

RESEARCH ARTICLE

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A Ten-Year Experience of Caesarean Hysterectomy at a Tertiary Hospital in the Niger-Delta Region of Nigeria

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Submitted: 17th October 2025

Accepted: 12th March 2026

Published: 30th September 2026

[ID](#): Orcid ID

Abstract

Objective: Caesarean hysterectomy (CH), the surgical removal of the uterus, is performed at the time of delivery. It is usually thought of as life-saving and carried out as a last resort in uncontrollable life-threatening obstetric haemorrhage with a decisive impact on future fertility. This study aims to determine the incidence, indications, risk factors, and complications of caesarean hysterectomy in Delta State University Teaching Hospital (DELSUTH), Oghara.

Methods: The study was a ten-year retrospective review of cases of caesarean hysterectomy performed and managed between January 1, 2013 and December 31, 2022, at the Department of Obstetrics and Gynaecology of Delta State University Teaching Hospital, Oghara. The completed data collection proforma were collated, coded and entered into the computer using the statistical package for social science (SPSS) computer software version 22.

Results: CH accounted for 1.36% of the major obstetric procedures. The majority of the patients who had CH were between 30 and 39 years (76.0%). The majority of them were also multipara (64.0%). Placenta previa (60.0%) was the most common indication for CH. Anaemia (68.0%) was the most common morbidity, followed by wound sepsis (20.0%).

Conclusion: Obstetric haemorrhage is associated with significant morbidity and mortality. CH is a life-saving procedure that can significantly reduce the maternal morbidity and mortality associated with Postpartum haemorrhage (PPH) if promptly applied.

Keywords: Caesarean hysterectomy, haemorrhage, Placenta accreta, Peripartum hysterectomy, Placenta Previa, Vaginal deliveries

Plain English Summary

This study determined the incidence, indications, and complications of caesarean hysterectomy (CH) over 10 years at Delta State University Teaching Hospital, Oghara. CH is usually done when other surgical methods have failed to prevent uncontrollable life-threatening obstetric haemorrhage. The main findings were that the incidence of CH was 1.36%. Most of them were also multiparous ladies, with placenta previa being the most common indication for CH, and anaemia was the most common complication. The review concluded that obstetric haemorrhage was associated with

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significant morbidity and mortality. CH is a life-saving procedure that can significantly reduce the maternal morbidity and mortality associated with PPH if promptly applied.

Introduction

CH, also known as peripartum hysterectomy or Obstetric hysterectomy, is performed during caesarean delivery or within six weeks after delivery (1, 2). Peripartum hysterectomy is usually done when other surgical methods have failed to prevent uncontrollable life-threatening obstetric haemorrhage (3, 4). This is paramount because it serves as a life-saving procedure for the patients (5). Primary postpartum haemorrhage presently still contributes significantly to maternal morbidity and mortality throughout the world, especially in the developing world (2, 6). The global incidence of emergency peripartum hysterectomy is expected to rise as a result of increasing rates of caesarean delivery and, consequently, placenta accreta spectrum in pregnancies after a previous caesarean delivery (7).

The history of CH started in the mid-1700s, and during this period, laboratory animals were used in surgical experiments (8). The first successful CH was carried out in the United States in 1869. Immediately thereafter, Eduardo Porro of Milan performed the first planned CH in 1871, in which both the infant and the mother survived. As a mark of memory, the procedure is often referred to as the 'Porro' operation (8). The rate of CH varies widely around the world (9). In high-income countries, less than one in 1000 deliveries is complicated by CH, whereas in Nigeria and Pakistan, the incidence is 4 and 11 per 1000 deliveries, respectively (10). The rate of emergency peripartum hysterectomy has been increasing over time due to the increasing incidence of previous surgeries (11). The primary risk factor for CH is haemorrhage, most associated with uterine rupture, retained placenta, morbidly adherent placenta or uterine atony (10). Other risk factors include placenta praevia, placental abruption, uterine infection, repeat caesarean section, increasing parity, increasing maternal age and obesity (1, 12). Recent studies have shown that the most common indications for CH are uterine atony and abnormal placentation, which include placenta previa and morbidly adherent placenta (3, 13). Gynaecological indications for peripartum hysterectomy include sterilisation and cancer (12).

CH hampers future fertility (3). However, there are other intraoperative complications such as blood loss and need for transfusion, bladder injury, ureteral injury, intestinal injury, vascular injury, and other operative injuries; perioperative surgical complications such as reoperation, postoperative

haemorrhage, wound complication, venous thromboembolism; and postoperative medical complications (cardiovascular, pulmonary, gastrointestinal, renal, infectious) (2). Peripartum hysterectomy is also associated with increased mortality, primarily due to haemorrhage, renal failure or sepsis (8). There has been an evolution in the incidence, indications and outcomes of CH over the years, which may have been influenced by changes in the pattern of morbidities, as well as new advances in the approach to medical and surgical interventions (12). There is, therefore, a continued need for research in this area of study. Studies regarding CH are limited, and no such study has been conducted in our centre, which serves as a major referral centre in our region, hence the need for this study. This study aimed to review the incidence, risk factors and outcome of CH in DELSUTH over a ten-year period.

Methods

Study Design and Setting

This was a ten-year retrospective study of cases of CH performed and managed between January 1, 2013 and December 31, 2022, at the Department of Obstetrics and Gynaecology of Delta State University Teaching Hospital, Oghara. Delta State University Teaching Hospital is located in Oghara town in Delta State, in the Niger Delta region of Nigeria. It is a tertiary hospital that consists of highly specialised teams in all the various specialities of clinical practice.

Inclusion Criteria

All patients who had a caesarean CH in DELSUTH within the period under review were included.

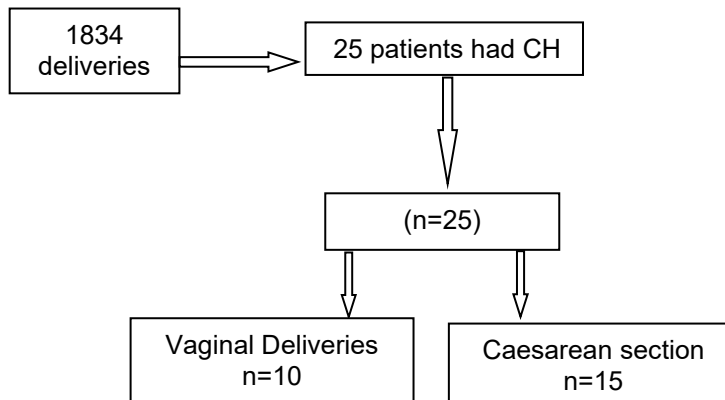
Data Collection

Case notes of patients who had a CH at the Delta State University Teaching Hospital were obtained from the medical record department and studied. Labour ward and Emergency unit admission registers, as well as theatre records, were also studied and analysed. Information was retrieved with the aid of a data collection form. These include age, parity, level of education, route of delivery, indications for CS, intra & post-operative complications, as well as fetal outcomes. The completed data collection proforma were collated, coded and entered into the computer using the statistical package for social science (SPSS) computer software version 22. The data were analysed, and the results were presented in figures

and tables. In this study, a packed cell volume (PCV) of less than 30% was regarded as anaemia (14).

Results

Flow Chart



There were 1834 total deliveries during this study period. Under review, 25 patients had CH, giving a prevalence of 1.36%.

The socio-demographic and obstetrics characteristics of the study participants showed

that the mean age of the participants was 34.2 ± 4.22 years, with a modal age group of 30-39 years (76.0%), with most being multiparous (64.0%). Table 1

Table 1: Age distribution and Parity of the participants.

Characteristics		Frequencies (n=25)	Percentages (%)
Age (years)	20-29	4	16.0
	30-39	19	76.0
	40-49	2	8.0
	Mean $\pm$ SD	34.2 ± 4.22	
Parity	Nullipara	1	4.0
	Primipara	2	8.0
	Multipara	16	64.0
	Grand multipara	6	24.0

Table 2 shows that various modes of delivery were used among the study participants, with most having Emergency Caesarean Section (44.0%),

which was closely followed by vaginal delivery, accounting for 40%.

Table 2: Mode of delivery among participants

Mode of Delivery	Frequencies (n=25)	Percentages (%)
Vaginal Delivery	10	40.0
Emergency Caesarean Section	11	44.0
Elective Caesarean Section	4	16.0

Table 3 shows that various indications for hysterectomy among the study participants with Placenta previa (60.0%) account for the major

reason. Uterine rupture, morbidly adherent placenta and postpartum haemorrhage accounted for 12% respectively.

Table 3 Indications for CH

Indications for CS	Frequencies (n=25)	Percentages (%)
Placenta Previa	15	60.0

Uterine Rupture	3	12.0
Morbidly Adherent Placenta	3	12.0
Postpartum haemorrhage	4	16.0

Anaemia accounted for most complications (68%) in the study participants. This was followed by wound sepsis, accounting for 20% of the study

participants. Most of the babies (72%) were delivered alive, 8% of these had early neonatal death. Table 4

Table 4: Complications observed among participants.

Complications	Frequencies (n = 25)	Percentages (%)
Anaemia	17	68.0
Wound Sepsis	5	20.0
Prolonged Hospital stay	2	8.0
Urinary Bladder Injury	1	4.0
Foetal Outcome		
Alive	16	64.0
Fresh Stillbirth	7	28.0
Early Neonatal Death	2	8.0

The pie chart shows that most of the patients had a subtotal hysterectomy, accounting for 88% of the studied population, while 12% had a total

hysterectomy. There was no maternal mortality recorded.

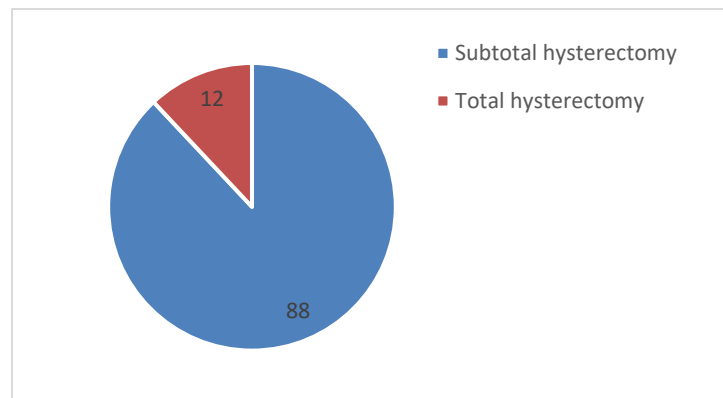


Figure 1: Pie chart showing the types of hysterectomy among the study participants

Discussion

Despite advances in medicine and surgery, postpartum haemorrhage remains one of the leading causes of peripartum hysterectomy and is usually considered the last resort in the management of complications of deliveries. In this study, CH accounted for 1.36% of major obstetric surgeries during the 10 years of this study. This finding was higher than the study reported by Mahfuza et al in Saudi Arabia and Okogbenin et al (6) in Nigeria, they reported a lower incidence of 0.04 and 0.226% respectively, while other studies reported a high incidence of 3.5% by Jakobsson et al (15) in Finland and 5.2% by Kallianides et al (16) in the Netherlands, 2.2% by Shittu et al in northern Nigeria. Delta State University Teaching Hospital is a referral centre for hospitals within and outside the state. Most of the patients who had a hysterectomy

were aged 30 – 39 years, which accounted for 76% of the studied population. This is similar to Begum et al (17), who reported 31 – 40 years, which accounted for 42%, and Shittu et al (2) reported 30 – 39 years, accounting for 56.5% of their studied population. On the contrary, a study done by Huque et al (13) reported that aged ranged with the highest CH was between 20 – 29 years, and these patients accounted for 52%. Most women in this age group, 30 – 39 years, belong to the reproductive group; most of them would have had previous uterine surgeries, such as myomectomy or caesarean section, that may predispose patients to hysterectomy. Also, the reluctance of the obstetrician to perform a hysterectomy in younger women and higher order gestations is common in this age group, thus predisposing them to primary postpartum haemorrhage leading to hysterectomy.

Most of the women in this study were multiparous, accounting for 64.0%. Similar findings were reported by Okagua et al. (12), who reported that 41.7% of the women in their study were multiparous. Contrarily, findings from a study done by Ibrahim and Shittu et al showed that most of the participants were grand multiparous ladies (2, 3). Most of the patients in this study had emergency caesarean section, and these accounted for 44.0%, which was closely followed by women who had vaginal delivery, accounting for 40.0%. This finding is similar to studies done by Okagua et al (12) and Wani et al (3). However, findings from Huque (13), Begum (17) and Stivanello (18) showed that vaginal delivery was the route of delivery for most of the subjects. Emergency caesarean section was the most common route of delivery because of the various indications that patients presented with, which include undiagnosed placenta previa, uterine rupture, resulting in severe haemorrhage and CH subsequently.

The most common indication for CH was placenta previa (60%). Similarly, studies like Kallianidis et al and Choy et al showed that placenta pathology, like previa and accrete were the most common indications for CH (16, 19). However, Okogbenin et al (6) reported uterine rupture as the most common indication for CH, while Kathapalia et al (4) reported atonic PPH. Placenta previa is a condition in which the placenta is wholly or partially located in the lower uterine segment. Currently, delivery of the patients is by caesarean section because it can be associated with torrential bleeding, which is made worse when the parturient has had uterine surgeries in the past, hence predisposing to varying degrees of morbidly adherent placenta with resultant risk of haemorrhage.

The most common (68.0%) complication in this study was anaemia. This was similar to findings by Kallianidis et al and Okagua et al (12, 16). They all reported anaemia as the common complication following CH. However, Ibrahim and Kathpalis et al reported contrary findings (3, 16). In their study, coagulopathy and febrile illness were the most common complications reported, respectively (3, 4). Most of the babies 18(72%) were delivered alive, but 2(8%) babies had early neonatal death. This was similar to studies done by Okagua et al. (12) where 70% of the babies were delivered alive. The good foetal outcome could be attributed to regular antenatal care visits by those who are booked and prompt emergency response for those who were referred from neighbouring facilities.

The majority of the patients (88.0%) had a subtotal hysterectomy, and this was similar to the report by

Okogbenin (43.5%) and Shittu (84.8%) in Nigeria (2, 6) Subtotal hysterectomy, being a two-pedicle surgery, is mostly performed because it's faster and easier to perform when compared to a three-pedicle total hysterectomy, thereby preventing the risk of excessive blood loss. If bleeding continues after a subtotal hysterectomy in patients with placenta previa, other measures, including total abdominal hysterectomy, should be attempted in the hands of those who are well-trained.

Recommendation

A primary caesarean section should only be performed when the benefits outweigh the risks. Early antenatal registration for women at risk is important, and the attendance of senior obstetric staff during the repeat caesarean deliveries is necessary to improve outcomes.

Study Limitation

The main limitation was the retrospective study. Some case notes had missing information.

Conclusion

Obstetric haemorrhage is associated with significant morbidity and mortality. CH is a life-saving procedure that can significantly reduce the maternal morbidity and mortality associated with PPH if promptly applied.

Declarations

Ethics Approval and Consent to Participate

Permission to access hospital records and data for this study was obtained from the hospital management, while ethical approval was obtained from the hospital's Health Research and Ethics Committee. Approval Number: HREC/PAN/2024/029/0654.

Consent for Publication

All authors gave consent for publication of the work under the Creative Commons Attribution-Non-Commercial 4.0 license.

Availability of data and materials

All essential data supporting the findings of this case are available within the article. Additional data are available upon request from the corresponding author.

Conflict of interest

There was no conflict of interest to declare

Funding

No external funding.

Authors' contributions

AAE, OkO, OmO were involved in study conception and revising the manuscript for intellectual content. AAE, OI and OF were involved in study design and data collection/acquisition, while UC was responsible for statistical analysis. All authors gave final approval for publication.

Acknowledgements

Much thanks to the consultants, residents and staff of the Obstetrics and Gynaecology department in Delta State University Teaching Hospital, Oghara and Central Hospital, Warri, Nigeria, for their assistance during this research.

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