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# Obstructed Labor at a Tertiary Hospital in Nigeria: A Six-Year Review

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**Abstract**

**Introduction**: *Unlike most developed countries, obstructed labor with a dead fetus is still a reality in many developing countries, and it is a well-known cause of maternal and perinatal morbidity and mortality.*

**Objective:** *To highlight the characteristics of patients presenting with obstructed labor at a tertiary hospital and determine fetomaternal outcomes.*

**Methodology:** *A retrospective descriptive study of 45 cases of obstructed labor that were managed in a tertiary hospital from January 2009 to December 2014. Relevant information was extracted from patients' case files, and the data obtained were analyzed.*

**Results:** *Obstructed labor constituted 0.75% of all deliveries. All patients were referred in, and thirty (2/3) of them were nulliparous, while 25 (55.6%) were between the ages of 16 and 25. Forty-one (91.1%) of the patients were delivered by emergency caesarean section, while four patients had exploratory laparotomy with uterine repair and bilateral tubal ligation. Thirty-eight (84.5%) of the babies weighed between 2.6-4kg and five (11.1%) weighed more than 4kg. Most of the patients, 91.1%, had prolonged hospital stay with 25% staying over 3 weeks postpartum before being discharged. Eight (17.8%) suffered severe birth asphyxia, and there were five perinatal and two maternal mortalities. The commonest complication was puerperal sepsis.*

**Conclusion:** *The study showed obstructed labor remains a cause of perinatal and maternal morbidity and mortality. Effective use of partographs in the peripheral centers, where all the women came from, would ensure early referral before labor became obstructed.*

## Introduction

Labor is said to be obstructed when, despite adequate uterine contractions, progress has come to a halt due to mechanical factors, such that safe delivery of the parturient and her baby is not possible without operative intervention[1 2]. It is due to an ignored intrapartum disproportion between the presenting part and the maternal pelvis.

Obstructed labor is an important cause of maternal mortality in developing countries, whereas it is nonexistent as a cause of maternal mortality in developed countries[3]. This is because most women in developed countries have good antenatal care, and labor is monitored by skilled personnel. The reverse is the case in the developing world, where many parturient patronize faith-based maternity homes, traditional

birth attendants, or even labor in their homes[1]. Most of these unskilled personnel do not monitor labor with partographs and thus would fail to recognize when a parturient's labor is getting prolonged or obstructed. Obstructed labor is the third most common cause of maternal mortality, and of significant relevance is that for every obstructed labor-related maternal death, another 10 are maimed for life[4].

The reported incidence in Nigeria generally varies between 0.48% and 2.11%. Worldwide, it is responsible for 8% of maternal morality[5].

Cephalopelvic disproportion remains the commonest cause of obstructed labor[2, 6]. Other etiologies include contracted pelvis, pelvic tumors, abnormalities of the vagina, malposition, malpresentation, and fetal abnormalities like hydrocephalus or conjoint twins[1,7].The clinical features of obstructed labor are unremitting pain, exhaustion, dehydration, tachycardia, tachypnoea, edematous vulva, severe caput succedenum, and moulding. With the diagnosis of obstructed labor, action needs to be taken quickly to relieve the obstruction[8].

The first principle of management is maternal resuscitation through the restoration of fluid and electrolyte balance. Vital signs are monitored closely, and an in-dwelling urethral catheter is passed to monitor urine output. Prophylactic antibiotics should be given intravenously. Specific management is operative, either abdominal or vaginal. Abdominal delivery remains the popular and preferred route by many obstetricians, especially with a live baby. Symphisiotomy and destructive surgery could be done if there is fetal demise. Symphysiotomy and destructive surgeries are being encouraged in poor resource settings because of the aversion to surgery prevalent in such environments and the risk of uterine rupture in subsequent deliveries. However, those procedures are dangerous for less skilled hands[4, 6].

Complications of obstructed labor include uterine rupture with or without disseminated intravascular coagulopathy (DIC), genital tract injuries, vesicovaginal fistulas, peripheral nerve injuries, osteitis pubis, fetal distress, and fetal death[9]. This study underscores the need for training and retraining personnel handling deliveries on the use of partographs to help reduce the incidence of obstructed labor and the resulting perinatal and maternal mortality.

Obstructed labor is preventable. Good antenatal care can detect 'at-risk' patients, and anticipation in labor can detect predisposing factors, even if they were not detected in the antenatal period. Timely interventions and immediate supportive care, which require a full range of nursing, medical, and surgical skills, can minimize an unfavorable outcome. Improvements in the socio-economic state of the general populace, female empowerment, girl-child education, and discouraging early marriage will help in reducing the incidence.

## Methods

### Study design, settings, and participants

This was a retrospective descriptive study of all cases of obstructed labor managed in our facility, a tertiary hospital in Abeokuta, Southwest Nigeria, between January 1, 2009, and December 31, 2014. Our facility serves as a referral center for primary and secondary health facilities in Ogun State and its environs. Ethical approval was obtained from the hospital's Health Research Ethics Committee. As there was no direct contact with participants given the study was retrospective, consent from participants was not required. The annual delivery rate during the period covered by the study was approximately 1000.

The 45 women who had obstructed labor were identified from the obstetric emergency, postnatal war admission, and theater registers. From these registers their names and hospital numbers were retrieved. Using these, their case notes were retrieved from the medical records department and reviewed one after the other. Relevant data were extracted using a standard proforma that was

designed based on the study objective. The data collected included demographic characteristics, clinical risk factors, complications, and operative management of such patients. Data that could identify patients were not entered on the proforma.

All of the patients were referred in. They were heterogeneous and consisted of those that were being cared for by traditional practitioners, churches, or various categories of other orthodox practices such as maternity homes, private clinics and hospitals, and other government institutions.

**Statistical analysis**

Information from the proforma was coded and fed into a Microsoft 2010 Excel spread sheet. Analysis of the data was done using descriptive statistics. Central tendency was reported as mean and mode, while measures of dispersion were range and standard deviation. Results are presented in frequency tables, histogram, and pie chart.

**Results**

There were a total of 45 cases of obstructed labor between January 1st, 2009, and December 31$^{st}$, 2014, and all were referred in. We were able to retrieve all case notes, and no required information was missing. The total number of deliveries during this period was 5986. The patients were aged between 17 and 42 years, with a mean age of 29.5 (±12.5) years. The modal age group was 21-25.

Table 1 shows the age distribution, parity, and occupation status of the patients who had obstructed labor. The majority of the patients were unskilled (55.6%), 20% were skilled, and 15.6% were unemployed. 60% of the patients had no previous parous experience.

Table 2 shows the mode of delivery of the patients who had obstructed labor. The majority had an emergency caesarean section (91.1%). The rest had exploratory laparotomy, uterine repair, and bilateral tubal ligation.

Tables 3 and 4 and Figure 1 depict the fetal outcomes. Five (11.1%) had macrosomia, while twelve (26.7%) had weights between 3.6 and 4kg. There were five perinatal losses, three of which were still births. The other two were from the eight babies that had severe birth asphyxia.

Table 5 and Figure 2 describe the complications following obstructed labor that were noted in the reviewed cases. The commonest complication was puerperal sepsis, followed by wound infection. Other complications noted were uterine rupture, acute renal injury, disseminated intravascular coagulopathy, and paralytic ileus. There were two maternal mortalities recorded in relation to obstructed labor within the six-year period. The causes of death are shown in Table 6.

Table 7 shows the length of the hospital stay. The majority of the patients (51.0%) stayed between eight and fourteen days.

**Table 1:** Socio demographic characteristics of patients

| | | NO. OF CASES (N=45) | PERCENTAGE (100%) |
|---|---|---|---|
| **Parity** | 0 | 27 | 60 |
| | ≥ 1 | 18 | 40 |
| **Age range** | 16-20 | 5 | 11.2 |
| | 21-25 | 20 | 44.4 |
| | 26-30 | 11 | 24.4 |
| | 31-35 | 2 | 4.4 |
| | 36-40 | 5 | 11.1 |
| | 41-45 | 2 | 4.4 |
| **Occupation** | Professional | 2 | 4.4 |
| | Worker skilled | 9 | 20 |
| | Worker unskilled | 25 | 55.6 |
| | House wives/unemployed | 7 | 15.6 |
| | Student | 2 | 4.4 |

**Table 2:** Mode of Delivery in patients

| MODE OF DELIVERY | NUMBER |
|---|---|
| Emergency caesarean section | 41 |
| Exploratory laparotomy, uterine repair and BTL | 4 |
| **Total** | **45** |

**Table 3:** Fetal weight

| Birth weight (kg) | Frequency (N=45) | Percentage (100%) |
|---|---|---|
| 2-2.5 | 2 | 4.4 |
| 2.6-3 | 14 | 31.1 |
| 3.1-3.5 | 12 | 26.7 |
| 3.6-4 | 12 | 26.7 |
| >4 | 5 | 11.1 |
| **Total** | **45** | **100** |

**Table 4:** APGAR scores

| APGAR | Frequency (N=45) | Percentage (100%) |
|---|---|---|
| Severe birth asphyxia | 8 | 17.8 |
| Moderate birth asphyxia | 2 | 4.4 |
| Mild birth asphyxia | 2 | 4.4 |
| Normal | 30 | 66.7 |
| Still birth | 3 | 6.7 |
| **Total** | **45** | **100** |

**Figure 1**

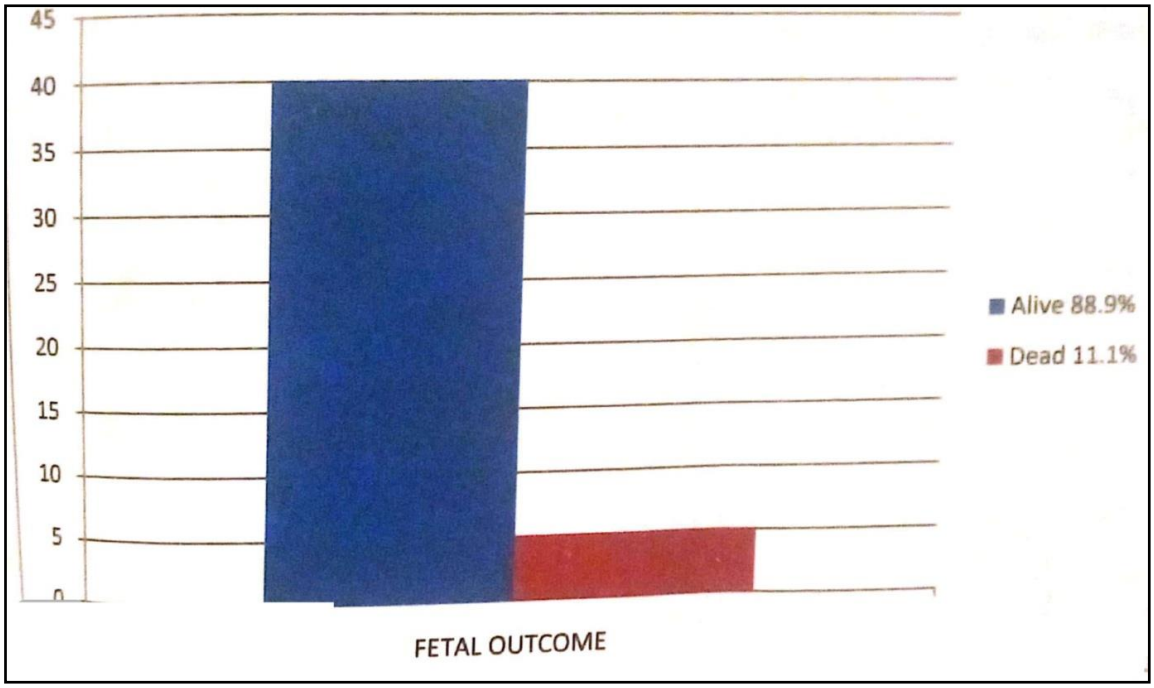


**Table 5:** Complications

| COMPLICATIONS | NUMBER |
|---|---|
| Uterine rupture | 4 |
| Paralytic ileus | 1 |
| Puerperal sepsis | 6 |
| Wound infection | 5 |
| Acute renal failure | 1 |
| DIC | 1 |

**Figure 2**

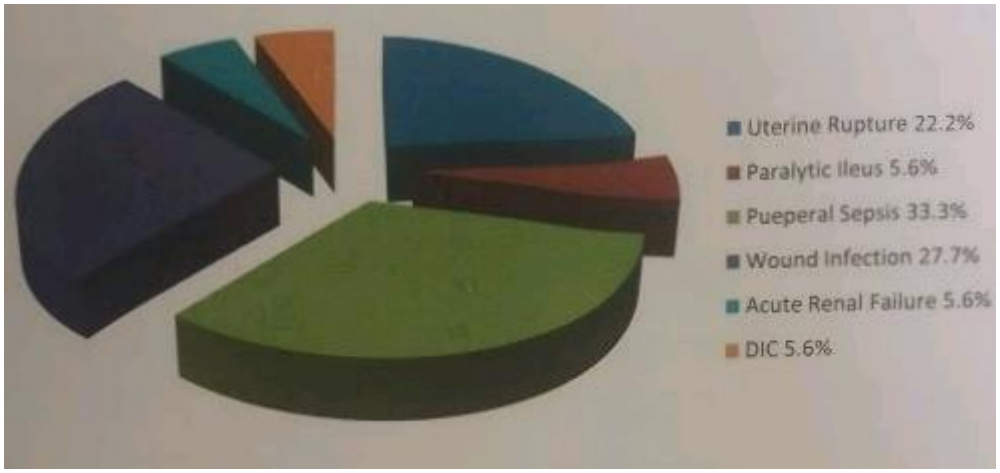


**Table 6:** Causes of death

| Causes of death | Number |
|---|---|
| Uterine rupture | 1 |
| DIC | 1 |
| Total | 2 |

**Table 7:** Length of hospital stay

| Numbers of days | Frequency (N=45) | Percentage (100%) |
|---|---|---|
| < 7 | 4 | 8.9 |
| 8-14 | 23 | 51.1 |
| 15-21 | 7 | 15.6 |
| >21 | 11 | 24.4 |
| **Total** | **45** | **100** |

**Discussion**

The incidence of obstructed labor of 0.75% of all deliveries in the study is within the range quoted for Nigeria[5].The age of the patients ranged from 17 to 42 years, and they were all referred to the tertiary center where the study took place by traditional practitioners, churches, and various categories of orthodox practices such as maternity homes, private clinics and hospitals, and government primary health centers. Upon feeding back the referral centers it was discovered that most of them do not monitor labor with a partograph, which would have been helpful as these women would most likely have been referred before their labor became obstructed. The majority of cases in this series were less than 30 years old and had no previous parous experience. This is in agreement with the observations of other researches [10, 11].

In this study, obstructed labor was found to be more common in women who were unskilled, which correlates with low educational status. This is similar to a study done at the University of Port Harcourt Teaching Hospital [12]. Pregnant, uneducated women are less likely to be empowered and more likely to patronize unorthodox healthcare. The 45 patients seen had abdominal deliveries. Destructive surgeries are discouraged in our hospital due to the high risk of urinary and rectal injuries to the mother, even in the best of hands. Preparation should be made for a possible caesarean hysterectomy when undertaking abdominal delivery in obstructed labor due to the possibility of it being complicated by a salient uterine rupture or postpartum hemorrhage refractory to medical and conservative surgical management.

The likelihood of uterine rupture is influenced by parity[13]. It is more common in multiparous women and rare in nulliparous women. This explains the low occurrence of uterine rupture in this series, as most of the patients were nulliparous. The occurrence of uterine rupture was low, and this can be explained by the fact that the majority of the women in this study were nullipara. Nulliparous women are likely to rupture if their uterus has been scarred, for example, from a silent uterine perforation in a previous surgical termination of pregnancy. The maternal complications of obstructed labor are ruptured uterus, infection, and death. Uterine rupture was responsible for one of the maternal deaths. The most common complication in this study was puerperal sepsis. This was similar to the study done in Port-Harcourt[12].

The pressure of the head and pelvic bones on both the bladder and the rectum may produce avascular necrosis, leading to the formation of vesico-vaginal fistulae and recto-vaginal fistulae. This was prevented by leaving the urethral catheter insitu for continuous bladder drainage. Most of the patients, 91.1%, had prolonged hospital stay, with 25% staying over 3 weeks postpartum before being discharged. This can be due to the fact that some of these women had complications that required inpatient care, while others had to stay until their babies were discharged.

Forty of the babies delivered survived. There were five fetal losses. Fetal compromise is not unexpected in obstructed labor, especially when complicated by uterine rupture, as uteroplacental circulation becomes severely compromised, hence the need to diagnose obstructed labor very early or diagnose prolonged labor before it becomes obstructed. Effective use of the partograph would help in this regard.

## Conclusion

Although perinatal and maternal morbidity and mortality as a result of obstructed labor have become obsolete in the developed world, they are still prevalent in our environment. As shown again in this series, most of the victims are nulliparous women with poor socioeconomic backgrounds. This study identified DIC and uterine rupture as fatal complications of obstructed labor; hence, the obstetrician must be prepared for these and other complications of obstructed labor. Since all these patients were referred, training peripheral centers in the use of partographs would ensure early referral of patients. Educating women of reproductive age so as to ensure improved utilization of available government facilities and schemes will further reduce the incidence.

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