Journal of Women's Health Care

Henok and Asefa, J Women's Health Care 2015, 4:5
DOI: 10.4172/2167-0420.1000250

Research Article Open Access

Prevalence of Obstructed Labor among Mothers Delivered in Mizan-Aman General Hospital, South West Ethiopia: A Retrospective Study

Andualem Henok* and Adane Asefa

Department of Public Health, Mizan-Tepi Universiy, Mizan, Ethiopia

Abstract

Background: Obstructed labor is still a major cause of maternal morbidity and mortality and of adverse outcome for newborns in low-income countries. There are few data from Ethiopia, although the problem is believed to be common.

Objective: To assess the prevalence of obstructed labor among pregnant mothers delivered in Mizan-Aman General Hospital, South West Ethiopia.

Methods: Hospital based retrospective study was conducted from July 2014 back to September 2013 in Mizan-Aman General Hospital located at Bench Maji zone, Southwestern Ethiopia. From 1825 obstetrics records 151 were selected by using systematic random sampling technique and data analyzed. Data was entered to Epidata 3.1 and transported to SPSS for analysis. Frequencies were calculated to determine prevalences.

Results: Prevalence of obstructed labor was 7.95% and the main causes were cephalopelvic disproportion (66.67%), malpresentation or malposition (25%), and cervical and fetal congenital anomaly (8.33%). Out of this, only 25% had received antenatal care at least once, and the majority (83.3%) came from rural areas. The commonest maternal complications observed were postpartum hemorrhage (32.25%) and uterine rupture (25%). Forty -one point six seven percent of perinatal mortality was recorded.

Conclusion: The prevalence of obstructed labor was high with high rate of complications. The antenatal care follow-up practice was also low. Improved antenatal care coverage, good referral system, and comprehensive obstetric care in nearby health institutions are recommended to prevent obstructed labor and its complications.

Keywords: Prevalence; obstructed labor; complication; Ethiopia

Introduction

Obstructed labor results from failure to descent of presenting part in the birth canal due to mechanical reasons despite adequate uterine contraction. It is a life threatening obstetric complication with significant maternal and perinatal morbidity [1,2]. The commonest cause of obstructed labor (OL) is craniopelvic disproportion (CPD). This could arise as a result of reduced pelvic dimension, it occurs in laboring mother with childhood malnutrition, infection, poliomyelitis, deformity, sickle cell disease ,or in teenagers increased diameter of the presenting part ,such as malposition and malpresention. These include brow presentation, compound presentation, occipto-posterior, and mento-posterior in face presentation and congenital malformation (hydrocephalus, fetal ascites, and double monsters). Other causes include fibroid or ovarian tumor impacted in the pelvis below the presenting part, cervical and vaginal stenosis, ridged perineum in primigavida, and locked twins [3,4].

Obstructed labor has impact on the fetus by causing intracranial hemorrhage due to severe molding of the head leading to tentorial tear or traumatic delivery, caput, fetal distress, and acidosis due to fetal hypoxia and maternal acidosis and neonatal sepsis. If the duration of obstructed labor is prolonged without intervention, the fetus dies because of anoxia by excessive pressure on the placenta and umbilical cord. The dead fetus becomes softened by decay and may trigger the onset of coagulation failure and prolonged uterine contraction, end with rupture of uterus these leads to maternal hemorrhage and then to hemorrhagic shock, peritonitis, and septic shock, and death. Mothers may improve with longterm complications, like fistula, vaginal atresia, cervical stenosis, and secondary amenorrhea (infertility) following hysterectomy due to rupture or Sheehan's syndrome [3].

Laboring mother presented with history of prolonged first stage of labor, early rupture of fetal membrane, and if labor delay with obstruction they present with secondary signs and complications such as, derangement of vital sign, exhaustion, metabolic acidosis, genital sepsis, and injury to the genital tract. Principle of management of obstructed labor is correcting fluid, control infection, resting bladder and immediate relief of obstruction. Cesarean section followed by operative vaginal deliveries in malposition of fetal head in alive fetus and destructive deliveries in dead fetus were options of operative management [2-8].

Globally at least 585,000 women die each year by complication of pregnancy and childbirth. More than 70% of all maternal death is due to five major complications: hemorrhage, infection, unsafe abortion, hypertensive disorders of pregnancy, and obstructed labor [5,6]. Among these etiologies, obstructed labor is one of the most common causes of maternal illness and death in sub-Saharan Africa and Southeast Asia. Worldwide, obstructed labor occurs in an estimated 5 % of pregnancies and accounts for an estimated 8% of maternal deaths. It is an indicator of inadequacy and poor quality of obstetric care and immediate causes of maternal and prenatal morbidity and mortality due to uterine rupture, complications of cesarean deliveries, postpartum hemorrhage, anesthesia complications, puerperal sepsis, asphyxia, and brain damage [7,8].

***Corresponding author:** Andualem Henok, Department of Public Health, Mizan-Tepi Universiy, Mizan, Ethiopia, Tel: 251 473360258; E-mail: andualemhenok@gmail.com

Received August 03, 2015; **Accepted** August 05, 2015; **Published** August 08, 2015

Citation: Henok A, Asefa A (2015) Prevalence of Obstructed Labor among Mothers Delivered in Mizan-Aman General Hospital, South West Ethiopia: A Retrospective Study. J Women's Health Care 4: 250. doi:10.4172/2167-0420.1000250

Maternal and perinatal mortality and morbidity associated with obstructed labor are almost totally prevented in developed countries because of improved nutritional status, wide health coverage, adequate transportation and communication system, availability of trained health personnel, optimal antenatal and intrapartum care, and other related factors [7]. Ethiopia has estimated maternal mortality ratio (MMR) of 470 per 100,000 live births in 2010, equates with 14,000 maternal deaths per year. Obstructed labor accounts for 22% of maternal deaths in Ethiopia. It is also associated with high perinatal morbidity and mortality occurring around the time of birth [9,10]. The fifth millennium development goal (MDG 5) targeted to reduce maternal mortality ration (MMR) by three quarter by 2015. Despite the fact that many countries of the world signed millennium declaration, progress report state that maternal mortality remained unacceptably high across developing world. Moreover, with a few notable exceptions, little progress has been reported in global decline of maternal mortality over the past decade [11,12].

Many studies concluded that obstructed labor is preventable and depends on good nutrition starting from childhood, universal coverage of antenatal care, monitoring of labor with skilled staff, pelvic assessment at 36 weeks, routine use of partograph, good referral system, and availing comprehensive obstetric care in near health institution or establishment of a mother's waiting area [10].

In case of the study area, there is no data even though the problem is believed to be common. Therefore this study has paramount importance to fill the gap regarding the inadequacy of information about the problem, identifying specific cause of obstructed labor, scaling up evidence based intervention and measuring the progress of national implementing plan. It also helps the policy makers to plan and implement evidence-based action to reduce the problem. Therefore, this study was planned to assess prevalence of obstructed labor in Mizan-Aman general hospital. The data that obtained from this study will also assist policymakers, planners, and other collaborators in the health sector to formulate appropriate strategies and interventions to tackle the problem.

Methodology

Study Area and Period

The study was conducted in Mizan-Aman general hospital, which is located in Bench Maji zone, southwest Ethiopia. Mizan-Aman town is found in 561 km from Addis Ababa in Southwest direction. The hospital has 4 wards (medical, pediatric, gynecological and obstetric and surgical) and 1 emergency, 3 outpatient departments (OPD), maternal and child health care (MCH), ART, Ophthalmology and Dentistry departments. It had 1 gynecologist and obstetrician 1 surgeon, 10 general practitioner, 10 BSc nurses, 17 Clinical nurses, 10 midwives and 50 other staff workers. The hospital was providing services to southwest Ethiopia population for around 1,270,000 peoples. This study was conducted from July 2014 back to September 2013.

Study Design

Hospital based cross sectional record review was conducted.

Source Population

All pregnant women who were attending health care in Mizan-Aman general hospital were source population.

Study Population

All pregnant women who gave birth in Mizan-Aman general hospital after 28 weeks of gestation.

Sample Size and Sampling Method

The sample size was determined by using single population proportion formula to calculate sample size.

$n= [(Z\alpha/2)2 \times P (1-P)]/d2$

Where, p= 12.2% which is prevalence of obstructed labor in Jimma Univesity specialized hospital.

Zα/2 at 95% confidence level =1.96

d (margin of error)=0.05

$n= [(1.96)2 \times 0.122(1-0.122)] / (0.05)2$ n =165

Using population correction formula the final sample size was 151. To select these samples systematic sampling method was employed by using patient record list as sampling frame.

Inclusion and Exclusion Criteria

Inclusion Criteria: Women whose gestational age were more than 28 weeks or birth weight greater than 1000gm and delivered in Mizan-Aman general hospital.

Exclusion Criteria: Women whose gestational age was less than 28 weeks, women who was admitted post-partum and those who were discharged before delivery were excluded from study.

Data Collection Procedure

Checklist was prepared for collection of data from patient card. Then the data was collected through filling pre-tested checklist carefully.

Data Quality Control

The checklist was pretested in Mizan-Aman general hospital and close supervision was done by principal investigators and supervisors during data collection. Completeness of data was checked daily.

Data Analysis and Presentation

The data was entered in to Epidata 3.1 and transported to SPSS version 17 for data analysis. Frequencies of variables their percentages were calculated to determine prevalences.

Ethical Consideration

Ethical clearance was obtained from ethical committee of Mizan-Tepi University, college of health sciences. Permission letter was obtained from Mizan-Aman administration. The confidentiality of the patient was secured throughout the study and information regarding the identification of the patient was recorded anonymously.

Result

Socio-demographic characteristics

In this study, the mean age of the women during the time of delivery was 26.2 years. Nearly half (48%) of the study population were protestants. Majority (92.3%) were married, nearly two third were Bench in ethnicity. About two-third (68.2%) of the women were from rural areas. Information about the occupation and educational status of the women was not obtained due to incomplete registration at the health facility (Table 1).

Obstetric history

Regarding the source of referral, most of the mothers (60.92%)

Characteristics		Number	Percentage
Age	<19	43	28.5
	20-29	67	44.4
	>30	41	27.1
Total		151	100
Religion	Protestant	72	48
	Orthodox	47	31
	Catholic	2	2
	Muslim	29	19
Total		151	100
Marital status	Married	139	92.3
	Unmarried	3	2
	Divorced	7	4.6
	Widowed	2	1.1
Total		151	100
Ethnicity	Bench	100	66.2
	Diezzy	7	4.6
	Sheko	5	3.3
	Amhara	25	16.3
	Others	14	9.3
Total		151	100
Residence	Rural	1o3	68.2
	Urban	48	31.8
Total		151	100

Table 1: Socio-demographic characteristics of women who gave birth at Mizan-Aman general hospital, 2014.

Characteristics	Number	Percentage
Source of referral		
Self	92	60.92
Hospital	0	0
Health center	59	39.08
Total	151	100
ANC follow up		
Had follow up	92	60.93
Had no follow up	59	39.o7
Total	151	100
Duration of labor		
6-12hr	51	33.67
12_24hr	77	51.23
24 -72hr	23	15.10
Total	151	100%
Parity		
0	44	29.1
1-4	88	58.3
>4	19	12.6
Total	151	100
ANC=Antenatal care		

Table 2: Obstetric history of women delivered at Mizan-Aman general hospital, 2014.

came to the hospital by themselves (self-referal). More than one third (39.07%) of the mothers had no ANC followup during pregnancy. Majority 88 (58.3%) of women were in Para range of 1-4 followed Para 0 (primigravida) and 16.2% were grand multipara (more than 4). The duration of labor of study population ranged from 6 to 72 hr. with mean duration of 19.5 hr. Majority (51.23%) of women were in labor for 12 to 24 hr. while 15.10% were in labor for 24 to 72 hr. (Table 2).

Obstructed Labor

Among 151 women who gave birth at Mizan-Aman general hospital, 12 (7.95%) were diagnosed to have obstructed labor. The duration of obstructed labor ranged from 12 to 72 hr. with the mean duration of 35.5 hr. Majority (58.33%) of them were in labor for 24 to 72 hr. Among the cases of obstructed labor, majority (58.33%) underwent cesarean section. In this study, the common causes obstructed labor were CPD account 66.67%, followed by malpositon and malpresentation 25% and cervical stenosis 8.33%. Majority of the cases had more than one complication. The most common complication was postpartum hemorrhage (31.25%), followed by uterine rupture (25%) In most cases, the cause of obstructed labor was craniopelvic disproportion followed by malposition and malpresentation (Figure 1) (Table 3).

Discussion

In this study, obstructed labor accounted for 7.95% of hospital deliveries, within the range reported from other countries, but more

Duration of labor		
<12hr	0	0
12_24hr	5	41.7
24-72hr	7	58.3
Management		
Cesarean section	7	58.3
Laparatomy and STAH	3	25%
Laparatomy and TAH	1	8.33
Destructive delivery	1	8.33
Total	12	100
Maternal complication		
PPH	5	31.3
Uterine rupture	4	25
Would dehiscence	3	18.8
puerperal sepsis	3	18.8
Bladder rupture	1	6.25
Total	16	100
Fetal out come		
Alive	7	58.3
Fetal death	5	41.7
	12	100

PPH= Postpartum hemorrhage, STAH =Subtotal Abdominal Hysterectomy, TAH= Total Abdominal Hysterectomy

Table 3: Prevalence of obstructed labor at Mizan-Aman general hospital, 2014.

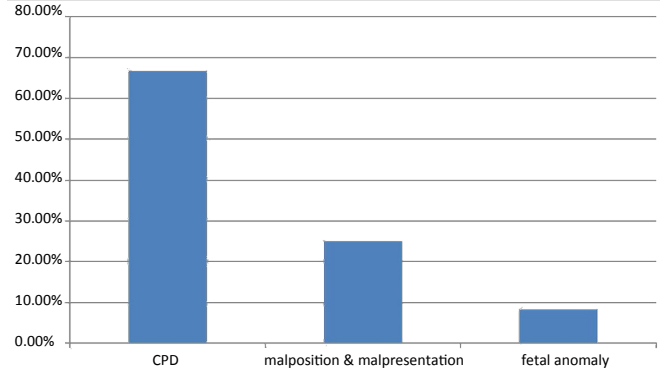

Figure 1: Cause of obstructed labor among women who gave birth at Mizan-Aman general hospital, 2014.

than a recent study conducted in Jimma University Specialized Hospital, Ethiopia, which was 12.2%. However, our hospital-based data may underestimate the actual incidence because only limited numbers of pregnant women deliver in the hospital in our study area, and many rural communities have limited access to health care.

In our study the maximum incidence obstructed labor (58.33%) was recorded in the age group 20-29 years which is comparable to research conducted in Jimma University Specialized Hospital, Adigrat General Hospital, Pakistan Public Sector University, Khyber Teaching Hospital, and South West Uganda. Regarding to parity and residence, most of the women who were victims of obstructed labor were primigravida (50%) and from rural area (83.33%). This finding is comparable with the study conducted in other parts. Study report from Pakistan, Jhalawar Medical College, Uganda, and Medari Teaching Hospital showed the incidence of obstructed labor was higher among primigravida and rular resident [13-15]. This high prevalence of obstructed labor among primigavida clearly indicates that early marriage remain as major problem of the country. Similarly higher incidence of obstructed labor among rural resident may be linked with the delay at reaching health facility.

Although ANC is a poor measure to prevent pregnancy and delivery complication, it could be a proper time to counsel the patient and for preparation for place of delivery. In this study, the prevalence of obstructed labor was higher among women who had no ANC follow up (75%). This is almost similar with researchs held in Jimma University Specialized Hospital and Adigrat General Hospital [15,16]. This finding reflects the importance of focusing on encouraging women to utilize heath service.

The duration of labor is the most important factor that is significantly associated with maternal and perinatal morbidity and mortality. The mean duration of labor in this study was 35.5 hr., which was shorter than than the report from Adigrat General Hospital (45.4 hr.) but longer than that of Pakistan and Jhalawar Medical College, which were 27.5 hr. and 8-12 hr. respectively.

In this study cephalo-pelvic disproportion (CPD) was the mojor cause of obstructed labor (66.67%) which was comparable to the studies conducted in Jimma University Specialized Hospital, Adigrat General Hospital, Jhalawar Medical College, and South West Uganda which were 67.6%, 64.9%, 63%, and 63.7% respectively. But, higher than the study conducted in Pakistan Public Sector University and Khyber Teaching Hospital which was 49.9% and 47.5% respectively [2,13-16]. CPD was accounted for about 83% obstructed labor in Gamble Specialized hospital, which was higher than the result of this study [17]. CPD remain a common cause of obstructed labor in countries where child hood malnutrition and early marriage is common.

Malposition and mal presentation were responsible for 25% of obstructed labor, which was consistent with study conducted in Jimma University Specialized Hospital (27.4%) and Adigrat General Hospital (21%). It was lower relative to the report from Pakistan Public Sector University, Khyber Teaching Hospital and Jhalawar Medical Collage that were 43.3%, 45.5% and 30% respectively. Malposition and mal presentation was common among multigravida, which was similar with other reports.

Fetal congenital anomaly was the least common cuase of obstructed labor (8.33%). This was nearly equivalent to research held in Khyber Teaching Hospital (7.8%) but higher than report from Jimma University Specialized hospital (3.4%) and Adigrat General Hospital (2.1%).

Moreover, we found that adverse outcome of obstructed labor such as perinatal death (41.67%), and maternal complications like post-partum hemorrhage (31.25%), uterine rupture (25%), wound dehiscence (18.75%), puerperal sepsis (18.75%) and bladder rupture (6.25%) which were consistent with other studies [2,9,15-16]. Most of our patients were rural residents, which may predispose to long distance travel to health care service and later arrival after onset of labor. Cesarean section was the main way of delivery (58.33%) followed by laparatomy for uterine rupture (33.3%) and destructive delivery (8.33%), which was consistent with study conduted in Jimma university Specialized Hospital (54.7% for Cesarean section, 32.4% for laparatomy and hysterectomy and 12.8% for destructive delivery) [14]. Fetal distress and maternal condition might be the main events to choose cesarean section.

Limitation of the study

One of the limitations of this study was the retrospective nature of the study and lack of some data due to inappropriate and/or non-recording of certain variables. Another limitation was its small sample size. The role of care managers would be important [18]. However, this study did not include it.

Conclusion

This study revealed that there was high prevalence of obstructed labor although the government has been making possible effort to prevent the problem. There was also high rate of complications and low ANC follow up among women with obstructed labor. Cephalopelvic disproportion was the main causes of obstructed labor, which may indicate that childhood malnutrition and early marriage was still a problem. Post-partum hemorrhage was the most common complication faced by mothers with obstructed labor. Therefore, Ministry of health and other responsible bodies need to exert effort to increase ANC follow-up coverage, improve health facility function, and referral and transportation system.

References

1. Ahmed A (2010) maternal mortality Trend in Ethiopia. Ethiop. J Health Dev 24.
2. Ara A (2010) Outcome of obstructed labor in Khyper teaching Hospital, Peshawar. JPMI 18: 512-517.
3. World Health Organization (2008) Education material for teachers of midwifery managing of prolonged and obstructed labor. Switherland Geneva: WHO.
4. Dutta DC (2004) Text book of obstetrics including perinatology and contraception 6: 402-404.
5. Carmen D, Carlan A (2003) Global burden of obstructed labor in the year 2000, World Health Organization, Geneva.
6. Marge K, Frances T, Solomon T (2010) Ethiopia journal of Reproductive Health 4: 1.
7. WHO, UNICEF, UNFPA, World bank (2010) Ternds of maternal mortality: 1990 to 2008. WHO: Geneva.
8. Neilson JP, Lavander T, Quenby S, Wray S (2003) Obstructed labor. British Medical Bulletin 67: 191-204.
9. Shaikh S, Shaikh AH, Shaikh SAH, Isran B (2012) Frequency of obstructed labor in teenage pregnancy. NJOL 7: 36-37.
10. Federal Ministry of health (2000) Labor and delivery care Blended Learning module for health extension programme. Addis Ababa Ethiopia.
11. Ndola P, Paiget P (2010) maternal mortality in developing countries 12: 113-126.
12. Gessessew A, Mesfin M (2003) Obstructed labor in Adigrat Hospital, Tigray Region. Ethiop. J Health Dev 17: 175-180.
13. Kabakyenge JK, Osterogren PO, Turyakira E, Mukasa PK ,Pettersson KO (2011). Individual and health facility factors and the risk for obstructed labor

and its adverse outcomes in south-western Uganda. BMC pregnancy and child health 11: 73.

14. Fantu S, Segni H, Alemseged F (2010) Incidence causes &outcome of obstructed labor in Jimma University specialized Hospital. Ethiop J Health sci 20: 3.

15. Memon S, Ara Qazi R, Khushk I, Pushpa (2009). Pattern of obstructed labor at public sector university hospital of sindh, Pakistan.

16. Gupta R, Porwal SK (2012) Obstructed labor: incidence, causes and outcome in Gyne & obs dept, Jhalawar medical college in India. InterJBioMedRes 3: 2185-2188.

17. Melah GS, El Nafaty AU, Massa AA, Audu BM (2003) Obstructed labor: a public health problem in Gombe, Gombe state, Nigeria. Obstet Gynaecol 23: 369-367.

18. Ciccone MM (2010) Feasibility and effectiveness of a disease and care management model in the primary health care system for patients with heart failure and diabetes (Project Leonardo) Vasc Health Risk Manag 6: 297-305.