

# Caesarean Hysterectomy Incidence And Outcome In A Tertiary Hospital In Southern Nigeria: A 2 Years Review

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## Abstract

### Background

Caesarean hysterectomy involves the removal of the uterus during planned (elective) or emergency caesarean delivery in order to prevent maternal mortality. Factors such as the clinical state of the patient, surgery duration, regulation of haemostasis, reduction in blood loss, haemorrhage and reduction of potential postoperative adverse effects, are considered in while choosing the type of caesarean hysterectomy.

### Objectives

To determine the incidence, indications, type of surgery, complications and outcome of patients that had caesarean hysterectomy within the review period at the University of Port Harcourt Teaching Hospital.

### Method

A retrospective study for all patients that were admitted within the 2 years review period from January 2019 - December 2020. Patients' biodata, indication for obstetric admission, past obstetric history, surgical intervention, management protocols and outcomes, were retrieved from the patients' case files and appropriately recorded in a spreadsheet. Statistical analyses were done using statistical packages for social sciences (SPSS) version 22.

### Results

29 cases of caesarean hysterectomy from 3022 deliveries were recorded in the review period. This showed an incidence rate of 0.96% which is 9.6/1000 births. The most frequently occurring ages were 35 and 36 years with 13.79% respectively, with mean age of 33 years  $\pm$  4.5 years. 51% of the women had secondary level of education, 27.59% had parity of 3, 41.38% were unbooked and 37.93% were booked. 27.59% of the women were admitted due to uterine rupture, followed by abruptio placenta (13.79%), while surgical history showed that 55.17% had not had any surgery before. Uterine rupture indicated 37.93% for C/S, while abruptio placenta indicated 13.79% as well. Mode of delivery showed that 44.83% had exploratory lap, while 13.79% had emergency C/S and emergency repeat C/S respectively. Uterine rupture was the most common indication in 48.28% for caesarean hysterectomy, and the most common puerperal complication after caesarean hysterectomy was anaemia (37.93%). 17(59%) had subtotal hysterectomy, while 12 (41%) had total hysterectomy. Maternal outcome showed that 28 (96.55%) lived and only 1 died, while fetal outcome showed that 12 (41.38%) babies lived, while 17 (58.62%) died

### Conclusion

The high incidence of Caesarean hysterectomy in this study was quite high. Although uterine rupture and anaemia were the most common for caesarean hysterectomy and puerperal complication respectively, the rate of maternal mortality was quite low while the fetal mortality was high. Thus the facility needs to improve on its special care baby unit in order to forestall such fetal mortality.

**Keywords:** Caesarean, hysterectomy, uterine rupture, subtotal hysterectomy, total hysterectomy, incidence

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Date of Submission: 22-02-2024

Date of Acceptance: 02-03-2024

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## I. Introduction

Caesarean hysterectomy was first proposed by Joseph Cavallini in 1768, after he had successfully carried out the procedure on laboratory animals and hence recommended it for gravid patients (1). Caesarean hysterectomy in many instances, involves the removal of the uterus during planned (elective) or emergency caesarean delivery in order to prevent maternal mortality (2). There is however, the removal of the uterus after vaginal delivery due to postpartum hemorrhage which is termed postpartum hysterectomy (3). In majority of cases peripartum hysterectomy is always an emergency intervention aimed at preventing death after caesarean delivery (4). Although caesarean hysterectomy had become a regular surgical procedure, it could lead to serious morbidity and eventual mortality when carried out in poor health facility with infrastructural and equipment deficit or by unskilled personnel (2).

Comparatively to vaginal delivery, caesarean delivery is implicated with the effect of short and long term haemorrhage (5). Though there are planned and emergency procedures for caesarean hysterectomy, the most frequent indications for the surgery include; uncontrolled haemorrhage, placenta accreta, uterine atony and uterine rupture (9). The surgery had also been indicated in patients with coexisting uterine or cervical cancer (10).

Generally, the incidence of obstetric hysterectomy had been reported to be comparatively lower in high income countries than the low and middle income nations (11). In developed countries, incidence rate ranges from 0.2-2.7 per 1000 births, while it is about 2-6 cases per 1000 births in developing countries (12). As reported by Yalinkaya et al (13) and Obiechina et al (14) the USA had an incidence rate of 1.2-2.7 per 1000 births, while India and Pakistan had 2.6 and 5.6 per 1000 births respectively. However, lower incidences of 0.2, 0.3 and 1.39 per 1000 births had been reported in Norway, Ireland and Australia respectively (15,16). The incidence of obstetric hysterectomy had been reported in various studies to range between 1.8-5.4 per 1000 births in Nigeria (13,14,17). Conversely, lower incidence rates had been published by other authors, with Alabrah et al (18) and Nwobodo and Nnadi (19) having reported 0.41% and 0.5% at Bayelsa and Sokoto state respectively.

In order to determine the type of caesarean hysterectomy to be performed on the patient, the surgeon must take into cognizance factors such as; the clinical state of the patient, surgery duration, regulation of haemostasis, reduction in blood loss, haemorrhage and reduction of potential postoperative adverse effects (18). In this study we aimed to determine the incidence, indications, type of surgery, complications and outcome of patients that had caesarean hysterectomy within the review period at the University of Port Harcourt Teaching Hospital, River state.

## **II. Materials And Method**

### **Study design**

We conducted a retrospective study for obstetrics patients that were admitted at Obstetrics and Gynaecology department of University of Port Harcourt Teaching Hospital. The study was for 2 years, from January 2019 to December 2020.

### **Methods**

This was a retrospective study for all patients that were admitted within the 2 years review period. Specific information such as bio data, indication for obstetric admission, past obstetric history, surgical intervention, management protocols and outcomes, were retrieved from the patients' case notes and appropriately recorded in a proforma. Statistical analyses were done using statistical packages for social sciences (SPSS) version 22.

## **III. Results**

During the 2 years review period, a total of 29 cases of caesarean hysterectomy from 3022 deliveries were recorded, with year 2019 and 2020 having had 1657 and 1365 deliveries respectively. This showed an incidence rate of 0.96% which is 9.6/1000 births. The result in table 1 showed the demography of the patients. The most frequently occurring ages were 35 and 36 years with 13.79% respectively, while the mean age was 33 years  $\pm$  4.5 years. 51% of the women had secondary level of education, 27.59% had parity of 3, 41.38% were unbooked and 37.93% were booked. The Indication of admission as revealed in Table 2 showed that 27.59% of the women were admitted due to uterine rupture, followed by abruptio placenta (13.79%), while 2 previous caesarean section (C/S), elective repeat C/S and primary PPH were the other frequently occurring indications with 10.34% each.

As revealed in Table 3, surgical history showed that 55.17% had not had any surgery before, while 20.69% and 13.79% had undergone 2 previous C/S and 1 previous C/S respectively. Uterine rupture indicated 37.93% for C/S, while abruptio placenta indicated 13.79% as well. Mode of delivery showed that 44.83% had exploratory lap, while 13.79% had emergency C/S and emergency repeat C/S respectively. Table 4 showed the indications for caesarean hysterectomy, for which uterine rupture was the most common indication in 14 patients (48.28%), followed by primary PPH in 3 patients (10.34%) while Couvelaire uterus, intractable PPH (placenta accreta), intractable primary PPH and placenta accreta were each indicated in 2 patients (6.90%) respectively.

According to Table 5, the most common puerperal complication after caesarean hysterectomy was anaemia (37.93%), followed by 6.90% each with hypertension and puerperal sepsis respectively, while 4 patients (13.79%) had no complications. Table 6 showed the outcome of the patients. Maternal outcome showed that 28(96.55%) of the lived and the only 1(3.45%) death was recorded. Fetal outcome showed that 12 (41.38%) of the babies lived, while 17 (58.62%) deaths were recorded. 51.62% of the women stayed 1-2 weeks in the facility before discharge and the mean duration of hospital stay for all 29 women was 13.13 days. Two types of

caeseraen hysterectomy were performed as revealed in Figure 1. 17(59%) had subtotal hysterectomy, while 12 (41%) had total hysterectomy performed on them.

**Table 1: Demography of patients (n=29)**

Demographic factor	Frequency(n)	Percentage (%)
<b>Age (yrs)</b>		
25	2	6.90
26	1	3.45
27	1	3.45
28	3	10.34
30	2	6.90
32	5	17.24
33	1	3.45
35	4	13.79
36	4	13.79
37	1	3.45
38	1	3.45
39	2	6.90
40	2	6.90
<b>Parity</b>		
1	3	10.34
2	4	13.79
3	8	27.59
4	7	24.14
≥5	7	24.14
<b>Educational level</b>		
Primary	3	10.34
Secondary	15	51.72
Tertiary	11	37.93
<b>Booking status</b>		
Booked	11	37.93
Referred	6	20.69
Unbooked	12	41.38

**Table 2: Indication for admission (n=29)**

Parameters	Frequency	Percentage (%)
2 previous C/S in labour	3	10.34
3 previous C/S in labour	1	3.45
Abruptio Placenta	4	13.79
Elective Repeat C/S section	3	10.34
Fetal distress with background chorioamnionitis	1	3.45
1 previous CS + CPD in Labour	1	3.45
Morbidly adherent placenta with uterine atony	1	3.45
Obstructed labour	1	3.45
Placenta previa	1	3.45
Primary PPH	3	10.34
secondary PPH	1	3.45
Uterine Rupture	8	27.59

*\*C/S-Caesarean section; CPD-Cephalopelvic disproportion;PPH-postpartum haemorrhage*

**Table 3: Obstetrics Parameters (n=29)**

Parameters	Frequency	Percentage (%)
<b>PREVIOUS SURGERIES</b>		
1 Previous C/Section	4	13.79
2 Previous C/Sections	6	20.69
3 Previous C/Sections	2	6.90
Myomectomy	1	3.45
None	16	55.17
<b>INDICATION FOR C/S</b>		
2 Previous C/Sections	3	10.34
3 previous C/Sections	3	10.34
2 Previous Myomectomy	1	3.45
Abruptio placenta	4	13.79
CPD in labour	1	3.45
fetal distress	1	3.45
Intractable Primary PPH	2	6.90
Placenta previa	1	3.45
Placenta previa and previous myomectomy	1	3.45
Uterine Rupture	11	37.93
None	1	3.45
<b>MODE OF DELIVERY</b>		
Elective C/Section	3	10.34
Elective repeat C/Section	2	6.90
Emergency C/Section	4	13.79
Emergency repeat C/Section	4	13.79
Exploratory lap	13	44.83
Spontaneous Vaginal Delivery (SVD)	3	10.34

\*C/S-Caesarean section; CPD-Cephalopelvic disproportion; PPH-postpartum haemorrhage

**Table 4: Indication for Caesarean hysterectomy (n=29)**

Parameters	Frequency	Percentage (%)
Couvlaire Uterus	2	6.90
Intractable Haemorrhage	1	3.45
Intractable intraperitoneal Haemorrhage	1	3.45
Intractable PPH (placenta Accreta)	2	6.90
Intractable Primary PPH	2	6.90
Intractable Secondary PPH	1	3.45
Morbidly adherent placenta with uterine atony	1	3.45
Placenta Accreta	2	6.90
Primary PPH	3	10.34
Uterine Rupture	14	48.28

**Table 5: Puerperal Complications (n=29)**

Parameters	Frequency	Percentage (%)
Anaemia	11	37.93
Anaemia and sepsis	1	3.45
Hypertension	2	6.90
Hypertension and wound sepsis	1	3.45
Hypertension + Puerperal sepsis with septicaemia	1	3.45
Hypertension + Intestinal obstruction and puerperal sepsis	1	3.45
Puerperal sepsis	2	6.90
Puerperal and wound sepsis	1	3.45
Puerperal sepsis with severe Anaemia	1	3.45
Puerperal sepsis + wound dehiscence	1	3.45

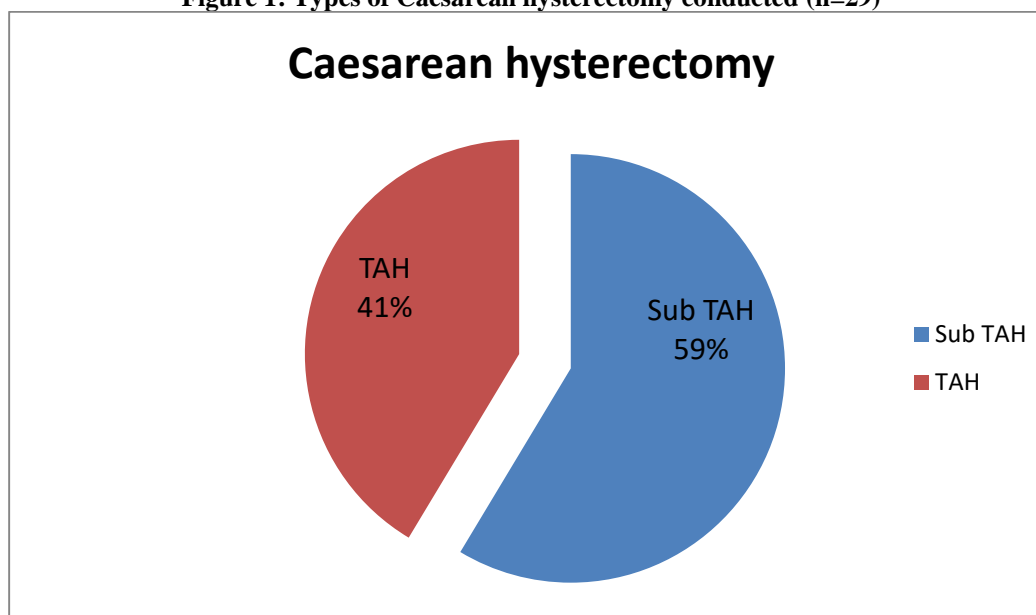
Wound dehiscence	1	3.45
Wound sepsis	1	3.45
Wound sepsis and Anaemia	1	3.45
None	4	13.79

**Table 6: Patients' outcome and deliveries (n=29)**

Parameters	Frequency	Percentage (%)
<b>Duration of hospital admission</b>		
<1 week	6	20.69
1-2 weeks	15	51.72
2-3 weeks	2	6.90
≥3 weeks	6	20.69
<b>Maternal outcome</b>		
Alive	28	96.55
Dead	1	3.45
<b>Fetal outcome</b>		
Alive	12	41.38
Dead	17	58.62

*\*Mean length of hospital admission = 13.13 days*

**Figure 1: Types of Caesarean hysterectomy conducted (n=29)**



*\*TAH- Total abdominal hysterectomy; SubTAH- Subtotal abdominal hysterectomy*

#### IV. Discussion

The incidence of caesarean hysterectomy had been subjected to variations across different regions due to the factors such as population of patients, pattern of practice and availability of proper health facilities (20). In this study, we recorded a high incidence rate of 0.96% (9.6/1000 births) for which 29 women underwent caesarean hysterectomy. Comparatively, the incidence of caesarean hysterectomy in this study is higher than the 1.58/1000 births in 5 years as reported by Dankhonsakul and Aswakul (5) and the 3.8/1000 births in 10 years as documented by Abdulrahim et al (2) in their various studies. Furthermore, the rate is higher than the 4.1/1000 births reported by Alabrah et al (18) in their study in Bayelsa, a neighboring state to this study center. In this study we acknowledge a previous study over 10 years ago that looked in obstetric hysterectomy as a surgical intervention in the management of obstetric haemorrhage within the proposed study site. Orazulike et al (12) reported 5.3 per 1000 births with noted conclusion. Although good health care facility coupled with proper antenatal services during pregnancy would assist the early detection of any impeding indications of caesarean hysterectomy, however the high rate of caesarean hysterectomy in this study could be attributed to the cumulative 62.07% for unbooked and referred pregnant women to the facility. A major contributing factor was

the emergence of the corona virus in the second year of review (2020), as this global pandemic affected the health care delivery at the tertiary facility.

The mean age obtained in this study was 33 years  $\pm$  4.5years, which is in agreement with the study of Abdulrahim et al (2) who reported mean age of 33.5 years. Similarly, Nwobodo and Nnadi (19) had previously reported that Obstetric hysterectomy is common among women of 31-35 years, and this correlated with the findings because 10 (34.48%) women were under this age category. This result further emphasizes that most women in their 30's undergo Caesarean hysterectomy than other age groups.

Furthermore the association between parity and hysterectomy had been reported by various authors. As seen in this study, women with parity of 3 were 8 ( 27.59%), women with 4 parity were 7 (27.14%) and women with parity  $\geq$  5 were also 7 (27.14%), which collectively reflects that women that had previous multiple parity especially 3 and above, are at risk of having caesarean hysterectomy done. This is in agreement with the work of Nwobodo and Nnadi (19); Dankhonsakul and Aswakul (5) and Alabrah et al (18). Although Orazulike et al (12) had previously reported that woman with 1-2 parity were most common with obstetric hysterectomy.

Previous surgical history showed that 12 (41.38%) of the women had at least 1-3 caesarean section in the past, while 16 (55.17%) had no surgical history. Furthermore, aside uterine rupture (37.93%) and abruptio placenta (13.79%), 6 patients with previous caesarean sections were still indicated for caesarean delivery. This showed that previous caesarean sections predisposes women to surgical procedure such as caesarean hysterectomy upon subsequent deliveries.

In this study, uterine rupture was the most common Indication for caesarean hysterectomy as 14 women (48.28%) suffered the condition. This was expected, as the same uterine rupture was the major reason why 11 women (37.93%) had been indicated for caesarean section at the onset. This correlated with the report of Alabrah et al (18), Khan et al (21), Nwobodo and Nnadi (19) and Orazulike et al (12) who all reported uterine rupture as the major cause of obstetric hysterectomy. The second most common Indication was primary postpartum haemorrhage (10.34%), while other indications included Couvelaire uterus, intractable PPH (placenta accreta), intractable primary PPH and placenta accreta were in 6.90% each respectively. Although several authors such as Dankhonsakul and Aswakul (5); Abdulrahim et al (2); Knight et al (22) and Machado (23) had reported placenta-related conditions such as placenta adherence, placenta accreta, placenta praevia as major indications for Caesarean and peripartum hysterectomies, these conditions were however not common in this study.

In this study, 17 (59%) of the women had Subtotal abdominal hysterectomy, while 12 (41%) had total hysterectomy. Although there are factors that informs the decision to perform either of the caesarean hysterectomy technique, the result there in probably shows that subtotal abdominal hysterectomy is much more preferable. This result is similar to the work of Orazulike et al (12) who reported 61% subtotal abdominal hysterectomy and 39% total abdominal hysterectomy for patients who underwent Obstetric hysterectomy at the University of Port Harcourt Teaching Hospital. Contrastly, Abdulrahim et al (2) had reported that as high as 76% of the patients at a tertiary facility in Saudi Arabia underwent total abdominal hysterectomy during the caesarean hysterectomy surgery.

The most common puerperal complication was anaemia in 11 (37.93%) of the women. This is similar to the studies of Orazulike et al (12); Alabrah et al (18) and Nwobodo and Nnadi (19), who had reported anaemia as the most frequent complication after obstetric hysterectomy. Thus it is advisable to have plans that would manage anaemic conditions during and after caesarean hysterectomy.

There was one maternal death in this study (3.45% maternal death), although 10 (34.48%) of the women were admitted to the ICU. The single maternal death occurred in an unbooked woman who had an intrauterine fetal death (IUFD) before delivery and was verbally referred with an uterine rupture and was in shock. Mortality occurred despite the presence of an adequate hospital care in the intensive care unit and the overall professional care before her caesarean hysterectomy was commenced. A 58.62% fetal death rate was recorded which was high, as 17 babies died. Although the mean duration of hospital stay in this study was 13.13 days, the low maternal mortality rate could be attributed to the successful rate of the caesarean hysterectomy received in the Obstetric wards for both booked and unbooked women and caliber of surgeons experienced in this surgery as a safe intervention to do as of when necessary.

## **V. Conclusion**

The high incidence of Caesarean hysterectomy in this study was quite high and this could be due to the peculiarity of the years under review especially with the COVID era. Although uterine rupture and anaemia were the most common for caesarean hysterectomy and puerperal complication respectively, the rate of maternal mortality was quite low while the fetal mortality was high. Thus the facility needs to improve on its special care baby unit in order to forestall such fetal mortality.

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