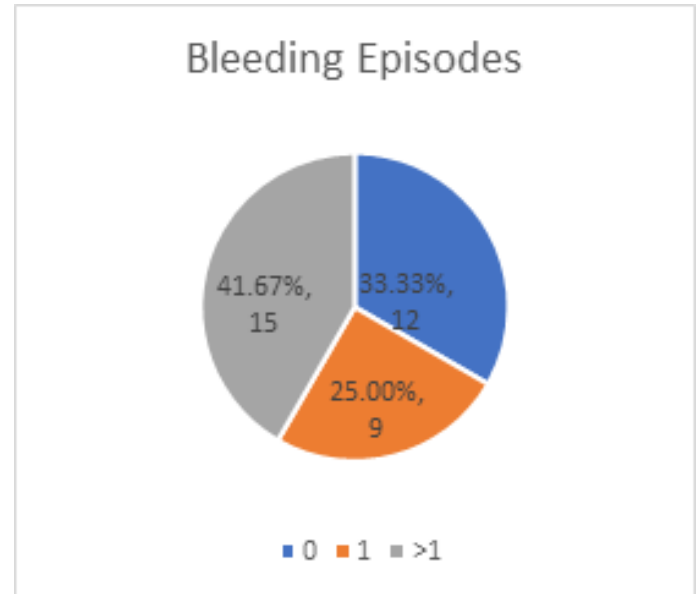


Figure 3: Distribution of preoperative bleeding episodes among the participants (N=36)

[Figure 3] displays the distribution of preoperative bleeding episodes among the participants who underwent caesarean hysterectomy in our study, with a total sample size of 36 individuals. Of the participants, 33.33% experienced no preoperative bleeding episodes prior to undergoing caesarean hysterectomy. A quarter of the participants (25.00%) encountered a single preoperative bleeding episode. The majority of participants, comprising 41.67%, reported experiencing more than one preoperative bleeding episode before the procedure.

[Table 4] presents the distribution of preoperative placental characteristics among the participants who underwent caesarean hysterectomy in our study, with a total sample size of 36 individuals. Regarding placental



presentation, the majority of participants (80.56%) had a cephalic presentation, while a smaller proportion (19.44%) had a malpresentation. In terms of placental typing, the most common type observed was central placenta previa, which accounted for 72.22% of cases. Anterior placenta previa was less frequent, representing 11.11% of cases. Regarding placental pathology, participants exhibited various degrees of placental invasion disorders. Accreta was the most common, observed in 47.22% of cases, followed by percreta, present in 41.67% of cases. Increta was the least common, identified in 11.11% of cases.

[Table 5] provides an overview of the distribution of participants according to the pattern of per-operative complications observed among the 36 cases of caesarean hysterectomy analyzed in our study. The most prevalent per-operative complication was massive obstetric hemorrhage, which affected all participants, constituting 100.00% of cases. This underscores the significant risk of hemorrhage associated with caesarean hysterectomy procedures. Additionally, all participants required a massive blood transfusion of more than four units, further emphasizing the severity of hemorrhagic complications encountered during the surgical intervention. Bladder injury occurred in 8.33% of cases, indicating an important but relatively less common complication associated with the procedure. A subset of participants (16.67%) experienced hypovolemic shock, highlighting the critical nature of the surgical situation and the challenges in managing hemodynamic instability during the procedure. Disseminated intravascular coagulation (DIC), a severe

clotting disorder, was observed in one participant, representing 2.78% of cases.

[Table 6] presents the distribution of maternal outcomes among the participants who underwent caesarean hysterectomy in our study, with a total sample size of 36 individuals. The majority of participants (86.11%) required blood transfusion, with 31 participants receiving less than five units of blood. A smaller proportion (11.11%) received between 5 to 8 units, while only one participant (2.78%) required more than 8 units of blood transfusion. Regarding complications related to urinary tract management, six participants (16.67%) experienced prolonged catheterization, and one participant (2.78%) required suprapubic cystostomy. Severe complications such as disseminated intravascular coagulation (DIC), renal failure, and multi-organ failure were each observed in one participant (2.78% each), highlighting the serious consequences associated with caesarean hysterectomy procedures. Six participants (16.67%) required support in the intensive care unit (ICU), indicating the need for close monitoring and specialized care postoperatively. Other complications included wound infections in two participants (5.56%), irreversible hypovolemic shock in one participant (2.78%), and unfortunately, one participant (2.78%) succumbed to the complications and passed away.

[Table 7] displays the distribution of neonatal outcomes among the participants whose mothers underwent caesarean hysterectomy in our study, with a total sample size of 36 individuals. Among the neonates, 13.89% were stillborn, indicating a tragic outcome in a subset of cases. Additionally, one neonate experienced



early neonatal death, representing 2.78% of cases. On a more positive note, the majority of neonates (83.33%) survived the perinatal

period, underscoring a favorable outcome for the majority of newborns delivered via caesarean hysterectomy.

Table 1: Incidence of cesarean hysterectomy among total deliveries (N=9205)

Total deliveries during study period	Total Number of pregnant women having caesarean hysterectomy	Percentage
9205	36	0.39%

Table 2: Distribution of participants by baseline demographic characteristics (N=36)

Variables	Frequency	Percentage
Age		
20-26	11	30.56%
27-33	18	50.00%
34-40	7	19.44%
Socioeconomic Status		
Low-Income	27	75.00%
Middle Income	9	25.00%
Upper-Income	0	0.00%
Education		
Illiterate	4	11.11%
Up to primary level	7	19.44%
Up to secondary level (SSC)	14	38.89%
Up to higher secondary level (HSC)	10	27.78%
Graduation	1	2.78%

Table 3: Distribution of obstetric characteristics among participants (N=36)

Variables	Frequency	Percentage
Parity		
Parity 1	10	27.78%
Parity 2	17	47.22%
Parity >2	9	25.00%
Previous CS History		
1 CS	14	38.89%
2 CS	18	50.00%
3 CS	4	11.11%
Place of Previous CS		
Peripheral Center and Junior Surgeons	1	2.78%
Tertiary Center and Senior Surgeons	35	97.22%
Gestational Age		



<34	9	25.00%
34-36	14	38.89%
37 or more	13	36.11%

Table 4: Distribution of preoperative placental characteristics among the participants (N=36)

Fetal Findings	Frequency	Percentage
Placental presentation		
Cephalic Presentation	29	80.56%
Mal-presentation	7	19.44%
Placental typing		
Central Placenta Previa	26	72.22%
Anterior Placenta Previa	4	11.11%
Placenta		
Percreta	15	41.67%
Accreta	17	47.22%
Increta	4	11.11%

Table 5: Distribution of participants by pattern of per-operative complications (N=36)

Complications	Frequency	Percentage
Massive obstetric hemorrhage	36	100.00%
Bladder injury	3	8.33%
Need for Massive blood transfusion (>4 unit)	36	100.00%
Hypovolemic shock	6	16.67%
DIC	1	2.78%

Table 6: Distribution of maternal outcome among participants (N=36)

Maternal Outcome	Frequency	Percentage
Blood Transfusion (<5 units)	31	86.11%
Blood Transfusion (5-8 units)	4	11.11%
Blood Transfusion (>8 units)	1	2.78%
Prolong Catheterization	6	16.67%
Suprapubic cystostomy	1	2.78%
DIC	1	2.78%
Renal Failure	1	2.78%
Multi-Organ Failure	1	2.78%
Need for ICU support	6	16.67%
Wound infection	2	5.56%
Irreversible hypovolemic shock	1	2.78%
Death	1	2.78%

Table 7: Distribution of neonatal outcome among the participants (N=36)

Neonatal Outcome	Frequency	Percentage
Still-birth	5	13.89%
Early Neonatal Death	1	2.78%
Survival	30	83.33%

DISCUSSION

In the present study, the incidence of cesarean hysterectomy was observed to be 0.39% among total deliveries and 1.05% among cesarean deliveries. This incidence is somewhat reflective of global trends but shows variations when compared to similar studies in different regions. A tertiary teaching hospital in Northern Jordan reported an incidence of 1.38 per 1000 deliveries, which, while slightly higher, echoes the trends observed in our study.^[12] This comparison raises questions about the influence of regional medical practices and patient profiles on the incidence of cesarean hysterectomy. In contrast, the incidence reported in a Romanian tertiary obstetrics unit was 0.99 per 1000 deliveries, highlighting regional variations and possibly different approaches to managing high-risk pregnancies.^[13] The demographic profile in our study, with a majority of participants in the 27-33 age bracket and belonging predominantly to the low-income group, is comparable to findings in other regions, such as Saudi Arabia. This similarity suggests common risk factors and social determinants that contribute to the need for cesarean hysterectomy across varied geographic and economic contexts.^[14] The high rate of preoperative bleeding episodes (41.67%) and central placenta previa (72.22%) in our study is a critical finding, aligning with other studies that emphasize the risks of antepartum hemorrhage in patients with placenta

previa.^[15,16] This emphasizes the importance of careful monitoring and management of pregnancies complicated by placenta previa to minimize the risk of severe hemorrhage and the potential need for cesarean hysterectomy. Notably, all participants in our study experienced massive obstetric hemorrhage, necessitating blood transfusions in 86.11% of cases. This high transfusion requirement underscores the severity of hemorrhagic complications associated with cesarean hysterectomy. A study evaluating the use of prophylactic abdominal aortic balloon occlusion found that it could significantly reduce hemorrhage and the need for blood transfusions in cases of placenta accreta, a finding that could have implications for managing similar cases in future.^[17] The prevalence of severe complications in our study, such as DIC, renal failure, and multi-organ failure, each observed in 2.78% of cases, reflects the high-risk nature of cesarean hysterectomy procedures. In comparison, a systematic review and meta-analysis reported lower rates of severe complications like DIC in the abdominal aortic balloon occlusion group, indicating the potential for intervention strategies to mitigate such risks.^[17] Additionally, the neonatal outcomes observed in our study, with a stillbirth rate of 13.89% and early neonatal death rate of 2.78%, highlight the broader impact of cesarean hysterectomy on perinatal outcomes. These rates are particularly significant when considering the overall context of maternal and

neonatal health in cesarean hysterectomy cases. In essence, the findings of our study add to the growing body of literature on cesarean hysterectomy, offering insights into its incidence, demographics, clinical features, and outcomes. The comparative analysis with existing studies enhances our understanding of the procedure's impact in different healthcare settings and helps in identifying key areas for improvement in clinical practice and patient management.

Limitations of The Study

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

CONCLUSIONS

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