

# Emergency Peripartum Hysterectomy in the Far North Region of Cameroon: Prevalence, Indications, and Maternal Outcomes in a Five-Year Retrospective Study

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## Abstract

**Background:** Emergency peripartum hysterectomy (EPH) is a life-saving surgical procedure performed when severe obstetric complications cannot be controlled by conservative measures. Although the incidence of this procedure has declined in high-income countries, it remains relatively frequent in low-resource settings and is associated with substantial maternal and perinatal morbidity and mortality. **Objective:** To determine the prevalence, indications, and maternal outcomes of emergency peripartum hysterectomy at Maroua Regional Hospital in the Far North Region of Cameroon. **Methods:** We conducted a retrospective descriptive cross-sectional study at Maroua Regional Hospital between January 2020 and December 2024. All women who underwent emergency peripartum hysterectomy during pregnancy, delivery, or the postpartum period were eligible. Data were retrieved from delivery registers, operative reports, and medical records and included socio-demographic characteristics, obstetric factors, surgical indications, and maternal outcomes. **Results:** During the study period, 12,580 deliveries were recorded, among which 73 emergency peripartum hysterectomies were identified, corresponding to a prevalence of 5.8 per 1000 deliveries. However, complete medical records were available for 43 women, and these cases were in-

cluded in the detailed analysis. The median age was 30 years, and most women were multiparous. Uterine rupture was the leading indication for hysterectomy (67.4%), followed by uterine atony (16.3%). Subtotal hysterectomy was the most frequently performed procedure (72.1%). Blood transfusion was required in 74.4% of patients. Postoperative complications were recorded in 38% of patients, mainly surgical site infection and postoperative anemia. The maternal mortality rate was 16.3%. **Conclusion:** Emergency peripartum hysterectomy remains relatively frequent in the Far North Region of Cameroon and is associated with significant maternal morbidity and mortality. Strengthening referral systems, improving intrapartum monitoring, and ensuring timely access to comprehensive emergency obstetric care are essential to reduce preventable maternal deaths.

### Keywords

Emergency Peripartum Hysterectomy, Uterine Rupture, Maternal Mortality, Postpartum Hemorrhage, Cameroon

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## 1. Introduction

Severe obstetric complications remain a major cause of maternal morbidity and mortality worldwide, particularly in low- and middle-income countries where access to timely emergency obstetric care remains limited [1] [2]. Postpartum hemorrhage is the leading direct cause of maternal death globally and accounts for a substantial proportion of preventable maternal deaths in sub-Saharan Africa [3]. Emergency peripartum hysterectomy (EPH) represents a life-saving surgical intervention performed when conservative measures fail to control severe obstetric hemorrhage [4]. Although the incidence of EPH has declined in high-income countries due to improvements in obstetric care and early identification of high-risk pregnancies, it remains a rare but essential life-saving intervention in cases of severe obstetric hemorrhage [5], while the procedure remains relatively frequent in many resource-limited settings [6]. The indications for emergency peripartum hysterectomy differ between regions. In high-income countries, placenta accreta spectrum disorders have become the leading indication, largely due to the rising rates of cesarean section [1]. In contrast, uterine rupture and uncontrolled postpartum hemorrhage remain the most common causes in many African countries, reflecting persistent challenges related to obstructed labor, delayed referral, and inadequate monitoring of labor [7]-[10]. In Cameroon, maternal mortality remains high despite ongoing efforts to improve maternal health services, and uterine rupture continues to be a major contributor to severe maternal complications [11]. However, data on emergency peripartum hysterectomy in the Far North Region remain scarce. Therefore, the aim of this study was to determine the prevalence, indications, and maternal outcomes of emergency peripartum hysterectomy at Maroua Regional Hospital over a five-year period.

## 2. Methods

This study was conducted at Maroua Regional Hospital, a tertiary referral facility located in the Far North Region of Cameroon that receives obstetric emergencies from several peripheral health facilities in the region. We carried out a retrospective descriptive cross-sectional study covering a five-year period from January 1, 2020, to December 31, 2024. All women who underwent emergency peripartum hysterectomy during pregnancy, delivery, or within the postpartum period at Maroua Regional Hospital were eligible for inclusion. Cases were identified through delivery registers, operating theatre registers, and hospital medical records. Sociodemographic and clinical data were extracted using a standardized data collection form. The variables collected included maternal age, marital status, educational level, parity, history of previous cesarean section, gestational age, referral status, duration of labor, indications for hysterectomy, type of hysterectomy performed, need for blood transfusion, postoperative complications, and maternal outcomes. The prevalence of emergency peripartum hysterectomy was calculated using the total number of deliveries recorded at Maroua Regional Hospital during the study period (12,580 deliveries) as the denominator. Women referred from peripheral facilities who underwent hysterectomy after delivery outside the hospital were included in the clinical analysis but were not included in the denominator used for prevalence estimation. Data were entered and analyzed using Microsoft Excel. Results were presented as frequencies and percentages. Postoperative complications were recorded from patient records. When more than one complication occurred in the same patient, each complication was recorded separately.

## 3. Results

During the study period, 12,580 deliveries were recorded at Maroua Regional Hospital. Among these deliveries, 73 emergency peripartum hysterectomies were identified, corresponding to a prevalence of 5.8 per 1,000 deliveries. However, only 43 medical records contained complete information and were therefore included in the detailed analysis. The remaining files were excluded because of missing or incomplete clinical data, which is a common limitation in retrospective record-based studies.

### 3.1. Sociodemographic Characteristics

The sociodemographic characteristics of the patients are presented in **Table 1**. The median age of the patients was 30 years. Women aged 25 - 34 years and 35 - 44 years each represented 37.2% of the study population. Most patients were married (86%). Regarding occupation, 51.1% of women were housewives, 27.9% worked in the informal sector, 14% were students, and 7% were civil servants. In terms of educational level, 46.5% had primary education, 30.2% had no formal education, 16.3% had secondary education, and 7% had higher education.

**Table 1.** Sociodemographic characteristics of patients (n = 43).

Variables	Number	Percentage (%)
<b>Age Group (Years)</b>		
15 - 24	11	25.6
25 - 34	16	37.2
35 - 44	16	37.2
<b>Marital Status</b>		
Married	37	86.0
Single	6	14.0
<b>Occupation</b>		
Informal sector	12	27.9
Student	6	14.0
Civil servant	3	7.0
Housewife	22	51.1
<b>Level of Education</b>		
No formal education	13	30.2
Primary	20	46.5
Secondary	7	16.3
Higher education	3	7.0

### 3.2. Obstetric and Clinical Characteristics

The obstetric and clinical characteristics are summarized in **Table 2**. Multiparous women represented 65.1% of cases, while 27.9% were grand multiparous and 7% were primiparous. A previous cesarean section was reported in 21% of patients. Regarding gestational age, 81.4% of pregnancies were between 37 and 40 weeks, whereas 18.6% were between 41 and 42 weeks. More than half of the patients (61%) were referred from peripheral health facilities, while 39% were admitted directly. The use of uterotonic agents before admission was reported in 65.1% of cases. Concerning the duration of labor, 53.4% of women experienced labor lasting between 18 and 24 hours, 23.3% had labor lasting 24 hours or more, 18.6% between 12 and 18 hours, and 4.7% less than 12 hours.

**Table 2.** Obstetric and clinical characteristics of patients (n = 43).

Variables	Number	Percentage (%)
<b>Parity</b>		
Primiparous	3	7.0
Multiparous	28	65.1
Grand multiparous	12	27.9

**Continued**

<b>Previous Cesarean Section</b>		
Yes	9	21.0
No	34	79.0
<b>Gestational Age</b>		
37 - 40 weeks	35	81.4
41 - 42 weeks	8	18.6
<b>Referral Status</b>		
Referred from the peripheral facility	26	61.0
Direct admission	17	39.0
<b>Use of Uterotonics before Admission</b>		
Yes	28	65.1
No	15	34.9
<b>Duration of Labor</b>		
<12 hours	2	4.7
12 - 18 hours	8	18.6
18 - 24 hours	23	53.4
≥24 hours	10	23.3

**3.3. Indications, Management and Outcomes**

Before resorting to hysterectomy, conservative measures were attempted whenever possible, including the administration of uterotonics, uterine massage, and fluid resuscitation. However, in cases of uncontrolled hemorrhage or uterine rupture, emergency hysterectomy remained the only life-saving option. The surgical indications, management details, and maternal outcomes are presented in **Table 3**.

**Table 3.** Surgical indications, management, and outcomes.

<b>Variables</b>	<b>Number</b>	<b>Percentage (%)</b>
<b>Indication for Hysterectomy</b>		
Uterine rupture	29	67.4
Uterine atony	7	16.3
Placenta previa/accreta	4	9.3
Other indications	3	7.0
<b>Type of Hysterectomy</b>		
Subtotal hysterectomy	31	72.1
Total hysterectomy	12	27.9

**Continued**

<b>Blood Transfusion</b>		
Yes	32	74.4
No	11	25.6
<b>Postoperative Complications</b>		
Surgical site infection	14	32.6
Anemia	12	28.9
No complication	17	39.5
<b>Maternal Mortality</b>		
Yes	7	16.3
No	36	83.7

As shown, uterine rupture was the leading indication for hysterectomy (67.4%), followed by uterine atony (16.3%), placenta previa or placenta accreta (9.3%), and other indications (7%). Subtotal hysterectomy was performed in 72.1% of cases, while total hysterectomy was performed in 27.9%. Blood transfusion was required in 74.4% of patients. Postoperative complications were recorded in 38% of patients. The most frequent complications were surgical site infection (32.6%) and postoperative anemia (28.9%). Maternal mortality occurred in 16.3% of patients.

Postoperative complications were recorded in 38% of patients. Because some patients experienced more than one complication, the total number of complications exceeds the number of affected patients.

## 4. Discussion

### 4.1. Principal Findings

This study aimed to assess the prevalence, indications, and maternal outcomes of emergency peripartum hysterectomy at Maroua Regional Hospital over a five-year period. The findings show that emergency peripartum hysterectomy remains relatively frequent in this setting, with a prevalence of 5.8 per 1,000 deliveries. Uterine rupture was identified as the leading indication for surgery, and subtotal hysterectomy was the most commonly performed procedure. In addition, postoperative complications were frequent, and maternal mortality remained substantial. These findings highlight the persistent burden of severe obstetric complications and the ongoing challenges in the timely management of obstetric emergencies in resource-limited settings.

### 4.2. Comparison with Other Studies

The prevalence observed in this study is higher than that reported in most high-income countries, where the incidence of emergency peripartum hysterectomy

generally ranges between 0.2 and 1.5 per 1,000 deliveries [11] [12]. This difference may be explained by disparities in access to quality antenatal care, timely obstetric intervention, and comprehensive emergency obstetric services.

The findings of our study are consistent with those of a recent meta-analysis, which showed that supracervical hysterectomy for emergency peripartum hemorrhage is associated with lower blood loss, shorter operative time, and fewer ureteric injuries compared with total hysterectomy, with no significant difference in maternal mortality or major complications [13]. Such referral patterns frequently lead to a concentration of severe obstetric complications at higher-level facilities.

Uterine rupture was the main indication for hysterectomy in our study, accounting for more than two-thirds of cases. Similar findings have been reported in several studies conducted in sub-Saharan Africa, where uterine rupture remains the predominant indication for emergency obstetric hysterectomy [14]-[17]. In contrast, studies conducted in high-income countries indicate that placenta accreta spectrum disorders have become the leading indication for peripartum hysterectomy, largely as a consequence of increasing cesarean section rates worldwide [18].

### 4.3. Interpretation of Findings

The predominance of uterine rupture in our setting likely reflects persistent challenges in the continuum of maternal healthcare. Many patients were referred from peripheral health facilities after prolonged labor, suggesting delays in the recognition and management of obstetric complications. Prolonged obstructed labor, inappropriate use of uterotonic agents, and inadequate monitoring of labor are recognized risk factors for uterine rupture in low-resource settings [19].

Subtotal hysterectomy was the most frequently performed surgical procedure in our study. In emergency situations characterized by severe hemorrhage and hemodynamic instability, subtotal hysterectomy is often preferred because it is technically easier and faster to perform compared with total hysterectomy [20]. Previous studies have reported that this surgical approach may reduce operative time and intraoperative blood loss, which is particularly important in life-threatening obstetric emergencies [21].

Postoperative complications were recorded in 38% of patients, with surgical site infection and postoperative anemia being the most frequent complications. Similar findings have been reported in other studies conducted in resource-limited settings where patients often present in critical condition and where access to blood transfusion and intensive care services may be limited [5].

Maternal mortality remained high in our study. Comparable mortality rates have been reported in several African studies, highlighting the persistent burden of severe obstetric complications in low-resource settings [22]. These findings emphasize the need for improved access to timely and effective emergency obstetric care.

### 4.4. Implications for Maternal Health

Reducing the incidence of emergency peripartum hysterectomy requires strength-

ening the entire continuum of maternal healthcare. Early identification of high-risk pregnancies during antenatal care, improved monitoring of labor using partographs, and timely referral of obstetric emergencies are essential measures to prevent severe obstetric complications [23].

Furthermore, improving access to comprehensive emergency obstetric and neonatal care, strengthening referral systems, and ensuring the availability of blood transfusion services remain key strategies to reduce maternal morbidity and mortality in low-resource settings [24].

#### 4.5. Strengths and Limitations

This study provides important data on emergency peripartum hysterectomy in the Far North Region of Cameroon, a region where published data on severe obstetric complications remain limited. The relatively long study period also allows a better understanding of the epidemiological profile and outcomes of this life-saving surgical procedure in a tertiary referral hospital.

However, several limitations should be acknowledged. The retrospective design relied on hospital records, and some medical files were incomplete. Although 73 cases of emergency peripartum hysterectomy were identified during the study period, only 43 medical records contained complete information and were included in the detailed analysis. In addition, the study was conducted in a tertiary referral hospital that receives complicated cases from peripheral health facilities, which may overestimate the prevalence of emergency peripartum hysterectomy compared with the general population.

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#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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