

Outcome of Obstructed Labour in Kano, Nigeria

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Abstract

Aims: To study the sociodemographic characteristics, management options and obstetric outcome of obstructed labour at Aminu Kano Teaching Hospital, Kano, Nigeria.

Methods: A prospective study of obstructed labour cases that were managed between 1st January 2002 and 31st December 2006 was carried out. The study variables of interest were maternal age and parity, booking and educational statuses, causes, type of procedure that was used, and fetomaternal outcome. The data obtained were recorded using tables, histograms, and pie chart. Statistical analysis was done using chi-square test (χ^2), and a P-value of <0.05 was regarded as significant.

Results: The prevalence of obstructed labour was 0.8%. The highest frequency was found among unbooked primigravid teenagers, who had Qu'ranic education only. The commonest cause was cephalopelvic disproportion (76.5%). Lower segment caesarean section (LSCS) was performed in 72.5%, while destructive operation was in 27.52%. Regional anaesthesia was used in 74.5%, while 25.5% were under general anaesthesia. The risk of developing complications did not show statistically significant difference between LSCS and destructive operation. Maternal mortality was 1.0% and perinatal mortality 52.9%.

Conclusions: Obstructed labour is still common in our environment. With increased use of regional anaesthesia, LSCS and destructive operation were found to be safe, and the risk of complications was not different between the two procedures. Selection of patients for LSCS or destructive operations should be individualized,

Keywords: Obstructed labour, incidence, sociodemographic characteristics, management options, fetomaternal outcome.

Introduction

Obstructed labour, which is the failure of the presenting part to descend in spite of adequate uterine contractions is one of the most common preventable causes of maternal and perinatal morbidity and mortality, especially in developing countries, where it accounted for 2-11% of maternal deaths¹⁻³. Its occurrence is regarded as a sign of poor level of obstetric practice in any environment⁴, because obstructed labour is due to mechanical difficulties in labour, which is not recognized early because of poor supervision^{5,6}. This is common in developing countries where proper obstetric care is not available or utilized⁷⁻¹⁰.

The frequency of obstructed labour in any community depends on the prevalence of cephalopelvic disproportion (CPD) and the quality of antenatal care¹¹⁻¹². In our predominantly Islamic community in North West Nigeria, where early girl marriage and teenage pregnancies/grand multipara who are high risk for CPD are common, and more deliveries take place outside the hospitals attended by untrained midwives, obstructed labour is expected to be a common feature of our obstetric practice^{12,13}.

No study has been carried out in our centre on this subject, and it is against this background that this study

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was designed, to study the cases of obstructed labour in Aminu Kano Teaching Hospital, Kano, Nigeria, and to make recommendations which will reduce its incidence, influence the management policies, and foeto-maternal outcome in our institution, and other similar health facilities in developing countries.

Methods

A prospective study of obstructed labour cases that were managed at Aminu Kano Teaching Hospital, Kano, Nigeria, between 1st January 2002 and 31st December 2006 was carried out.

Aminu Kano Teaching Hospital is a tertiary health care delivery centre that is located in Kano City, the centre of commerce in Northern Nigeria and the capital of predominantly Islamic Kano State, where early girl marriage is not uncommon. Kano state has land area of 20,760 square Kilometers, and it is the most populous state in Nigeria, with a population of over ten million people (2006 Nigerian census). The health facility receives patients' referral from hospitals in the state, and neighboring states of Jigawa and Katsina.

At admission, the general condition of the mothers was assessed as well as the foetal lie, presentation, position and heart tones. Pelvic examination was carried out to assess the cervical dilatation, state of the liquor amnii, station and position of the presenting part, as well as the degree of caput and moulding. Uterine rupture was excluded by the presence of regular uterine contractions, minimal or absence of abdominal pain/tenderness, and on vaginal examination by absence of vaginal bleeding and presenting part not displaced from the pelvic cavity.

Resuscitation of the mother was done with intravenous fluids and blood transfusion where necessary. Intravenous antibiotics were commenced, and continuous drainage of urine was carried out with an in-dwelling urinary catheter which was left in place for fourteen days post delivery. The obstruction was relieved by either lower segment caesarean section (LSCS) or by destructive operation (all were craniotomy).

The inclusion criteria for LSCS were all cases (1) with live fetus (2) with severely contracted pelvis (true conjugate less than 9.0cm)¹⁴, (3) impending uterine rupture, and (4) transverse lie with a live or dead fetus, while for destructive operation were cases (1) with dead fetus and full cervical dilation (2) where the true conjugate was ≥ 9.0 cm, (3) where there was no impending uterine rupture or (4) transverse lie. Paediatricians were in attendance to resuscitate the live babies. Apgar score at 5 minutes of 7 and above was taken as normal, while scores less than 7 was taken

as birth asphyxia¹⁵. Babies with birth asphyxia were transferred to the special care baby unit (SCBU) for further management.

The study variables of interest were maternal age and parity, booking and educational statuses, the causes, type of procedure that was used to relieve the obstruction, and foeto-maternal morbidity and mortality.

The data were prospectively obtained from the women using a pre-designed proforma, and were expressed as frequencies, percentages, mean and standard deviation and recorded in tabular forms, histograms and Pie Chart. Statistical analysis was done using Epi- Info software (6.0 CDC Atlanta Georgia, USA). Chi-square test was used for comparison of the data for statistical significance. A p-value of < 0.05 was taken as significant.

Results

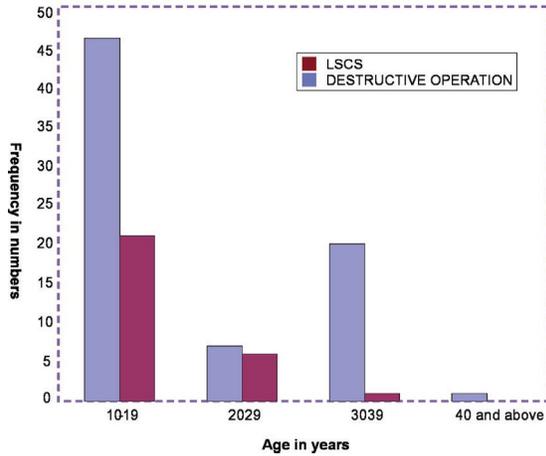
The total number of deliveries during the period of study was 12,954, obstructed labour accounted for 102 cases, giving an incidence of 0.8%. LSCS was performed in 74 cases (72.5%), while destructive operation was in 28 cases (27.5%). Regional anaesthesia (spinal anaesthesia only) was used in 76 cases (74.5%), while 26 (25.5%) were under general anaesthesia. Among those who had LSCS, regional anaesthesia was used in 48 cases (64.9%), while 26 cases (35.1%) were under general anaesthesia. All the destructive operations were done under regional anaesthesia. There were 40 patients with intrauterine foetal death; destructive operation was performed in 28 cases (70%), while LSCS was used in 12 (30%) cases. All the patients (62) with live babies had LSCS.

Among the patients 98 (96.1%) were unbooked, while 4 (3.9%) were booked. The odd of having obstructed labour was times 600 times higher among unbooked patients (OR= 600.25, 126.35 – 3457.89, $P < 0.05$). Majority of the patients 89 (87.3%) had Qu'ranic education only, while 13 (12.7%) had western education. The odd having of obstructed labour was 46 times higher among patients who had only Qu'ranic education (OR= 46.87, 19.23 – 117.66, $P < 0.05$).

The highest frequency was found among the teenagers and the least among those ≥ 40 years of age. The mean age was 20.7 ± 9.0 years. Age distribution showed a bimodal trend with the first peak among the teenagers and the second among those 30 – 39 years of age. The method of management of the patients according to age groups showed that the highest frequency of LSCS and destructive operation was found among the teenagers, and the least among those ≥ 40 years of age. LSCS showed a bimodal trend, with the first peak among the

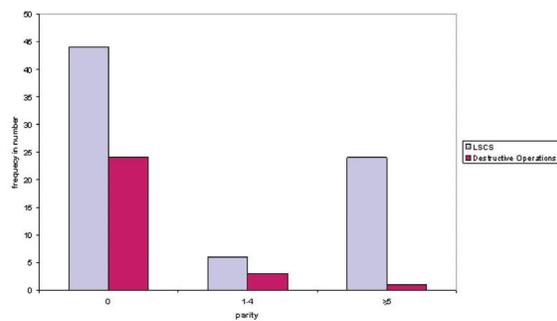
teenagers, and the second among those 30-39 years of age, while destructive operation showed a linear trend with the frequency of the procedure decreasing with increasing age.

Fig 1. Age and Management Distribution



The highest frequency was found among primigravidae, while the least was among multigravidae. The mean parity was 2.3 ± 3.6 . The distribution according to parity showed a bimodal trend, with the first peak among primigravidae and the second among the grandmultiparae. Management of the cases according to parity also showed that the highest frequency of LSCS and destructive operation were found among the primigravidae. The least frequency of LSCS was found among multigravidae, while for destructive operation it was among the grandmultiparae.

Fig 2. Parity and Management Distribution



CPD (78) was responsible for 76.5% of the cases. Malposition (persistent occipito-posterior (14) 13.7%, and malpresentation, transverse lie (10)9.8%.

Normal Apgar Score was found in 23.5% of the babies, while 37.3% had birth asphyxia, and 27.5% had neonatal sepsis. Among the women 39.2% had intrauterine fetal death. Immediate neonatal death occurred in 13.7% of the babies and perinatal mortality was 52.9%.

Fig 3. Causes of obstructed labour

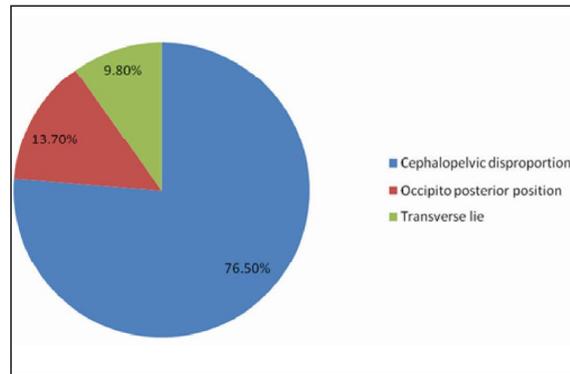


Table 1. Fetal outcome

Fetal outcome	Frequencyn(%)
Normal Apgar Score	24(23.5)
Birth Asphyxia	38(37.3)
Neonatal Sepsis	28(27.5)
Intrauterine Fetal Death	40(39.2)
Immediate Neonatal Death	14(13.7)
Perinatal Mortality	54(52.9)
Total	102(100)

Table 2. Maternal outcome and route of delivery

Maternal Complications	LSCS n=74	Destructive Operation n=28 P- Value
Asherman’s Syndrome	3	1P >0.05 (N/S)
Puerperal Sepsis	14	5P >0.05 (N/S)
Primary Postpartum Haemorrhage	8	1P >0.05 (N/S)
Urinary Tract Infection	10	4P >0.05 (N/S)
Intra-operative bladder Injury	-	4- P >0.05 (N/S)
Maternal Death	-	1- P >0.05 (N/S)

N/S= Not statistically significant

The incidence of each complication did not show any statistically significant difference among those who had LSCS and destructive operation. The only maternal death was an unbooked patient who came in moribund and had LSCS under general anaesthesia. Table 2.

There was no case of vesico-vaginal fistula or recto-vaginal fistula. Five patients had vaginal laceration among those who had craniotomy, while 12 patients had wound sepsis among those who had LSCS. They were all treated with antibiotics. Those with vaginal laceration had primary repair, while those with abdominal wound sepsis were discharged home on daily wound dressing in the general out-patient department, and secondary repair was done where necessary. The duration of hospital stay was 14 days in the two groups.

Discussion

The prevalence of 0.8% for obstructed labour in this study is comparable to that in recent studies^{8,16}, but it is lower than 2-5% from earlier studies from developing countries^{2,5,7,17}. This probably reflects improvements in provision and utilization of antenatal care facilities and early presentation in labour.

Age and parity distribution showed a bimodal trend in the frequency of obstructed labour, probably because early girl marriages which are associated with teenage pregnancies and grandmultiparity, which themselves are risk factors for CPD, are common in our society, and may account for why CPD was the commonest cause in this study. This was also the experience of other authors from developing countries^{11,13}.

The frequency of destructive operation decreased with increasing age and parity, probably because primigravida uterus unlike that of multigravida, meet obstruction in labour with uterine inertia, which makes them more suitable for destructive operation^{8,16,18,19}. This concurs with the findings of other authors^{8,16}.

Most of the patients were unbooked and had Qur'anic education only, probably because lack of western education has been associated with aversion to western oriented programs like antenatal care and hospital delivery³.

All the destructive operations performed were craniotomy, which does not agree with other studies⁸, probably because decapitation and evisceration may not be acceptable in our community for socio-cultural reasons. Studies from developing countries showed that in their hospital, destructive operations were avoided because of its high association with complications¹⁶. This calls for proper training in the use of destructive operations in our Medical schools,

especially in developing countries, where majority of cases of obstructed labour with intrauterine fetal deaths are common, and the women may not present in the hospital in subsequent pregnancies and deliveries, because of aversion to caesarean section.

Destructive operation was contraindicated in women with true pelvic conjugate of less than 9.0cm, because studies from Nigeria found it to be the point below which severe pelvic contraction is diagnosed¹⁴. This does not agree with studies from India⁸, where severe pelvic contraction was found to be 7.8cm or less. This has been attributed to the smaller size of the Indian women⁹. With severe pelvic contraction, after decompression of the head and crushing of the base of the skull, the reduction in the diameter of the fetal head may not be enough to allow it to be delivered vaginally, and recourse to caesarean section may be required²⁰.

Maternal mortality rate of 1.0% in this study, where LSCS (72.5%) and destructive operation (27.5%) were done using mainly regional anaesthesia (74.5%), is lower than 4% that was reported from Enugu in South Eastern Nigeria, where LSCS (85%) and destructive operation (10%), and 3.7% from Ethiopia where LSCS (46.1%) and destructive operation (16.2%) were carried out using mainly general anaesthesia⁷. Increased use of regional anaesthesia in this study may have made the difference, because regional anaesthesia has been found to make LSCS to be safe, and its outcome to be comparable to that of destructive operation even in moribund cases⁸. This may explain why the risk of developing maternal complications with either LSCS or destructive operation was not different in this study, which was also the experience of other authors⁸ in studies where regional anaesthesia was used in majority of the cases.

Perinatal mortality of 52.9% in this study is similar to that of other studies from developing countries^{2,6,9}. The poor perinatal outcome which has been attributed to intrauterine hypoxia/ birth asphyxia and neonatal sepsis, from delay in presentation in the hospital and prolonged labour^{2,3}, calls for urgent intervention to make health care delivery services accessible and affordable, and also to train Traditional Birth Attendants (TBAs), especially in the use of partogram in labour management, which will make them to refer the patients early.

The duration of hospital stay was 14 days in the two groups, probably because the urethral catheter was left in-situ for 14 days post-operation, to rest the urinary bladder and prevent vesico-vaginal fistula. This, together with meticulous care, may explain why there was no case of vesico-vaginal fistula as reported by other authors⁸.

Conclusion

CPD still remains the commonest cause of obstructed labour although there is decreasing trend of obstructed labour in our community. The highest frequency was found among unbooked, primigravid teenagers, who had only Qu'ranic education.

With increased use of regional anaesthesia, maternal mortality rate was low, and both procedures appear safe. The incidence of complications was not different between LSCS and destructive operation; hence the choice of method of delivery between LSCS and destructive operation should be individualized. Regional anaesthesia, destructive operations and symphysiotomy which in trained hands are easy to perform, and associated with minimal complications, should be emphasized in our training curriculum. Destructive operation and symphysiotomy has the advantage of no uterine scar in the next pregnancy, while symphysiotomy has the added advantage of a larger pelvis in the next pregnancy, should be revisited in developing countries, where majority of the pregnant women are unbooked and poorly supervised in labour.

Female western education and care of the 'girl child', free or subsidized antenatal care and hospital delivery, and training of TBAs in the use of partogram in labour management, should be implemented in developing countries, if the incidence and complications of obstructed labour are to be reduced.

However, because of the biases inevitable in this hospital-based series and the small sample size, larger multicentre studies will be required to confirm these findings.

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