JIMMA UIVERSITY

COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES

INTEGRATED EMERGENCY GYN/OBS AND SURGERY DEPARTMENT

MATERNAL AND FETAL OUTCOMES IN TERM PREMATURE RUPTURE OF MEMBRANE IN MIZAN AMAN GENERAL HOSPITAL, SNNPR, SOUTH WEST ETHIOPIA

BY

TIGIST ENDALE (BSc)

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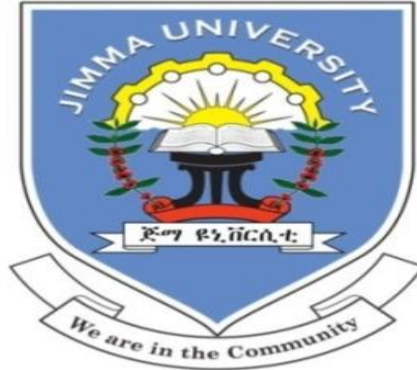
A RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCE, DEPARTMENT OF INTEGRATED EMERGENCY GYN/OBS AND SURGERY FOR PARTIAL FULLFILLMENT FOR THE DEGREE OF MASTERS IN INTEGRATED EMERGENCY GYN/OBS AND SURGERY

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ABSTRACT

Background: *Premature mature rupture of membrane is represents one of the most frequent and most controversial problem obstetricians are faced with. The amniotic membranes other than having a continuative function for amniotic fluid, the latter fundamental for fetal growth, also needs to be considered as a barrier that protects the fetus and maintains the amniotic fluid sterile away from the vagina and prevents prolapsed of its contents into the cervix.*

Objectives: *To determine maternal and Fetal outcomes and associated factor in term premature rupture of membrane, In MizanAman general hospital, Bench Maji zone,*

Method*-Hospital based cross-sectional retrospective study design was conducted from 185 mothers who had term Premature rupture of membrane in Mizan Aman General Hospital, Bench Maji zone south west Ethiopia from January 1/2011 G.C- December31/2013 GC. Data were collected using check list based on registration books. The data were checked entered and analyzed using SPSS version 20. Descriptive were used to assess the frequency of dependent and independent variable, Binary logistic regression was used to examine association between dependent and each independent variables. A 95% CI and p-value of <0.05 were considered to be statistically significant.*

Result: *There were 22.2% unfavorable maternal outcomes. Maternal mortality and morbidity complicated by 11.3% of puerperal sepsis followed by 6.0% of wound site infection. Around 33.5% were unfavorable Fetal outcome. 8.4% Fetal mortality, 11.9% Perinatal mortality and 21.6% Fetal morbidity complicated by Fetal infection. In the logistic regression duration of Premature rupture of membrane >12hr (AOR=5.6, 95%CI; 1.3, 24.1) duration of premature rupture of membrane to delivery >24hrs (AOR=2.8, 95%CI; 1.7, 11.8). Among the factors associated with unfavorable maternal outcomes.*

Duration of Premature rupture of membrane >12hr (AOR=12, 95%CI; 2.8, 51.7) Fetus who needs ICU admission (AOR=11.3, 95%CI; 6.8, 18.9) Meconium stained color of liquor (AOR=9.9, 95%CI; 3.3, 33.7).Among the factors associated with unfavorable Fetal outcomes

Conclusion and Recommendation: *There is increased maternal and Fetal morbidity & mortality is directly related to Premature Rupture of Membrane. Therefore the delivery should be within a reasonable period of time. Improved antenatal care service utilization, optimum obstetric and medical and Fetal cares are essential for the reduction of the devastating complications related to these disorders.*

Key words: *Premature Rupture of Membrane, Maternal outcomes, Fetal outcomes, Mizan Aman general hospital**.*

ACKNOWLEDGEMENT

ABBREVATIO AND ACRONYMS

ANC   Antenatal Care

APGAR   Activity, Pulse rate, Grains, Appearance, Respiratory rate

C/S-   Cesarean Section

ENND   Early Fetal death

GA   Gestational Age

MAGH   MizanAman General Hospital

WHO   World Health Organization

MAS   Meconium aspiration syndrome

MDG   Millennium development goal

MM   Maternal mortality

MOH   Ministry of Health

MPH   Master's in public health

NRFHRP   Non Reassuring Fetal Heart Rate Pattern

PROM   Premature rupture of membrane

SPSS   Statistical package for social science

SPROM   Spontaneous premature rupture of membrane

SVD   Spontaneous Vaginal Delivery

WHO   -World Health Organization

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1: INTRODUCTION

1.1.Background

Premature rupture of the membranes PROM is defined as the spontaneous leakage of amniotic fluid prior to the onset of labour. This definition has been sub categorized into preterm PROM (PPROM) when the gestational age is less than 37 weeks and term PROM when the gestational age is 37 weeks or more(1).

The term "latency" refers to the time from membrane rupture to delivery. Term premature rupture of fetal membranes (PROM) is defined as loss of amniotic fluid before the onset of labor in pregnancies of 37 or more weeks.(2).

PROM complicates only 5% to 10% of pregnancies but is associated significant maternal and Fetal morbidity and mortality. The three causes of Fetal death associated with PROM are sepsis asphyxia and pulmonary hyperplasia. Women with intrauterine infection deliver earlier than non-infected women and infants born with sepsis have a mortality rate four times higher than those without sepsis. In addition, there are maternal risks associated with chorioamnionitis. Therefore substantial share on maternal, Perinatal and infant morbidity and mortality(3).

Estimates of the contribution of sepsis to maternal mortality vary from 8 to 16%. A 2006 systematic review, with more than 35,000 women included in the analysis, provided a robust estimate of the distribution of causes of maternal deaths. Maternal sepsis was the third most important cause after hemorrhage and hypertensive disorders, responsible for 11.6% of maternal deaths in Asia, 9.7% in Africa and 7.7% in Latin America and Caribbean (4).

With only one fewer than 150 days left until the 2015 deadline to achieve the millennium development goal MDGs. From the 8 MDGs Reducing child mortality and improving maternal health is 4& 5 respectively. Maternal health is a useful indicator to assess not only women's health status but also the accessibility, sufficiency, and effectiveness of a country's health service system. Thus, improving maternal health and reducing child mortality by making them free of infection Millennium Development Goals (MDGs)(5).

1.2.   Statement of the Problem

With only one year left until the 2015 deadline to achieve the millennium development goal MDGs. From the 8 MDGs   Reducing child mortality and improving maternal health is 4& 5 respectively.

Among the Millennium Development Goals, achieving the goal for maternal health (MDG5) poses the greatest challenge in Sub- Saharan Africa, It has been reported that Ethiopia is one of the six countries that contribute about 50% of the maternal deaths; the others being India, Nigeria, Pakistan, Afghanistan and the Democratic Republic of Congo. Maternal mortality (MM) is mostly affecting the developing countries. Forty-seven percent of global MM occurred in Africa, with the highest rate in sub Saharan countries. Ethiopia has designed a number of policies and strategies to improve maternal health and reduce child mortality(6).

The longer the time elapsed between rupture and delivery, the greater the chance of infection for both mother and fetus. PROM risk is increased if the mother had previous occurrence of PROM and low body mass index .Its occurrence is also related to mechanical factors, such as twin pregnancies, due to distended uterine volume.(2)

preterm premature rupture of membranes is responsible for maternal and Fetal morbidity and is associated with significant maternal, fetal and Fetal mortality(7).

A publication in the Lancet on global maternal mortality trends provides more optimistic figures for Ethiopia both in terms of decline in maternal mortality ratio and improvement of rank among sub-Saharan African countries (28 out of 46 countries in the list, in 2008) (8).

Ethiopia is one of the countries which have the highest number of maternal mortality in the world from this half a million women die as a result of pregnancy and child birth each year (WHO 2009).

Even if the Ethiopian maternal and under-five child mortality rate decrease from 950 to 350 and 198 to 77 respectively from 1990 year -2011 year. 42% of under-5 child death occurs in the Fetal period so to scale-up the health of the mother and fetus still it needs more attention and work up to reach the target(8)

The infant mortality rate measures the number of infants who die before their first birthday for every 1,000 births in the same year. In Africa, some 65 percent of under-five deaths occur within this first year. Fetal deaths, which are deaths in the first 28 days after birth, account for more

than half of this percentage. Further, infant mortality rates in Africa have declined slower than under-five mortality rates(9).

In now days for reduction of child mortality rate, improving the life of fetus by reducing infection, because of one of the leading cause of Fetal mortality. About 40% of under -5 years old death are estimated to occur in first month of life, mostly in the first week (WHO, 2009).

PROM causes definite maternal and Fetal morbidity and mortality; at term, 5 to 10 percent of pregnant women present with premature rupture of the membranes; these women are at increased risk for intrauterine infection when the interval between the membrane rupture and delivery is prolonged. increases maternal and Fetal susceptibility to infection(10).

Following the rupture of membranes, both the mother and fetus have an increased risk of infection. Fetal infections can both be systemic and local. Generally, maternal infections (chorioamnionitis) precede fetal infections; however fetal infections can be manifested several days before overt clinical signs of infection in the mother are observed. The incidence of maternal infection following PROM differs depending on the population studied. On the basis of Overall number of pregnancies this range from 0.5-1%. With prolonged PROM this incidence rises to range from 3-15%. Maternal infection however seems to be more common. The incidence of chorioamnionitis goes up to 40%(11).

Premature rupture of membranes has absolutely essential significance for further fate of pregnancy. Late diagnose can mean wasted opportunity of appropriate intervention. In most cases, the diagnostics does not cause bigger problems, but in some situation it may not be easy to make the right diagnosis(11).

Knowing the maternal and Fetal outcome in premature rupture of membrane is very important to achieve MDG, that of to decrease maternal morbidity and child mortality and also, for better management and prevention of complication. This study will aim to determine maternal and Fetal outcome in premature rupture of membrane among term pregnant women who is delivering or admitted maternity or labour ward in Mizan Aman General Hospital and used as base for further study on similar topics at different set ups.

2: LITERATURE REVIEW

Definition and Categories of PROM

The membranes surrounding the amniotic cavity are composed of the amnion and the chorionic, which are closely adherent layers consisting of several cell types, including epithelial cells, mesenchyme cells, and trophoblastic cells, embedded in a collage nous matrix. (12)

Premature rupture of the fetal membranes is defined as rupture of the membranes 1 hour before the onset of labor at any gestational age. This definition has been sub categorized into preterm PROM (PPROM) when the gestational age is less than 37 weeks and term PROM when the gestational age is 37 weeks or more(1).

Premature rupture of membranes occurs between 5 and 15% of pregnancies, of this 10% occurs at term and preterm 2 to 3.5%.(13)

The World Health Organization (WHO) estimates that each year 4 million newborns worldwide die during the Fetal period. Seventy-five percent of these deaths occur during the first week of life, and 25% to 45% of Fetal deaths occur the first day of life. Fetal deaths are mainly caused by severe infections (36%), prematurity (28%) and birth defects (7%).2 In the United States, 1 to 5 of every 1000 live births result in Fetal infection(14)

PROM was common in primigravida. Majority of women were admitted within 12 hrs of prom 46.5% C/S more among in primigravida failure to progress was the common indication. Maternal morbidity is significant 24.5% no maternal mortality in the study. Perinatal mortality 3.5% and Perinatal morbidity 28% maternal outcome had association with ANC follow up(15)

The criteria for the diagnosis of clinical chorioamnionitis include maternal pyrexia, tachycardia, leukocytosis, uterine tenderness, offensive vaginal discharge and fetal tachycardia leading Fetal complications. Among the maternal and early Fetal deaths were infection (17% of maternal deaths and 25% of early Fetal deaths) and among the Fetal deaths, majority of the fetus (86%) were alive at birth. Among the maternal deaths, 45% of the fetus were alive at birth but only 25% were discharged alive. There was a high proportion of missing information for the fetus born to mothers who die [14].

The Centers for Disease Control and Prevention estimates that, for every 141 babies born in the United States each year, **1** dies of infection in the first year of life. That comes to 30,000 newborn deaths, including 20,000 in the first month of life. Before the use of antibiotics,

mortality rates for newborns with infection/ sepsis were 95% to 100%; after use of antibiotics, mortality rates range from 13% to 45%.1 Lower mortality rates are the result of earlier case-finding, timely diagnostic evaluation, and initiation of empiric antibiotic therapy. Both inpatient and outpatient Fetal care requires timely diagnosis and therapy; delay is associated with worsening morbidity and mortality [10].

The study done in Karnataka term PROM is common in primigravida. Majority of women admitted within 12 hour of PROM (46.5%). cesarean sections were more among primigravida. failure to progress was the common indication. Delivery for women Latency period > 12hr outcomes, OR (95% CI)2.4 (1.6 to 9.2) Composite Fetal infectious morbidity 3.6 (2.7 to 13.7) Composite maternal infectious morbidity Overall rate = 2.8% 4.2 (1.9 to 19.9)Secondary outcomes, OR (95% CI).Duration of PROM to delivery > 24hr OR2.4,95%CI; (1.0 to 6.1). Total maternal hospital stay, more than 7days 13.0 (1 to 89) <0.001and 3to 7days 6.3 (3.3 to 12.4) Maternal mortality was significant (24.5%). Perinatal mortality (3.5%) infection was the commonest causes [15].

In Sagameshwar Hospital India 74% cases had PROM of <12hrs duration and 26% had PROM of >12 hrs. As latent period increased from 12 hours to more than 24 hours Fetal infection rate also increase from 1.3% to 13.3%. It shows that complications are more as the duration of PROM increases Chorioamnionitis Overall rate = 9.0 %(OR=3.0,95%CI; 1.2 , 7.0).(16)

Clinical chorioamnionitis is diagnosed solely based on clinical signs since access to uncontaminated amniotic fluid or placenta for culture is invasive and usually avoided. Typically, the presence of fever > 100.4 is required in addition to two other signs (uterine tenderness, maternal or fetal tachycardia and foul/purulent amniotic fluid(17)

PROM was identified among the 6,003 deliveries (7.2%) that occurred at the University of Alabama at Birmingham. Mean (_ standard deviation) maternal age for the study cohort was 24.7 _ 5.8 years. Forty-three percent of the women were nulliparous. Racial composition of the study was 60% African American, 35% Caucasian, 2% Hispanic, and 3% other. Mean gestational age of preterm PROM for the study cohort was 32.4 _ 3.8 weeks; with a mean delivery gestational age of 32.9 _ 3.4 weeks and average length of latency 3.3 _ 6.8 days.   Respiratory distress syndrome was the most common major morbidity noted across each gestational age group. The incidence of respiratory distress syndrome was significantly higher among those infants

delivered at 32 weeks of gestation or less. Both maternal and infant length of hospital stay were significantly longer for cases of preterm PROM delivered at 34 weeks of gestation or less as compared with those who delivered at 36 weeks of gestation(18).

At Aga Khan University Hospital (AKUH) in Karachi, Pakistan over. Mean maternal age of this cohort was 26.5 ± 10 years and the mean duration of maternal PROM was 30 ± 12 hours. Maternal fever (n = 74; 17%), chorioamnionitis (n = 28; 6%), and history of urinary tract infection (n = 22; 5%) were the maternal signs and symptoms at the time of delivery. Most fetus were born at term (n = 307; 72%) and via vaginal delivery (n = 306; 72%). Approximately half had a low birth weight (< 2,500 grams; n = 206; 48%). The mean birth weight was 2,228 ± 685 grams(19).

Regardless of obstetric management or clinical presentation, birth within 1 week is the most likely outcome for any patient with preterm PROM in the absence of adjunctive treatments. The earlier in gestation that PROM occurs, the greater is the latency period. With expectant management, 2.8–13% of women can anticipate cessation of fluid leakage and possible restoration of normal amniotic fluid volume. Of women with preterm PROM, clinically evident intra-amniotic infection occurs in 13–60%, and postpartum infection occurs in 2–13%. The incidence of infection increases with decreasing gestational age at membrane rupture and increases with digital vaginal examination (20)

However, countries with the highest rates of Fetal mortality are mostly in sub-Saharan Africa. Fourteen of the 18 countries with a Fetal mortality rate >45 per 1 000 live births are in the Africa region of WHO. In several of them there has been only minimal improvement in rates in the last decade, and even reversal in several countries. Statistics of teaching hospitals in several countries show consistent improvement over the years, and thus illustrate the benefits of a well-organized obstetric-pediatrics service for the community. In all large cities where teaching hospitals are situated the populations tend to be mobile and so comparable community figures from year to year are difficult to obtain. In Dares-salaam it is estimated that about 75 per cent of all births take place in hospital as compared to the overall national figures of 25 to 30 per cent. This indicates the very large number of births occurring in rural areas often under traditional methods of midwifery and without antenatal care. The associated dangers of low birth weight, Intrapartum anoxia, sepsis and several others are all too familiar. The main direct causes of Fetal deaths are estimated to be pre-term birth (28%), severe infections (26%) and asphyxia (26%)(21)

PROM causes great problems such as increase in the rate of induction of labor, unsuitable cervix at the onset of induction, probable induction failure, fetal distress, fetal and maternal infection, cesarean section, and its complications (e.g. post partum endometritis), longer hospitalization duration and patient's increased expenses. The principal findings of study of 100 of full term pregnant with painful uterine contraction, had early ruptured of membrane occurred in 44 %, 39% had late rupture of membrane, all 100 cases were delivered by cesarean section due to failure of progress among these cases 43% had fetal distress only 23% cases had Meconium, early rupture of membrane could be added as a new risk factor to predict the Likelihood of requiring cesarean delivery(22).

The Rate of PROM and cesarean delivery in the study group was 7.5% and 28.06%, respectively. Indications of cesarean section contained: Fetal distress, 30.8%; CPD, 27.3%; Failure to progress, 18.6%; High risk pregnancy, 16.9% and macrosomia, 6.4%. The rate of cesarean section decreased significantly when cervix dilatation or effacement (each alone) increase. Interval duration between the rupture of amniotic sac and the onset of induction had no effect on the cesarean rate (p=0.58). An increase in induction cases did not increase the rate of cesarean section (p<10-7). PROM at 36th week of pregnancy and later did not increase the chance of cesarean delivery, and neither did an increase in induction rates. Longer interval duration between rupture of membranes and onset of induction played no role in decreasing the rate of cesarean section but it is possible to shorten hospitalization time by decreasing that interval duration without increasing cesarean rate.(23).

Of the 627 studied women, 357(56.9%) reported that ANC check-up is essential to the health of both the mother and the child, while 41(6.5%) did not know the benefit of ANC. Two hundred eighty six (48.8 %) women reported that their sources of information about ANC service were health institutions and 126 (21.5%) said TBA. One hundred seventy nine (28.5%) received ANC at least once but the majority 448 (71.5%) not received (24)

A total of 342 mother medical record was reviewed. Majority (39.2%) of them found between 20-24 with mean age of 23.1(+4.38). Majority (78.9%) of mother delivered through vagina while the remaining(21.1%) of them delivered by CS. Less number (62.3%) of them had ANC follow up for their current pregnancy(25)

In Jamnagar, Gujarat, India incidence of 5.2%. The incidence of PROM was higher in case of rural, young, primigravida patients. PROM more commonly occurred after 37 weeks and

majority of patients delivered vaginally. The indications for LSCS were mainly fetal distress and non-progressive first stage. Patients were managed aggressively and 355 (92.5%) of them were delivered within 24 hours. Total maternal hospital stay, more than 7days 13.0 (1 to 89) < 0.001and 3to 7days 6.3 (3.3 to 12.4. Maternal morbidity was 3.12% and maternal mortality was 0.26%in form of postpartum fever and abdominal distension. Fetal morbidity was 3.38% and Fetal mortality was 2.86%. The majority Out of 384 patients 355 (92.5%) patients were delivered within 24 hours. Only 29 (7.5%) patients were delivered greater than 24 hr. No patient in this study was delivered after 48 hours. Normal vaginal delivery was the commonest mode of delivery (338 cases, 88. %), while instrumental delivery rate was only 0.5 %(2 cases) and caesarean section rate was 11.5% (44 cases). The common indications of LSCS were fetal distress failure to progress in 1st stage of labor (31.8%). Maternal morbidity increased with increased PROM delivery interval. 15 fetus (3.90%) had low Apgar score at 1 and 5 minutes. Out of these 15 fetus having low Apgar score, 11 expired in Fetal period. 5 minute Apgar score < 7 Overall rate = 6.7% OR= 2.7 (1.2 to 6.0) Weigh less than 2500g OR= 3.2 (1.6 to 6.2) .There were no ante partum or intra-partum fetal deaths. Out of 384 newborns, 11 (2.9%) fetus expired in Fetal period. Perinatal mortality was 2.86%. 13 (3.38%) fetus had developed morbidity (26). Rajiv Gandhi University showed the incidence of Meconium Stained Amniotic Fluid in 9.34% of all delivery of which thick Meconium was noted in 48.53%. Meconium stained amniotic fluid was more common in patients with high-risk pregnancy. increase incidence of fetal distress, increase incidence of Fetal intensive care0R=14.0 (1.7 to159) p <0.001, and increase incidence of Perinatal death(27).

2.2. SIGNIFICANCE OF THE STUDY

Thus more rigorous examinations for the quality of maternal and Fetal health care are needed in order to identify specific problems and develop strategies to improve and reduce maternal and Fetal morbidity and mortality. Therefore, the purpose of this study is to determine maternal and Fetal outcome and associated factor for maternal and Fetal outcome in term premature rupture of membrane in the institution and find out the possible reasons for the findings in the study area. Guide the development of policies and programs for improving quality in the outcome of term premature rupture of membrane at national level in general and the study area in particular. In addition, the paper may be useful to other researchers as reference material while conducting further studies on similar problems. The results will also form baseline data for improving quality of maternal and Fetal health in the study area specifically and subsequently contributing to reduction of maternal & Fetal mortality in the country. Also this will have further advantage to minimize maternal morbidities and child mortality and also to achieve the millennium development goal (MDG 4&5).

2.3.CONCEPTUAL FRAME WORK

Socio demographic variable

-Age

-Residence

Maternal and Fetal outcome

- Favorable outcome

- Unfavorable outcomes

- Postpartum complication

Obstetric factor related to mother

-    Gravidity
-    Parity
      -Duration of PROM   to delivery
-    ANC
-    Previous history of PROM
-    Duration of PROM
-    Onset of labour
-    Color of liquor
-    Duration of hospital stay

Obstetric factor related to fetus

-    APGAR score
-    weight
-     ICU admission

Fig 1: Conceptual frame work on Maternal and Fetal outcome of premature rupture of membrane

3: OBJECTIVES

3.1.General objective

☞ To determine maternal and Fetal outcome and associated factors in term premature rupture of membrane in Mizan Aman General Hospital Bench Maji zone, SNNPR, South west Ethiopia.

3.2.Specific objectives

☞ To determine maternal outcome of premature rupture of membrane.
☞ To determine Fetal outcome of premature rupture of membrane.
☞ To identify associated factor with maternal outcome of premature rupture of membrane.
☞ To identify associated factor with Fetal outcome of premature rupture of membrane.

4: METHOD AND MATERIALS

4.1.   The study area and period:

The study was done at MizanAman general hospital, SNNPR ,South west Ethiopia, which is about 574 kilometers from Addis Ababa .The zone has 33 health centers which are government owned, and MizanAman General Hospital which is used as general hospital and owned and run by the Government (MizanAman Town health Administration Office, 2011). The total population of the Bench Maji zone is760, 314; of which 381,449 are males and 378,865 are Females. The hospital gives a general service for different parts of the zone. The average delivery service in a month in 2011 was about 100. MAGH was established in 1979 E.C and it is the only general hospital in the zone that service for many peoples. It has 136 beds. The Hospital has labor and delivery room which give services for parturient mother. The room operates with multidisciplinary staffs (Gynecologist, surgical officers students, midwifes and clinical nurse) through all the days of weeks.

The services are provided free of charge for all laboring mother. The study was conducted at MizanAman General Hospital from January1/2011 G.C to December 31, 2013 G.C

4.1.Study design:

A three years Institutional based retrospective cross sectional study design was conducted from January 1/2011 G.C – December 31/2013G.C

4.2.Population

4.2.1. Source population:

The source population was all pregnant women who were admitted and given birth to an infant in MizanAman general hospital.

4.2.2. Study population:

All pregnant mothers PROM records who were admit and given birth to an infant in MizanAman general hospital, during January1/ 2011 G.C – December 31/2013 G.C.

4.3.INCLUSION AND EXCLUSION CRITERIA

4.3.1. Inclusion Criteria
All records of pregnant mothers who are managed as term PROM and given birth to an infant in MizanAman general hospital.

4.3.2. Exclusion Criteria
- Incomplete and lost patients' cards were excluded

- Twin pregnancy

- Any co-morbidity with PROM

4.4.SAMPLE SIZE DETERMINATION AND SAMPLING TECHNIQUE

4.4.1. Sample Size

No need to determine sample size, because all 185 cards of mother who are managed as term PROM from January 2011 G.C – December31/ 2013G.C was included in the study.

4.4.2 Sampling Technique

All mothers who were managed as term PROM and given birth to an infant in MizanAman general hospital during the study period and who full fill the inclusion criteria was included in the study.

4.5.DATA COLLECTION AND MEASUREMENT
4.5.1. Study variable

4.5.1.1.Dependent variable;

- Maternal outcome.

- Fetal outcome.

4.5.1.2.Independent variable;

Socio demographic

-Age

- Place of residence

Maternal factor

- Gravidity

- Parity

- Duration of hospital stay

- Duration of PROM

- Duration of PROM to delivery

- History of Previous PROM

- Mode of delivery

- Onset of labour

- Color of liquor

Fetal factor

-APGAR score

-Weight

- ICU admission

4.5.2. Data collection instrument and method

The study data was collected from patient cards and registration book using check list which have 4 parts

- Socio-demographic variables,
- Obstetric history
- Maternal outcome and
- Fetal outcome

Some of the items were modified according to the situation of the study [15]. Four health officer students was collect the data and one 2nd year IEOS student with principal investigators supervise day to day data collection activities training was given for data collectors & supervisors. Each day after data collection check for completeness, clarity and accuracy.

4.6.OPERATIONAL DEFINITION

Normal APGAR - Apgar score >= 7

Low APGAR - Apgar score <7

Favorable maternal outcome -Mother discharge from the hospital with improvement

Favorable Fetal outcome– Fetus alive without complication

Unfavorable maternal outcome- Mother alive with complication and maternal death

Unfavorable Fetal outcome-Fetus alive with complication and still birth

4.7.DATA PROCESSING AND ANALYSIS

The collected data of each questionnaire was checked for completeness & coded before data entry. Data was entered, cleaned & analyzed using SPSS v.20.D/t frequency tables, graphs, charts & descriptive summaries were used to describe the study variables. Binary logistic regression was performed to identify the associations & predictors of the outcome variable. With 95% CI was set to determine the level of significance P – Value of < 0.05 was considered to be statistically significant. Finally, the data was described and presented using summarized frequency tables and charts.

4.8.DATA QUALITY CONTROL

To keep the quality of data detail trainings was given for data collectors, day to day activities during data collection; supervised and evaluated errors corrected by the investigator before the following day activity. And to have quality health professionals was involved in data collection. Furthermore principal investigator & supervisor give feedback and correction on daily basis at the end of every data was completed to data, Completeness, accuracy, and clarity of the collected data were checked carefully. Any errors, ambiguity, incompleteness encountered were addressed on the following day before starting next day activities.

4.9. ETHICAL CONSIDERATION

Letter of ethical clearance was obtained from Research Ethics Committee of Jimma University. Letter of permission was obtained from MizanAman general hospital administration. Permission was asked from the obstetrics and gynecology department ward head. All information obtained from patients' card was anonymous. Furthermore, name of the mother in record was excluded and confidentiality ensured for any response obtained from the records of mothers.

4.10. DISSEMINATION PLAN OF THE STUDY FINDINGS

The study finding disseminated to Jimma university college of Public Health and medical science, regional health bureau, Bench Maji zone health bureau.

For health institution which was participated in this study. Other concerned governmental & NGO. Further attempt will be made to publish the result in standard scientific Journals.

4.11. Limitation of the study
-Since the study was based on secondary data, some information's may not be complete.

5:RESULT

During the three years period a total number of 4525 deliveries were conducted at MizanAman general hospital. From this 3389 (74.9%)was by spontaneous vaginal delivery (SVD) and 917(20.3%) by caesarian section (C/S), seventy seven (1.8%)early Fetal death (ENND), 427 (9.4%) still birth and twenty two Maternal mortality. A total of 202cases were term pregnancy complicated by premature rupture of membrane (PROM), out of which seventeen patients had lost or incomplete cards were not included in the analysis only 185 included in the analysis.

5.1 Socio-demographic Characteristics

Among the 185 patients included in this retrospective cross sectional study, the mean maternal age was 24.6 years (range 16–41 years).One hundred thirty eight (74.6%) of mothers were under the age category of 18-35 years, twenty five(13.5%) were age category of >35 years and twenty two (11.9%) were age category of <18 years. One hundred thirty (70.3%) mothers were come from outside MizanAman town whereas fifty five (29.7%) were come from MizanAman town. As it is shown in (Table 1)

Table1: Socio-demographic characterstics of mothers admitted with the dignosis of term PROM atMizanAman general hospital from January1/2011G.C – December 31/2013

	Variable	Frequency	%
Age	- <18	22	11.9
	- 18 -35	138	74.6
	- > 35	25	13.5
	- Total	185	100.0
Residence	- Mizan Aman town	55	29.7
	- Outside Mizan Aman town	130	70.3
	Total	185	100.0

5.2 Obstetric profile

Among participants of this study one hundred thirty one (70.2%) of the mothers had no ANC follow-up.
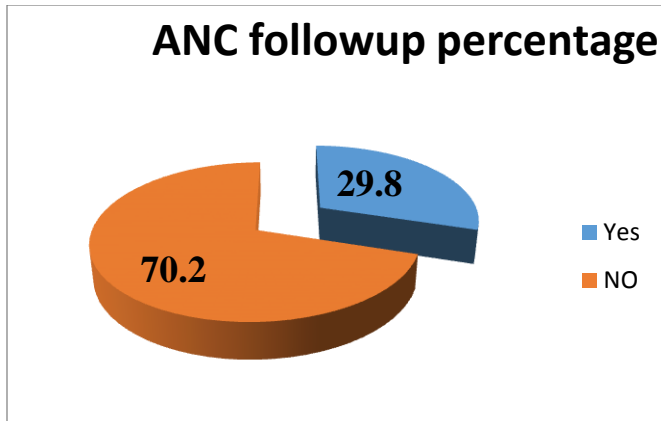
Fig 2: Trends of ANC follow up in MizanAman hospital from Jan1/2011G.C – Dec 31/2013G.C

One hundred twenty nine (69.7%) of mothers were primigravida. Sixty seven (36.2%) of mothers were duration of PROM at admission greater than 12hr.Of all the study subject twenty three (12.5%) of them were previous history of PROM. One hundred fifty eight (85.4%) of onset of labour was spontaneous. One hundred thirty six (73.5%) of them were gave birth by SVD followed by C/S and instrumental delivery respectively twenty five (13.5%) twenty four (13.0%).
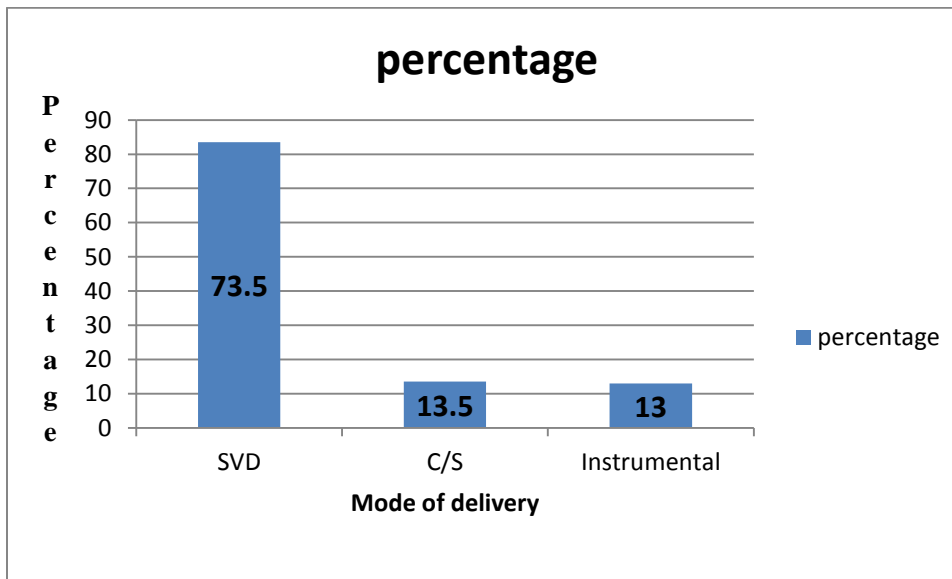
Fig 3: Trends of mode of delivery in MizanAman hospital from Jan1/2011G.C – Dec 31/2013G.C

Common indication for C/S was Non reassuring fetal heart rate pattern (NRFHRP) fourteen (7.6%). Ninety eight (53.0%) of mothers were duration of PROM to delivery greater than 24hr. One hundred one (54.6%)of mothers were duration of hospital stay < 3days, twenty four (13.0%) were >7days and the rest are between 3&7days of hospital stay. AS shown in the (Table2)

Table 2: Obstetric profile of mothers admitted with the diagnosis of term PROM at MAG hospital from January 1/2011G.C –December 31/2013G.C

Variable		Frequency	%
Gravidity	- Primi	129	69.7
	-Multi	56	30.3
Duration of PROM	< 12hr	118	63.8
	>=12hr	67	36.2
Previous history of PROM	Yes	161	87.5
	No	23	12.5
Onset of Labour	Spontaneous	158	85.4
	Induced	27	14.6
Indication for C/S	NRFHRP	14	7.6
	Failure to progress	6	3.2
	Other	5	2.7
Duration of PROM to delivery	<24hr	87	47.0
	>=24hr	98	53.7
Duration of hospital stay	<3days	101	54.6
	3days - 7days	60	32.4
	>7days	24	13.0

In this study thirty one(16.8%)of pregnancy complicated by term PROM had Meconium stained color of liquor. Of all 185 study subject twenty six (14.0%) of them developed sign of chorioamnionitis. From the sign and symptom of chorioamnionitis among participants of this study twenty three (12.4%) of them developed maternal fever, thirty(16.2%)of them developed maternal tachycardia, twenty (11.8%) and thirteen (7.0%) of them developed foul smelling vaginal discharge. Of all study subject one hundred forty five (78.4%) of mothers were normal hematocrit. WBC were not done for all mothers. One hundred six (57.3%) prophylactic antibiotics were given.

Table 3: Frequency distribution of sign and symptom of chorioamnionitis and lab result of pregnancy complicated by term PROM at MAG hospital from Jan 1/2011-Dec 31/2013

Variable		Frequency	%
Color of liquor	Clear	154	83.2
	Meconium stained	31	16.8
Sign of chorioamnionitis	Yes	26	14.0
	N o	159	86.0
Maternal fever	Yes	23	12.4
	N o	162	87.6
Maternal Tachycardia	Yes	30	16.2
	N o	155	83.8
Foul smelling vaginal discharge	Yes	13	7.0
	N o	172	93.0
Fetal tachycardia	Yes	20	11.8
	N o	165	89.2
HCT	Normal	145	78.4
	Abnormal	31	16.8
	Unknown	9	4.9
Prophylactic antibiotic	Given	106	57.3
	Not given	79	42.7

5.3 Maternal outcome

There were 185 mothers had their pregnancy complicated by term PROM of which forty four (23.8%)of mothers were unfavorable maternal outcome, of unfavorable maternal outcome twenty one(11.4%) of them were complicated by puerperal sepsis followed by eleven (6.0%) wound site infection, seven (3.7%) hemorrhage and the rest two (1.1%) of them were others (pneumonia, urinary tract infection and unknown cases).Out of the study subject three (1.6%) maternal deaths, two of them due to puerperal sepsis and one of them due to post operation wound site infection.

Table 4: Maternal outcome of pregnancy complicated by term PROM at MAG hospital from Jan/2011G.C –Dec 31/2013 G.C

Variable		Frequency	%
Maternal outcome	Favorable	141	76.2
	Unfavorable	44	23.8
Postpartum complication	Yes	41	22.2
	No	144	77.8
If pp complication is yes which	Puerperal sepsis	21	11.4
	Wound site infection	11	6.0
	Hemorrhage	7	3.7
	Others	2	1.1
General maternal condition	Alive	182	98.4
	Dead	3	1.6

5.4 Fetal outcome

There were sixty two (33.5%)of the fetus was unfavorable outcome. Eighty seven (47.0%) of the fetus were 1st minute Apgar score below normal. One hundred forty one (75.5%) were 5th minute Apgar score was normal. One hundred sixty seven (90.3%) of the fetus were weight ≥2500g. Of all the study subject forty seven (25.4%) of the fetus were need ICU admission.

Table 5:Fetal outcome of pregnancy complicate by term PROM in MAG hospital from Jan 1/2011 - Dec 31/2013

Variable		Frequency	%
Fetal outcome	Favorable	123	66.5
	Unfavorable	62	**33.5**
out of unfavorable outcome	Alive with complication	40	21.3
	Still birth	7	3.8
	ENND	15	8.4
APGAR score at 1st minute	< 7	87	47.0
	≥ 7	98	**53.0**
APGAR score at 5th minute	< 7	44	17.9
	≥ 7	141	**75.5**
Weight of fetus	<2500g	18	9.7
	≥ 2500g	167	**90.3**
Fetus need ICU	Yes	47	25.4
	No	138	74.6
General outcome of fetus	Alive	163	88.1
	Dead	22	11.9

From over all unfavorable outcome of the fetus forty (21.6%) of them alive with complication whereas fifteen (8.4%) of unfavorable outcome fetus were ENND and the rest seven (3.8%) were still birth. Of all 185 study subject twenty two (12.2%) perinatal mortality, for this the (54.8%) of death causes were Fetal infection followed by birth asphyxia and low birth weight (27.4%) (9.7%) respectively and the rest are unknown causes.
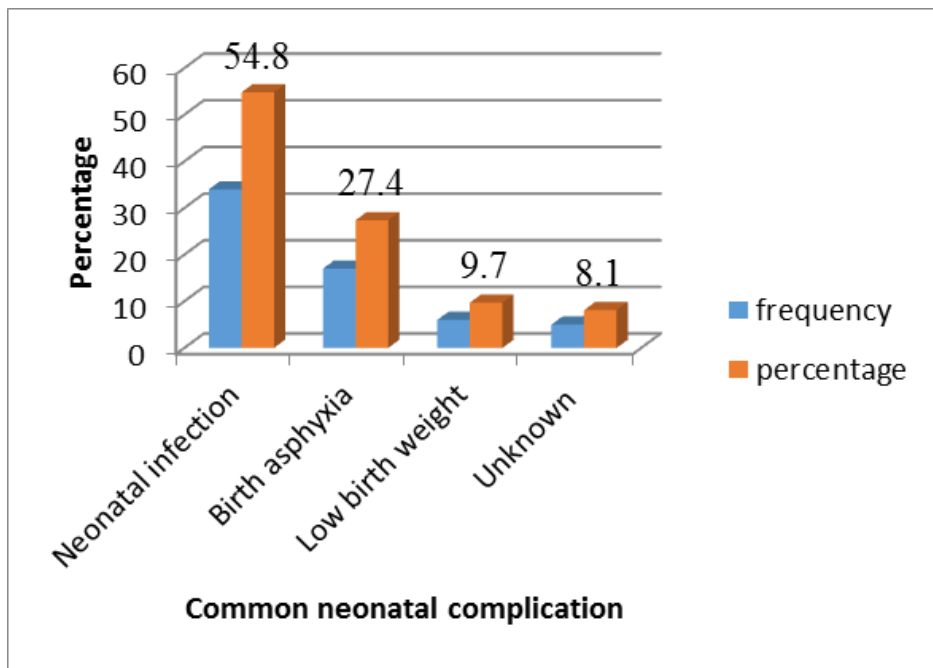
Fig4: Common Fetal complication in MAG hospital from Jan1/2011 G.C – Dec   31/2013G.C

5.5 Maternal outcome and associated factor

Residence had statistically significant association (OR=7.2{2.1, 24.3} p<0.005). ANC follow up had statistically significant association with maternal outcome (OR=4.7{1.4, 8.6} p<0.001), Duration of PROM statistical significant association with maternal outcome (OR= 4.6{1.76, 11.89} p<0.001) and presence of chorioamnionitis had statistical significant association with maternal outcome (OR=11.6{4.4, 31.0} p<0.001). Mode of delivery statistically significant association with maternal outcome (OR=14.5{5.4, 39.3} p< 0.001) and (OR=8.0{3.0, 21.0} P< 0.001) Duration of PROM to delivery statistical significant association with maternal outcome (OR=2.6{1.2, 5.5} p<0.005). As shown in table 6

Table6: Simple logistic regression of maternal outcome and associated factor of pregnancy complicated by term PROM in MAG hospital from Jan 1/2011 – Dec 31/2013

	Maternal out come		COR	P value
Residence	Favorable N (%)	Unfavorable N (%)		
MizanAman	52(36.1)	3(7.3)	1	
Outside MizanAman	92(63.9)	38(92.7)	7.2(2.1,24.3)*	.002
Age				
<18	17(11.8)	5(12.2)	7.1(.76,66.0)	.087
18 – 35	103(71.5)	35(85.4)	8.2(.96,22.5)	.063
>35	24(16.7)	1(2.4)	1	
ANC follow-up				
Yes	41(28.5)	13(31.7)	1	
No	103(78.6)	28(68.3)	4.7(1.1,20.8)*	.000
Gravidity				
Primi	100(69.4)	29(70.7)	1.1(.5,2.3)	.874
Multi	44(30.6)	12(29.3)	1	
Duration of PROM				
<12hr	111(77.1)	7(17.1)	1	
≥12hr	33(22.9)	34(82.9)	16.3(6.6,40.2)*	.000
Dur PROM to delive				
<24hr	75(52.1)	12(29.3)	1	
≥24hr	69(47.9)	29(70,7)	2.6(1.2,5.6)*	.011
Previous history of PROM				
Yes	17(11.8)	1(2.4)	1	
No	127(88.2)	40(97.6)	.2(.02,1.4)	.108
Chorioamnionitis				
Yes	18(11.0)	13(59.1)	11.6(4.4, 31.0)*	.000
No	145(89.0)	9(40.9)	1	
Onset of labour				
Spontaneous	124(86.1)	34(82.9)	1	
Induced	20(13.9)	7(17.1)	1.3(.5, 3.3)	.611
Mode of delivery				
SVD	122(84.7)	14(34.1)	1	
Instrument	9(6.2)	15(36.6)	14.5(5.4, 39.3)*	.000
C/S	13(9.0)	12(29.3)	8.0(3.0, 21.0)*	.000
Duration of hospital stay				
<3days	95(66.0)	6(14.6)	1	
3days - 7days	46(31.9)	14(34.1)	4.8(1.7, 13.3)*	.002
> 7days	3(2.1)	21(51.5)	110.8(25.6, 479.287)*	.000

*statistically Significant at probability level of less than 5%

Also the study finding showed that, duration of hospital stay had statistical significant association with maternal outcome(OR= 4.8{1.7, 13.3} p<0.005) respectively.Gravidity, onset of labour and previous history of PROM had no statistical significant association with maternal outcome. As show in table 6
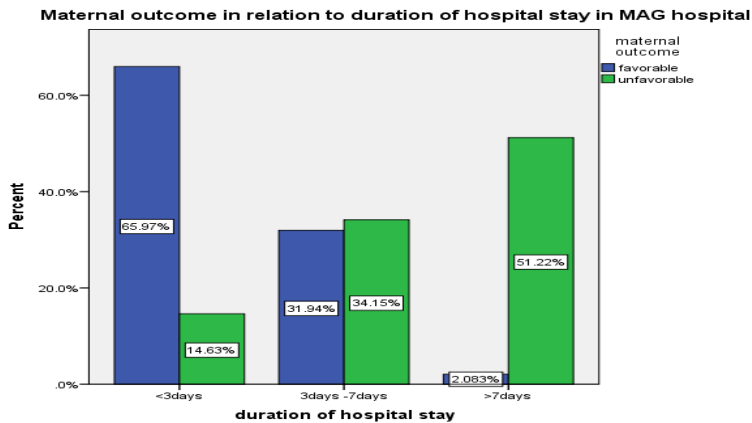
Fig 5: Maternal outcome in relation to duration of hospital stay in MizanAman hospital from Jan1/2011G.C – Dec 31/2013G.C

In multi logistic regression: mothers who come from outside MizanAman were 4.2 times more likely unfavorable maternal outcome than mothers who come from MizanAman (AOR=4.2{3.96, 29.4} P<0.005).

Duration of PROM greater than 12hr 5.6 times more likely unfavorable maternal outcome as compared to duration of PROM at admission less than 12 hrs (AOR=5.6{1.3,24.1} p< 0.005). Duration of PROM to delivery greater than 24 hrs 2.8 times more likely unfavorable outcome as compared to duration of PROM to delivery less than 24 hrs (AOR=2.8{1.7,11.8} P< 0.001). Presence of chorioamnionitis 16.6 times more likely unfavorable outcome than who had no chorioamnionitis (AOR=16.6{2.8, 99.4} p<0.005).Duration of hospital stay greater than 7 days 8.7 and 89.9 time more likely unfavorable than as compared to duration of hospital stay less than 3 days(AOR=8.7{2.6, 29.6} p<0.001) and (OR=89.9{16.9,477.5}p<0.005) respectively.

Table7: Multi-logistic regression of maternal outcome associated factor of pregnancy complicated by term PROM atMAG hospital from Jan/2011G.C - Dec/2013G.C

	Maternal outcome		COR	AOR
ANC follow up	Favorable	Unfavorable		
Yes	41(28.5)	13(31.7)	1	1
No	103(78.6)	28(68.3)	4.7(1.1,20.8)**	.7(.08,5.6)
Residence				
MizanAman	52(36.1)	3(7.3)	1	1
Outside MizanAman	92(63.9)	38(92.7)	7.2(2.1,24.3)[*]	4.2(3.96,29.4)*
Duration of PROM				
<12hr	111(68.1)	7(31.8)	1	1
≥12hr	52(31.9)	15(68.2)	4.6(1.76, 11.89)**	5.6(1.3,24.1)*
Presence of chorioamnionitis				
Yes	18(11.0)	13(59.1)	11.6(4.4, 31.0)[**]	16.6(2.8,99.4)*
No	145(89.0)	9(40.9)	1	1
Duration of PROM to delivery				
<24hr	75(52.1)	12(29.3)	1	1
≥24hr	69(47.9)	29(70.7)	2.6(1.2, 5.5)*	2.8(1.7,11.8)**
Duration of hospital stay				
<3days	95(66.0)	6(14.6)	1	1
3days - 7days	46(31.9)	14(34.1)	4.8(1.7, 13.3)*	8.7(2.6,29.6)**
> 7days	3(2.1)	21(51.5)	110.8(25.6, 479.287)[**]	89.9(16.9,477.5)[*]

*and ** statistically significant at probability level of less than 5% and 1% resp.

5.6 Fetal outcome and associated factor

ANC follow up had statistical significant association with Fetal outcome (OR=3.5{1.4, 8.6} p<0.005). Duration of PROM had statistical significant with Fetal outcome with (OR=4.6{1.76,

11.8} p< 0.005). Duration of PROM to delivery statistically significant association with Fetal outcome (OR=2.6{1.2, 5.5} p<0.001). Color of liquor had statistical significant association with Fetal outcome (OR= 11.6{4.4, 31.0} p< 0.001).

Instrumental delivery statistical significant association with Fetal outcome (OR=8.5{2.9, 24.6} p<0.001). Weight of the fetus statistically significant association with Fetal outcome (OR=3.99{1.3, 11.8} p<0.005)

The result of the study finding showed that Apgar score at 5^{th}min and fetus need ICU admission had statistically significant association with Fetal outcome (OR=57.9{12.7, 263.9} p<0.001) and (OR=50.4{11.1, 228.3} p< 0.001) respectively. As shown in table 8

Table 8: Simple logistic regression of Fetal outcome and associated factor of pregnancy complicated by term PROM in MAG hospital from Jan 1/2011 – Dec 31/2013

	Fetal outcome		COR	P value
ANC follow up	Favorable N(%)	Unfavorable N(%)		
Yes	121(74.2)	10(45.5)	1	
No	42(25.8)	12(54.5)	3.5(1.4, 8.6)*	.008
Gravidity				
Primi	115(70.6)	14(63.6)	1	
Multi	48(29.4)	8(36.4)	1.37(.54, 3.5)	.509
Duration of PROM				
<12hr	111(68.1)	7(31.8)	1	
>=12hr	52(31.9)	15(68.2)	4.6(1.76, 11.89)*	.002
Duration of PROM to delivery				
<24hr	75(52.1)	12(29.3)	1	
>=24hr	69(47.9)	29(70.7)	2.6(1.2, 5.5)*	.000
Previous history of PROM				
Yes	16(9.8)	2(9.1)	1.1(.23, 5.1)	.914
No	147(90.2)	20(90.9)	1	
Color of liquor				
Clear	145(89.0)	9(40.9)	1	
Meconium stained	18(11.0)	13(59.1)	11.6(4.4, 31.0)*	.000
Weight				
<2500	14(8.6)	6(27.3)	3.99(1.3,11.8)*	
>=2500	149(91.4)	16(72.7)	1	.013
APGAR score at fifth minute				
<7	24(14.7)	20(90.9)	57.9(12.7, 263.9)*	.000
>=7	139(85.3)	2(1.4)	1	

Fetus need ICU				
Yes	27(16.6)	20(90.9)	50.4(11.1, 228.3)*	.000
No	136(83.4)	2(9.1)	1	
Onset of labour				
Spontaneous	142(87.1)	16(72.7)	1	
Induced	21(12.9)	6(27.3)	2.5(.89, 7.2)	.081
Mode of delivery				
SVD	127(77.9)	9(40.9)	1	
Instrument	15(9.2)	9(40.9)	8.5(2.9, 24.6)*	.000
C/S	21(12.9)	4(18.2)	2.7(.76, 9.5)	.126

*statistically significant at probability level of less than 5%

According to multi logistic analysis, duration of PROM greater than twelve hour 12.0 times more likely unfavorable Fetal outcome as compared to duration of PROM less than 12 hrs at admission (AOR=12.0{2.8,51.7}P<0.005).

APGAR score at 5^{th}min below normal 16.6times more likely unfavorable Fetal outcome as compared to normal Apgar score at 5th min (AOR=16.6{1.3, 21.2} p<0.005).

Weight of the fetus less than 2500g 7.8 times more likely unfavorable Fetal outcome as compared to weight of the fetus greater than 2500g (AOR=7.8{1.2,51.2} p<0.005)

Fetus who needs ICU admission 11.3 times more likely unfavorable outcome as compared to fetus who was not needs ICU admission (AOR= 11.3{6.8, 18.9} p<0.001). As shown in table 9

Table 9: Multi logistic regression of Fetal outcome and associated factor of pregnancy complicated by term PROM at MAG hospital from Jan/2011G.C - Dec2013G.C

	Fetal outcome		COR	AOR
	Favorable N(%)	Unfavorable N(%)		
ANC follow up				
Yes	41(28.5)	13(31.7)	1	1
No	103(78.6)	28(68.3)	4.7(1.1,20.8)*	.7(.08,5.6)
Duration of PROM				
<12hr	111(68.1)	7(31.8)	1	1
>=12hr	52(31.9)	15(68.2)	4.6(1.76, 11.89)*	12.0(2.8, 51.7)*
Duration of PROM to delivery				
<24hr	75(52.1)	12(29.3)	1	1
>=24hr	69(47.9)	29(70.7)	2.6(1.2, 5.5)*	1.4(.56,3.46)
Color of liquor				
Clear	145(89.0)	9(40.9)	1	1
Meconium stained	18(11.0)	13(59.1)	11.6(4.4, 31.0)**	9.9(3.3,33.7)**
APGAR score at fifth minute				
<7	24(14.7)	20(90.9)	57.9(12.7,263.9)**	16.6(1.3,21.2)*
>=7	139(85.3)	2(1.4)	1	1
Weight				
<2500	14(8.6)	6(27.3)	3.99(1.3,11.8)*	7.8(1.2,51.2)*
>=2500	149(91.4)	16(72.7)	1	1
Fetus need ICU admission				
Yes	27(16.6)	20(90.9)	50.4(11.1, 228.3)**	11.3(6.8,188.9)**
No	136(83.4)	2(9.1)	1	1

*and ** statistically significant at probability level of less than 5% and 1% resp.

6: DISCUSSION

Following the premature rupture of membranes, both the mother and fetus have an increased risk of infection [11]. This study tried to look at maternal and Fetal outcome of term PROM in MizanAman general hospital from January 1/2011 G.C -December 31/2013 G.C.

The result of the present Study showed that, incidence of term PROM is 6%this is approximately similar with other research done in Pharma, and India the range of 5%-10% and 8%-10%respectively (1, 26)

The study showed mothers who had ANC follow up 29.2% as compared to the study done yeme south west Ethiopia and EDHS 2005 rural population ANC services consistent 28.5% (24). Majority 69.7% of term PROM is in primigravida as compared to research was done in India consistent (15).Mothers who comes from outside MizanAman 4.2 times more likely unfavorable maternal outcomes as compared to mothers who comes MizanAman town (AOR=4.2,95%CI;3.96,29.4).This indicates may be rural area because of unhygienic conditions; there are more chances of infection.

In the present study Duration of PROM greater and equal to 12hr5.6 times more likely unfavorable maternal outcomes as compared to duration of PROM less than 12hr(AOR=5.6,95% CI; 1.3, 24.1).It implies duration of PROM increases problem to the mother and fetus increases due to exacerbation of infectious rate. As compared to the study done in Karnakata it is higher (AOR=2.4, 95% CI; 1.6, 9.2).The difference might be awareness gap due to low ANC servies utilization. Duration of PROM to delivery greater and equal to 24 hrs.2.8 times more likely unfavorable maternal outcome as compared to duration of PROM to delivery less than 24hrs (AOR=2.8,95%CI;1.7,11.8).It implies the longer time elapsed PROM to deliver the higher the rate of infection to the mothers. As compared to the research done in Karnakata and Gujarat India consistent, (AOR =2.4, 95%CI; 1.0, 6.1) (15, 26).

Presence of chorioamnionitis11.6 time increase maternal unfavorable outcome as compared to no sign of chorioamnionitis with(AOR=16.6, 95%CI; 2.8, 99.4). as compared to the research done in Sagameshwar hospital India higher (AOR=3.0,95%CI; 1.2 , 7.0)(16,21). The difference due to longer latency periods aggravate the chance of infection

Duration of hospital stay between 3days to 7 days 8.7 times increase unfavorable maternal outcome and greater than seven days 89.9 time increase maternal unfavorable outcome as compared to duration of hospital stay less than 3 days(AOR=8.7,95%CI;2.6,29.6)

and(AOR=89.9,95%CI;16.9,477.5). It means the more and more mothers stay in the hospital increase also maternal unfavorable outcome. As compared the study was done Gujarat, India higher (AOR=6.3, 95%CI; 3.3, 12) and (AOR=13.0, 95%CI; 1.6, 89)respectively (26).

Forty four (23.8%) of the mothers unfavorable outcome. 22.2% maternal morbidity and 1.6% Maternal mortality, the most common (11.3%) postpartum maternal complication puerperal sepsis followed by wound site infection (6.0%). there are three maternal mortality (1.6%) the two maternal mortality caused by puerperal sepsis and the other one of caused by wound site infection. This implies that, the 3rd common cause of maternal mortality is infection next to hemorrhage and HDP even if rate of maternal mortality in nationwide decrease, till it needs attention and more work. As compared to the research done in Karnakata and Gujarat lower, 24.5% maternal morbidity and most common cause of postpartum complication is puerperal sepsis 16% (15).

The difference was higher duration of latency and presence of chorioamnionitis and maybe lack of awareness due to low antenatal care servies utilization. 69.7% of term PROM were in primigravida,85.4% spontaneous onset of labour, mode of delivery (73.5%) by SVD. As compared to the study done in Karnakata it is higher 63% primigravida 72.4 spontaneous onset of labour and 65.5 % mode of delivery by SVD (15).

The rate of C/S is 13.5% majority 7.6%with the indication of NRFHRP. This result is almost consistent with the research done in Gujarat, India 13% an (26)

Three (1.6%) maternal mortality as compared to research done in Karnakata, higher no maternal mortality and as compared to 2011 millennium development goals report, lower rate of maternal mortality in Ethiopia 370(15,8).

The present study showed about the Fetal data (66.5%) favorable Fetal outcome and (33.5%) of unfavorable Fetal outcome.

Duration of PROM greater and equal to twelve hour12.0 times increase Fetal unfavorable outcomes as compared to duration of PROM less than 12hr (AOR=12.0,95%CI;2.8, 51.7).It implies duration of PROM longer increase problem to the mother and fetus. This result higher than the study was done Sagameshwar Hospital(AOR=5.4, 95% CI; 2.6, 11.2)(16).

Meconium stained color of liquor 9.9 times increases unfavorable Fetal outcomes as compared to clear liquor (AOR=9.9, 95%CI; 3.3, 33.7). As compared to research done Rajiv Gandhi university it is higher (AOR=6.4, 95%CI; 1.7, 13.4)(27). The difference is due to longer latency period.

Low Apgar score at 5thmin16.6 times more likely unfavorable Fetal outcome as compared to normal Apgar score(AOR=16.6,95%CI;1.3,21.2) and weight less than 2500g 7.8 times more likely unfavorable Fetal outcome as compared to weigh greater than 2500g (AOR=7.8,95%CI;1.2,51.2)as compared to the research done Gujarat, India both are higher (AOR= 2.7,95%CI;1.2, 6.0) AND (AOR=3.2,95%CI;1.6, 6.2) (26). The difference is due to the longer latency the higher Meconium stained color of liquor and more need of intensive care unit. Fetus need ICU admission 11.3 times more likely unfavorable Fetal outcome as compared to no need of ICU admission(AOR=11.3,95%CI;6.8,188.9).As compared to research done in Rajiv Gandhi University it is lower (AOR=14.095%CI; 1.7 to159) (27). The difference was may be quality of care and availability of medical equipment.

The present study showed about the Fetal data one hundred twenty three (66.5%) favorable Fetal outcome and sixty two (33.5%) of unfavorable Fetal outcome. There was forty (21.6%) Fetal morbidity and twenty two (11.9%) Fetal mortality.

There were fifteen (8.4%) ENND seven (3.8%) still birth and(12.2%)is Perinatal mortality. The commonest cause of Fetal morbidity and mortality was (6.7%) infection followed by birth asphyxia (3.4%). This implies that, it needs early detection management and decrease the latency period, The result is higher than the study done in Gujarat and 3.38 Fetal morbidity 2.86 Perinatal mortality (26) and lower Fetal morbidity and higher Perinatal mortality as compared to the research done in karnakata28%and 3.5% respectively (15) higher than EDHS 2011perinatal mortality 46/1000 still birth 16.9/1000 and ENND 28.7/1000. The difference is quality of health care system lack of adequate medical equipment and under reporting. It is consistent with the study done in Hawassa university hospital127/1000 Perinatal mortality 86/1000 ENND (28).

There was no statistical significant association between gravidity mode of delivery and onset of labour with maternal and Fetal unfavorable outcome. This is similar with the study done in Karnataka (15)

6.1 Strength and Limitation of the of the study

Strength of the study

➢ As to my knowledge this research is the first in this area of interest performed at MizanAman general hospital.

Limitation of the study

➢ Time constraints

➢ Since the study was on secondary data, some mother's medical records were lost

➢ There is no Fetal intensive care unit and registration books of complete Fetal information.

➢ Full laboratory results were not available.

➢ Some important outcome indicators were not included in the study because there was incomplete documentation and inappropriate chart keeping in MAG hospital

➢ As my study was retrospective, associated psychological and other long term post-operative problems which are associated with this surgery was not included

➢ There are also unusual large Odd Ratios and wide confidence interval observed.

7: CONCLUSION AND RECOMMENDATION

7.1 Conclusions

The result of this study shows that, Majority of term PROM was in primigravida mothers. Majority of them onset of labour was spontaneous. In this study rate of C/S is low 13.5%. Maternal mortality and morbidity were associated with mothers who had residence outside MizanAman, Presence of chorioamnionitis, longer duration of PROM to labour; long duration of PROM to delivery and long duration of hospital stay all had significant association with unfavorable maternal outcome of term PROM. Also the study result shows term PROM had effect on Fetal outcome. Morbidity and mortality of the fetus associated with mothers who long duration of PROM, Meconium stained color of liquor, low Apgar score, weight less than 2500g and fetus need ICU Admission had significant association with unfavorable Fetal outcome.

There was 38 (20.5%)maternal morbidity three (1.6%) maternal mortality; puerperal sepsis is the common cause of maternal mortality and morbidity.21.6% Fetal morbidity .Also there was 8.4% ENND and 3.8% still birth 12.2% Perinatal mortality. Fetal infection was the commonest cause of Fetal mortality and morbidity. Gravidity, onset of labour and mode of delivery was no statistical significant association with maternal and Fetal morbidity and mortality.

7.2. Recommendation

☞ TO Federal MOH count- down less than 200 days left to achieve MDG, to Improving the maternal and Fetal mortality and morbidity in the hospital by fulfilling basic obstetric & laboratory material and medication.

☞ TO Bench Maji zone health bureau more emphasize should begiven emphasize address ANC follow up for all pregnant mothers.

☞ TO all health institution work more on education about possible pregnancy complication and they need to report earliest.

☞ Must be open Fetal ICU and neonatology ward to give optimum care in the hospital for fetus

☞ Combined effort of obstetrician and pediatrician is necessary.

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ANNEX- 1 CHECK LIST

Data collection format

This questionnaire was designed to analyze maternal and fetal outcome of premature rupture of membrane conducted at Mizan Aman general hospital, a retrospective three year study from January1/ 2011 G.C – December31/ 2013G.C

Please encircle the letter corresponding to the correct respond.

Identification I: Socio-demographic characteristic

1. Place of residence;

A.   MizanAman town

B.   Outside MizanAman town

2. Age in years; _____

II Obstetric History

1, Gravidity ---------

2, Parity------------

3, ANC Follow up

A.   Yes

B.   No

4, History of previous PROM

A, Yes

   B, NO

5,   If YES for Q No 6how much time

6, Color of the liquor during admission

 A, clear

 B, Meconium stained

7, if Meconium stained

A Grade I

     B, Grade II

     C, Grade III

8, Duration of premature rupture of membrane in hour-------------

9, Duration of PROM to delivery in hour--------------

10, Presenting part of the

A, Cephalic presentation

 B, Breech presentation

 C, Others

11, she develop chorioamnionitis

A, Yes

 B, No

12, if yes, what sign of chorioamnionitis she develop at admission

A, Maternal fever

B, Maternal tachycardia

C, Foul smelling vaginal discharge

D, Fetal tachycardia

13, Mother get antibiotics

A, Yes

B, No

14, Onset of labour was

 A. spontaneous

 B. Induced

15, Mode of delivery

 A, SVD

 B, Instrumental

 C,C/S

16, if C/S Indication

A, failed induction/augmentation

 B, NREHRP

 C, Other

17,Duration of hospital stay in days

III Laboratory data

 A, WBC

 B, Hct/hgb

IIII Maternal and fetal out come

Fetal outcome

1, general condition of fetus

       A, favorable outcome

       B, unfavorable outcome

2, immediate outcome of the fetus

       A, alive without complication

       B, alive with complication

       C still birth

       D ENND

3, if alive with complication which one

       A, low birth weight

       A, Meconium aspiration syndrome

       B, birth asphyxia

       C, early Fetal sepsis

       D, others

4, Apgar score at the first minute_____/10

5, Apgar score at the fifth minute_____/10

6, Weight of the fetus

A, 1000g-1499 g

B,   1500g- 2499 g

 C,   2500g-3999 g

D, >4000g

7, Fetus needs ICU

A, Yes

B, No

8, General outcome of the fetus

       A, Alive

        B, dead

Maternal outcome

1, General condition of mother

A, favorable outcome

B, unfavorable outcome

2, post partum complication

A, skin dehiscence

B, Facial dehiscence

C, puerperal sepsis

D, others specify

3, duration of hospital stay in days

4, General maternal outcome

A, alive

B, dead

Name of data collector-----------------------

Sign---

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

Name of the student: Tigist Endale

Signature…………………………

Name of institution……………….

Date of submission………………..

APPROVAL OF ADVISORS

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Signature---------------

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Signature……………