

Obstructed Labour as Seen in Umuahia; Southeast Nigeria

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ABSTRACT

Background: Obstructed labour is one of the leading causes of maternal mortality accounting for 8% of maternal deaths globally and consuming scare resources budgeted for healthcare in Nigeria and Sub-Saharan Africa. **Materials and Methods:** This was a retrospective study carried out at the department of obstetrics and gynecology, Federal Medical Center Umuahia, Southeast Nigeria. The folders of all women who were diagnosed with obstructed labor in a 10-year period between January 2006 and December 2015 were retrieved and data extracted. The data was analyzed using proportions, frequencies, and percentages. **Objective:** To evaluate the sociodemographic profile, causes and fetal - maternal outcomes of obstructed labor at the Federal Medical Center Umuahia. **Results:** The incidence of obstructed labor was 2.2%. Most of the women (93.7%) were between 20 and 39 years of age, (58.2%) were nulliparous while. Majority (61.1%) had secondary education though (93.7%) of the patients were unbooked. The commonest cause was cephalopelvic disproportion (61.2%) followed by malpresentation (30.5%). Commonest mode of delivery was emergency caesarean section (90.0%) and the least was symphysiotomy 3 (1.2%). Hysterectomy 10 (4.2%) or uterine repair 11 (4.6%) with or without bilateral tubal ligation were done for those with uterine rupture. The most frequent maternal complication was puerperal sepsis (26.2%) and there were 3 (1.3%) maternal deaths. Majority (72.4%) of the babies were live births while 27.6% were stillbirths. **Conclusion:** Over ninety percent of the cases of obstructed labor were unbooked in this study. There is a need for education on the importance of antenatal care and skilled supervision during labor.

Key words: Obstructed labor, Maternal mortality, Caesarean section

INTRODUCTION

Obstructed labor has almost become a historical clinical entity in developed countries because of widespread availability, accessibility and acceptability of near-perfect comprehensive maternity care services in those climes. [1,2] On the contrary, obstructed labor remains a common obstetric disaster in developing countries even in the post millennium development

goal era. [3,4] In Nigeria and Sub-Saharan Africa, obstructed labor represents a major public health challenge and consumes scarce resources budgeted for healthcare. [5,6]

Obstructed labor affects 3% to 8% of laboring women worldwide. [7,8] This perhaps is an underestimation as some of the maternal deaths due to obstructed labor may not be documented ^{7,8}. Obstructed labor is one of the leading causes of maternal mortality in developing countries, accounting for 8% of maternal deaths globally. [9,10]

Maternal mortality from obstructed labor is largely the result of complications such as postpartum hemorrhage, uterine rupture, and puerperal sepsis. In the long run, obstructed labor could lead to obstetric fistulae, skeletal and neurologic complications. [7-11]

Obstructed labor also carries a high risk of intrapartum asphyxia, subsequent neurological damage, neonatal sepsis, and perinatal death. Obstructed labor is one of the three leading causes of perinatal death. [7-11]

Early diagnosis and timely intervention may minimize the catastrophic consequences of obstructed labor. The obstruction can only be relieved by means of an operative delivery such as emergency caesarean section, symphysiotomy and destructive vaginal operations. [12,13] The option of delivery requires a balanced decision by the obstetrician taking into consideration the best method of relieving the obstruction with minimal risk of danger to the mother. [12,13]

The Federal Medical Center Umuahia is a 240-bedded hospital offering multidisciplinary care serving Abia State and adjoining states of Imo, Ebonyi, Rivers and Akwa Ibom. The obstetrics and gynecology department of this tertiary healthcare center receives a high number of patients with obstructed labour from maternity homes, faith-based clinics, health centers, private clinics, and public hospitals. No research, to our knowledge, has been conducted on this public health problem in Federal Medical Center Umuahia. This lacuna in knowledge has therefore prompted evaluation of the spectrum of obstructed labor with respect to the magnitude, sociodemographic profile, mode of delivery and fetomaternal outcomes of this condition at the Federal Medical Center Umuahia. It is hoped that the findings of this study may open new vistas on how to minimize the burden and improve fetomaternal outcomes in our setting.

Objective: To evaluate the spectrum of obstructed labor with respect to the magnitude, sociodemographic profile, mode of delivery and fetomaternal outcomes of this condition at the Federal Medical Center Umuahia.

MATERIALS AND METHODS

This was a retrospective study carried out at the department of obstetrics and gynecology, Federal Medical Center Umuahia in the southeast geopolitical zone of Nigeria. The folder numbers of all women who were diagnosed with obstructed labor in a 10-year period between January 2006 and December 2015 were collected from the ward and maternity theater registers. The folders were subsequently retrieved from the medical records department. Information on sociodemographic variables, causes of obstructed labor, mode of delivery and fetomaternal outcomes were extracted from the folders using a specially designed data form. The data were analyzed using proportions, frequencies, and percentages.

Approval to conduct the study was obtained from the health research and ethical committee (HREC) of the Federal Medical Center, Umuahia.

RESULTS

There were 11,252 deliveries during the period under review. Of these, 249(2.2%) had obstructed labor. However, only the records of 239 women were adjudged sufficient and thus included in the study for analysis.

The sociodemographic profile of the study population depicted in table 1 shows that most 224 (93.7%) of the women were between 20 and 39 years of age while 10 (4.2%) and 5(2.1%) were 19 years or less and 40 years or more respectively. More than half 139 (58.2%) of the study population were nulliparous while the least incidence 12(5.0%) was noted among Grandmultiparous women. Majority 146 (61.1%) and 91(38.1%) of the women had secondary and tertiary education respectively, 2(0.84) had primary education. Most 224(93.7%) of the patients were unbooked.

Table 1: Sociodemographic Characteristics

Age (yrs)	No	Percentage (%)
≤ 19	10	4.2
20 – 29	136	56.9
30 – 39	88	36.1
≥ 40yrs	5	2.1
Total	239	100.0
Parity		
0	139	58.2
1 – 2	66	27.6
3 – 4	22	9.2
≥ 5	12	5.0
Total	239	100.0
Educational status		
No formal education	Nil	0
Primary	2	0.8
Secondary	146	61.1
Tertiary	91	38.1
Total		
Booking status		
Booked	15	6.3
Unbooked	224	93.7
Total	239	100.0

The causes of obstructed labor are shown in figure 1 with the commonest cause being cephalopelvic disproportion 146(61.2%) followed by malpresentation 73(30.5%). Malposition (persistent occipitoposterior position) and pelvic tumours were responsible for 18(7.5%) and 2(0.8%) of the cases, respectively.

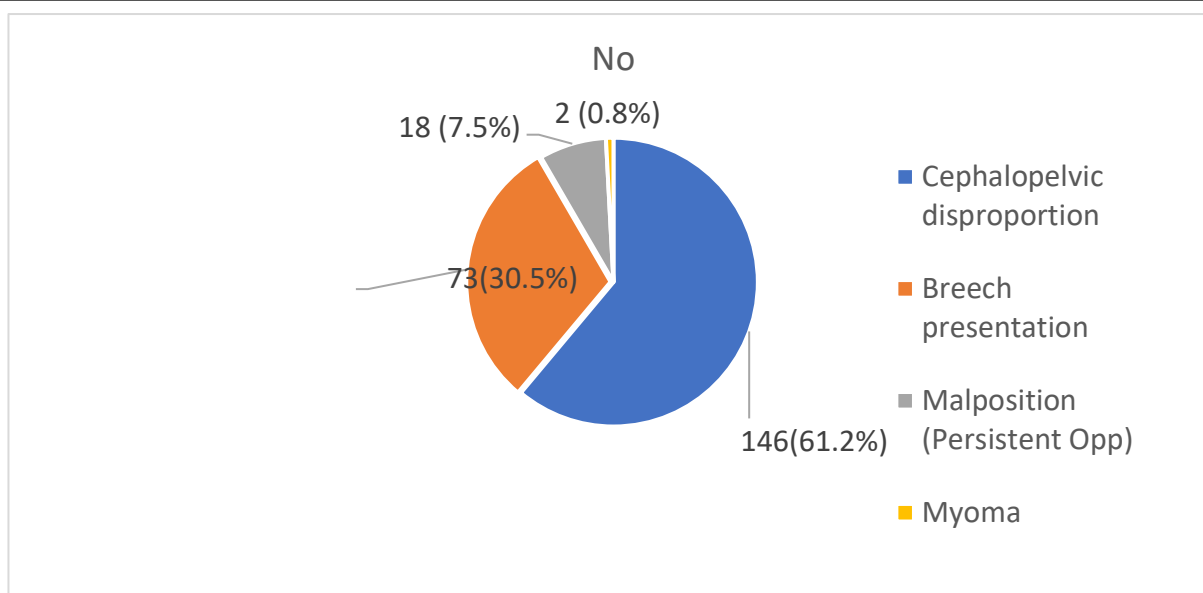


Figure 1: Causes of Obstructed Labour

As revealed in table 2, emergency caesarean section was the commonest mode of delivery (90.0%).

Hysterectomy was done in 10 (4.2%) women who had uterine rupture while the remaining cases of uterine rupture had either uterine repair 5(2.1%) or uterine repair with bilateral tubal ligation 6(2.5%). Symphysiotomy was performed for 3(1.2%) women with obstructed labor. No destructive vaginal operation was carried out.

Table 2: Mode of delivery in Obstructed Labour

Mode of delivery	No	Percentage (%)
Lower segment caesarean section	215	90.0
Hysterectomy	10	4.2
Uterine repair	5	2.1
Uterine repair + BTL	6	2.5
Symphysiotomy	3	1.2
Destructive operation	0	0
Total	239	100

***BTL: Bilateral Tubal Ligation**

Many of the women had one or more complications thereby necessitating prolonged hospitalization (more than 10 days) in 139(58.2%) as depicted in table 3. The most frequent maternal complication was puerperal sepsis 63(26.2%) followed by wound infection 41(17.2%), postpartum hemorrhage 34(14.2%) and uterine rupture 21(8.8%). Vesicovaginal fistula and burst abdomen were observed in 2(0.8%) and 1 (0.4%) respectively. There were 3(1.2%) maternal deaths resulting from obstructed labor.

Table 3: Maternal complications among obstructed labour deliveries

Complication	No	Percentage (%)
Prolonged hospital stay	139	58.2
Puerperal sepsis	63	26.4
Wound infection	41	17.2
Postpartum haemorrhage	34	14.2
Rupture uterus	21	8.8
Vesicovaginal fistula	2	0.8
Burst abdomen	1	0.4
Maternal death	3	1.2

Majority 173(72.4%) of the babies were born alive while 66(27.6%) were stillborn. Nearly half 84(48.0%) of the live born had Apgar score of less than 7 in 1 minute. Majority 134(56.2%) of the babies weighed between 2.5 and 3.99kg while 100(41.8%). See Table 4

Table 4: Perinatal outcome of obstructed labour deliveries

Fetal condition at birth	No	Percentage (%)
Live birth	173	72.4%
Still birth	66	27.6%
Total	239	100%
Birth weight		
< 2.5	5	2.1
2.5 – 3.99kg	134	56.1
≥ 4.0kg	100	41.8
Total	239	100.0
Neonatal complication		
Birth asphyxia	83	48%
Neonatal sepsis	4	2.3%
Early neonatal death	0	0
Hypoxic Ischemic Encephalopathy	10	5.8%

DISCUSSION

The incidence of obstructed labor in this study was 2.2%. This was lower than the incidence of 12.2% in Ethiopia, [15] 4% in Gombe, northwest Nigeria, [16] and 3.2% in Ilorin, north central Nigeria. [17] The incidence of obstructed labor in this study was higher than the 1.64% recorded in India [18] but comparable to the figure of 2.0%, 2.1% and 2.7% in Sokoto North west Nigeria [6] Maiduguri northeast Nigeria [11] and Enugu southeast Nigeria [12] respectively.

In Enugu southeast Nigeria, an incidence of 4.7% was initially reported by an earlier study.[18] This down shift toward a lower incidence of obstructed labor might not be unconnected with global efforts to improve obstetric care and the free maternal healthcare adopted by the state Government.

The sociodemographic profile of the study population shared certain similarities with the findings of previous studies from developing countries on one hand but exhibited striking differences from these earlier reports on the other hand. Most (93.7%) of the women managed for obstructed labor were between 20 and 34 years of age. This was in keeping with the

observation of studies carried out in Bangladesh, [20] Enugu southeast Nigeria [5] and Ilorin northcentral Nigeria [17] where 85.9%, [19] 80% 5 and 65.7% [16] respectively were within that age group.

There was a preponderance of obstructed labor among nulliparous women in this review. This was in concordance with the findings of studies in India, [18] Bangladesh [20], Maiduguri northeast Nigeria, [11] Kano northwest Nigeria and Port Harcourt south south Nigeria. [21] It however differed from the scenario in Enugu [12] and Ilorin [17] where more than half of the women were multiparous.

Majority of the women with obstructed labor, as noted in studies from developing countries, had primary or no formal education. [5,6,7,8,11-13] On the contrary, in this study, just as in west Bengal India [18] obstructed labor occurred among women with secondary or post-secondary education. This observation represented a paradox given the fact that educated women were likely to be more informed and financially empowered to overcome socioeconomic barriers that underpin delays in accessing care. [18,20] Be that as it may, earlier authors from southern Nigeria had reported high rate of default from orthodox antenatal care and preference for delivery in spiritual churches even among educated women. [22,23]

In the light of the above, it was perhaps not surprising that most of the women managed for obstructed labor in this study were unbooked. This was in consonance with the report of similar studies from Nigeria and other developing countries, [1,5,8,11-13,15-20]. Obstetric complications could be avoided when proper antenatal care was offered, and risk factor evaluation done. [1,6,7,8,11-13]

Cephalopelvic disproportion stood out as the leading cause of obstructed labor in this study. These finding corroborated the observation of previous studies carried out in developing countries. [1,4,6-8,11-13]. In these largely low-resource settings, cephalopelvic disproportion had been shown to be closely related to impairment of growth by ill-health and malnutrition in childhood resulting in small pelvis. [2,24] The fact that the weight of most babies, in this study, were within the range of 2.5kg to 3.99kg lent more credence to contracted pelvis as the reason for the cephalopelvic disproportion rather than fetal size. Gross cephalopelvic disproportion and malpresentation could have been detected and prevented if most of the women had booked for ANC or presented early.

Emergency lower segment caesarean section was the commonest mode of intervention in this study. This was consistent with observations of studies conducted in India, [18] Ethiopia [15] and many centers in Nigeria. [6,11,12,13,16,17,19,21] The liberal use of caesarean section to relieve obstructed labor in this review could be attributed to perception of improved safety of caesarean delivery engendered by advent of new generation antibiotics, better surgical techniques, and improved anesthetic methods. [1,4,10,11,21] In addition, some studies had suggested that the risk of complications with caesarean section compared with destructive operations or symphysiotomy might not be statistically significant. [11,25] Even then, there had been skepticism around the use of caesarean section in cases of obstructed labor with dead fetuses considering higher rates of infection, blood transfusion and uterine synechiae following caesarean section. [12,13,17] In this regard, it was surprising that no form of destructive operation was recorded in this study.

A myriad of factors including vanishing skill of destructive vaginal operations among contemporary obstetricians [12,13,17] and cultural unacceptability [11,13] might explain the reluctance to embark on destructive vaginal operations as observed in this study. In Ethiopia, [10] India [18] and Maiduguri northeast Nigeria, [11] destructive operations accounted for 12.8%, 1.28% and 4.9% respectively of procedures employed to relieve obstruction. In a study in Enugu southeast Nigeria, only one-tenth of women with obstructed labor who were suitable for destructive operations were offered the procedure. [12]

Symphysiotomy, carried on three women, was the only other method employed to relieve obstruction in this study. These women probably had obstructed labor due to mild cephalopelvic disproportion. In similar studies in India [18], Ethiopia [10], Sokoto [6], Gombe [15] and Maiduguri [11] no mention was made of symphysiotomy. However, in the study in Enugu symphysiotomy was a simple underused technology that could be performed under local anesthesia and did not require advanced surgical skills. It could be a life-saving procedure in rural areas of developing countries where a 24-hour availability of caesarean section might not be guaranteed and cultural aversion to caesarean section was rife. Nevertheless, without proper training, symphysiotomy could be harmful and result in complications including sacroiliac joint osteoarthritis. [12,26]

More than half of women in this study spent more than ten days in the hospital probably due to various complications of obstructed labor. In agreement with reports from studies from other parts of Sub-Saharan Africa and developing countries, [1,6,7,10-13,15-21] puerperal sepsis and wound infection were the leading complications of obstructed labor in this review. This could be attributed to the fact that most of these women were involved in labor for longer periods after rupture of membranes and had multiple vaginal examinations in unhygienic environment thereby increasing the risk of ascending infection. [6,10,13,17]

Postpartum hemorrhage occurred in 14.2% of the study population. The rate of postpartum hemorrhage, as a complication of obstructed labor, in this study was lower than 1.2% and 3.9% recorded in Uganda and Sokoto respectively. [8,6] It was comparable to 15% reported in Enugu southeast Nigeria but lower than 25% reported in Ethiopia. [12,10] Uterine atony, occasioned by prolonged labor and aggravated by sepsis, was thought to be responsible for postpartum hemorrhage as a complication of obstructed labor.

Uterine rupture occurred in 8.8% of the patients in this study. This figure was higher than 5.8% and 1.9% reported in India and Ilorin respectively. [1,17] It was however lower than 45.1%, 71.5% and 14% indicated in studies carried at Ethiopia, Sokoto and Enugu, respectively. [10,16,12] The relatively higher proportion of Grandmultiparous women in those studies compared with the proportion in this study might account for the discrepancy. Generally, these cases of uterine rupture were due to late referral and arrival of very mismanaged and neglected obstructed labor cases. [1,4,6-13,15-21]

Only 2 (0.8%) patients developed vesicovaginal fistula in this review. This rate of vesicovaginal fistula was lower than the rates of 4.1%, 6.0% and 1.56% observed in Ethiopia, Ilorin, and Maiduguri. [10,17,11] The varying duration of labor and practice of destructive vaginal operations may account for this difference in the rate of vesicovaginal fistula following obstructed labor.

The maternal mortality was 1.2%, this is comparable to 1.2% and 1.6% recorded in Western Uganda and West Bengal, India, respectively. [8,18] The case fatality rate in Maiduguri, North west Nigeria was 0.98% and there was no mortality in the study carried out in Tanzania. [11,3] The stillbirth rate at 27.6% was lower than 32.5% reported in an Indian study. Unlike the scenario in Ethiopia where all the live babies, had how Apgar score in one minute. [10] in this review 48% of the live babies were asphyxiated. This was however lower than 37.3% reported in Kano, Northwest Nigeria. The relatively high stillbirth and asphyxia rate might be related to late arrivals of the patients to our Center and manipulations done to effect delivery at the peripheral centers.

CONCLUSION

The prevalence of obstructed labor in this study was not remarkably high, but ninety three percent were unbooked. Most of the cases of obstructed labor are preventable if all pregnant women have good antenatal care and all births are supervised by skilled birth attendants. There is a need for increasing awareness and continuous education on the importance of antenatal care and skilled supervision in labour.

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