

**MATERNAL AND FETAL OUTCOME IN TERM PREMATURE RUPTURE OF
MEMBRANE IN TERCHA GENERAL HOSPITAL, SOUTH ETHIOPIA**



BY

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**A RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY COLLEGE OF PUBLIC
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MASTERS IN INTEGRATED EMERGENCY GYN/OBS AND SURGERY**

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Abstract

Background: Premature rupture of membranes (PRom)is the rupture of membrane before onset of uterine contraction . It can be either preterm or term premature rupture of membrane. Preterm PROM is rupture of membrane at any time before onset of uterine contraction before 37 weeks and after 28 weeks of gestational age .PROM at term refers to a patient who is beyond 37 weeks' gestation and has presented with rupture of membranes (ROM) prior to the onset of labor It represents one of the most frequent and most controversial problem obstetricians are faced with

In Ethiopia, where maternal mortality is still high, the maternal and fetal outcomes in PROM is very important to decrease maternal and child mortality and for better management and prevention of complication.

Objectives: To determine maternal and fetal outcomes and associated factor in term premature rupture of membrane, in Tercha General hospital, south Ethiopia.

Method-Hospital based cross-sectional study design conducted on mothers who admitted to Tercha hospital for term Premature rupture of membrane from January 1/2015 G.C- December 31/2016 GC. Data extracted using check list from patients(medical) record. The data checked, entered and analyzed using SPSS version 22. A 95% CI and p-value of <0.05 considered to be statistically significant.

Result- There were 124 mothers had their pregnancy complicated by term PROM of which twenty one (16.9%)of mothers were unfavorable maternal outcome, of unfavorable maternal outcome fourteen(13.7%) of them were complicated by puerperal sepsis followed by six (4.8%) wound site infection and the rest one (0.8%) of them were others (pneumonia, urinary tract infection and unknown cases).Out of the study subject one (0.8%) maternal deaths due to puerperal sepsis. There were twenty nine (23.4%)of the fetus had unfavorable outcome. Twenty three (18.5%) of the fetus were 1st minute Apgar score below normal.

Conclusions- The result of this study shows that, PROM is a high risk obstetric condition which is a common problem among pregnant women and a big challenge to the neonatologists.

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Abbreviation and Acronyms

ANC	Antenatal Care
APGAR	Activity, Pulse rate, Grains, Appearance, Respiratory rate
C/S	Cesarean Section
ENND	Early Neonatal death
GA	Gestational Age
MAS	Me conium aspiration syndrome
MDG	Millennium development
MM	Maternal mortality
MOH	Ministry of Health
MPH	Master's in public health
NRFHP	Non Reassuring Fetal Heart Rate Pattern
TGH	Tercha General Hospital
SPSS	Statistical Package for Social Sciences
SPROM	Spontaneous premature rupture of membrane
SVD	Spontaneous Vaginal Delivery
WHO	world health organization

1. INTRODUCTION

1.1. Background

Premature rupture of membranes (PROM) at term refers to a patient who is beyond 37 weeks' gestation and has presented with rupture of membranes (ROM) prior to the onset of labor. Premature rupture of the membranes PROM is defined as the spontaneous leakage of amniotic fluid at least one hour prior to the onset of labor(1). 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(2).

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. The time from membrane rupture to delivery is termed as “latency” (3).

PROM complicates only 5% to 10% of pregnancies but is associated with 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 PROM has a substantial share on maternal, Perinatal and infant morbidity and mortality (4).

Estimates of the contribution of sepsis to maternal mortality vary from 8 to 16%. A systematic review, published in 2006, 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 (5).

In September 2015 the United Nations General Assembly adopted the new development agenda, the 2030 agenda for sustainable development which comprising 17 Sustainable Development Goals (SDGs). Health is centrally positioned within the 2030 Agenda, with one comprehensive goal – SDG 3, which includes 13 targets covering all major health priorities. The global MMR declined by 44% during the MDG era, representing an average annual reduction of 2.3% between 1990 and 2015(3). In order to achieve the SDG target of 70 per 100 000 live births by 2030, the global annual rate of reduction will need to be at least 7.3%. Attaining that rate requires a marked acceleration in progress in this area. The required acceleration in reducing maternal mortality will not be possible without clinical and non-clinical interventions, as well as political and policy action.

Thus, improving maternal health and reducing child mortality by making them free of infection we can attain the required rate to achieve SDG (6).

1.2. Statement of the Problem

PROM causes definite maternal and Fetal morbidity and mortality at term. 5 to 10 percent of pregnant women present with premature rupture of membranes; these women are at increased risk for intrauterine infection when the interval between the membrane rupture and delivery is prolonged (7).

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%. 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 (8).

Evidences regarding maternal health condition in Ethiopia are available starting from 1990. According to the target set for tracking of annual reduction of maternal mortality Ethiopia is categorized under countries who are making progress to achieve the target set for MDG5 by United Nation. According to WHO estimation maternal death decrease from 523,000 in 1990 to 289,000 in 2013 globally which accounts for 45% reduction(9). It was reduced from 990,000 to 510,000 for sub-Saharan countries in same year of interval with 49% reduction. In this report maternal death in Ethiopia reduced from 43,300 to 13,000 from 1990 to 2013 indicating a reduction by 38% and with 4% contribution to the overall global maternal death(10). These figures indicate that reduction in maternal death in Ethiopia is below is the average for sub-Saharan countries or the globe ,despite the major progresses and achievements the country has made. Moreover, Ethiopia has not achieved the set MDG target for MMR. Having a goal and target initiates to put more efforts to identify barriers to quality maternal health services and address at all level of the health system or achievement of SDG. in order to meet the SDG target Ethiopia has developed a five year plan from the 2025/16 to 2019/20 to reduce MMR from 420per 100,000 live birth to 199 per 100,000s live births(11).

The major causes of neonatal mortality in 2015 were prematurity, birth-related complications (birth asphyxia) neonatal period were pneumonia, diarrhea, injuries and malaria. Of which most of these are outcome of inappropriate management of PROM (6).

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 Tercha General Hospital(institution) and find out the possible reasons for the findings in the study area and to 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.

1.3 Significance of the study

Since premature rupture of membrane (PROM) is highly linked with significant maternal and prenatal mortalities and morbidity in Countries like Ethiopia, where maternal mortality is still high, knowing maternal and fetal outcomes in PROM is very important to decrease maternal and child mortality and for better management and prevention of complications and thereby to reach required target for new adopted development agenda SDG, particular SDG3 target 3.1(By 2030, reduce the global maternal mortality ratio to less than 70 per 100 000 live births)and 3.2(By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-five mortality to at least as low as 25 per 1000 live births).

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 Tercha General Hospital(institution) and find out the possible reasons for the findings in the study area and to 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.

2. LITERATURE REVIEW

Premature rupture of the fetal membranes is defined as rupture of the membranes at least one 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 (2). Knowing gestational age is very important. If last normal menstrual period is known it can be easy to know gestational age. But if it we can approach as follows. Early measurements (milestones) that correlate well with gestational age exist. Those are like date of quickening, uterine size measurements before 16 weeks during pelvic exam, fundal height felt at umbilicus, first time fetal heart auscultated with Doppler device and first day urine pregnancy test was positive can help as either to confirm the accuracy of gestational age calculated from last normal menstrual period or can be used to estimate gestational age if we got them documented. Premature rupture of membranes occurs in approximately 5 %-15% of all pregnancies, of which 80% occurs at term (12). PROM is linked to significant maternal and fetal morbidity and mortality. It has been shown to be the cause of 18%-20% and 21.4% of prenatal mortalities and morbidity respectively (13). It can lead to significant perinatal morbidity, including respiratory distress syndrome, neonatal sepsis, umbilical cord prolapsed, placental abruption, and fetal death. Appropriate evaluation and management are important for improving neonatal outcomes (1).

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 do. In addition, there are maternal risks associated with chorioamnionitis. Therefore PROM has a substantial share on maternal, Per natal and infant morbidity and mortality (4).

Maternal complications include intra-amniotic infection, which occurs in 13%–60% of women with PROM, placental abruption, and postpartum endometritis. Pre-term birth, infection, hypertensive disease, and asphyxia are cited as the most common contributors to maternal and fetal mortality in developing countries.

Evidence suggests that the rupture of membrane is related to infection, membrane dysfunction on a molecular level, collagen destruction, and programmed cell death in fetal membranes. The complication risk of PROM is increased if the mother has previous PROM, low body mass index, concomitant infection of the gestational tissues, and longer the time elapsed between the rupture and delivery (3).

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 (16). PROM was common in primigravida. Perinatal mortality 3.5% and Perinatal morbidity 28% maternal outcome had association with ANC follow up(13). 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 fetuses 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 % (2). 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 (7).

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 OR 2.4, 95% CI; (1.0 to 6.1). Total maternal hospital stay, more than 7days 13.0 (1 to 89) <0.001 and 3 to 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 (\pm standard deviation) maternal age for the study cohort was 24.7 \pm 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 \pm 3.8 weeks; with a mean delivery gestational age of 32.9 \pm 3.4 weeks and average length of latency 3.3 \pm 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 \pm 10 years and the mean duration of maternal PROM was 30 \pm 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 \pm 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).

In conclusion 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 services 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) < 0.001 and 3 to 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 Me conium was noted in 48.53%. Me conium stained amniotic fluid was more common in patients with high-risk pregnancy. increase incidence of fetal distress, increase incidence of Fetal intensive care OR=14.0 (1.7 to 159) p <0.001, and increase incidence of Perinatal death(27).

2.1 Conceptual Frame Work

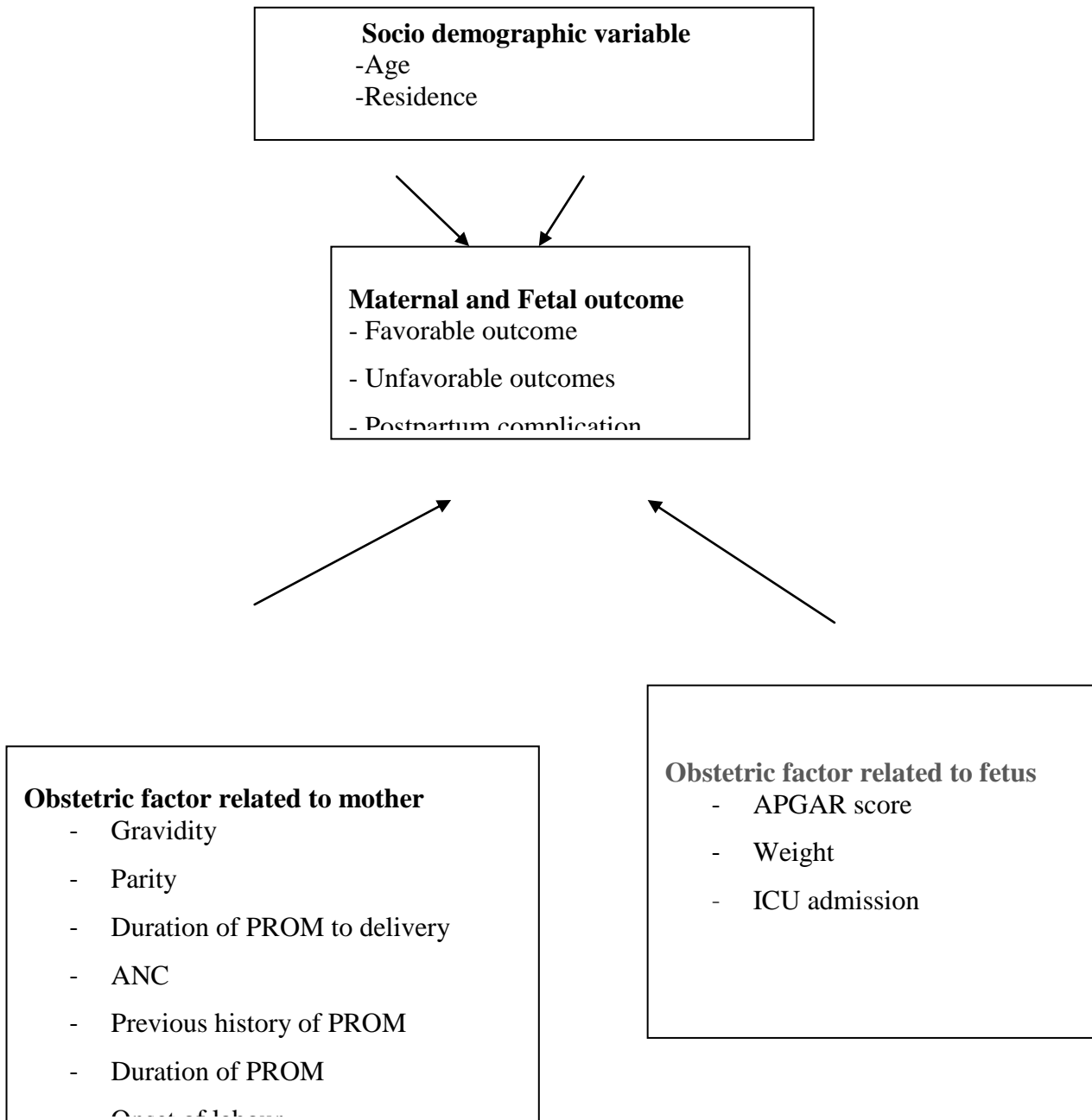


Figure 1: Conceptual frame work on Maternal and Fetal outcome of premature rupture of membrane

3. OBJECTIVES

3.1. General objective

The general objective of this study is to determine maternal and fetal outcome and associated factors in term premature rupture of membrane in Tercha General Hospital, south Ethiopia.

3.2. Specific objectives.

The specific objectives of this study are the following:-

- To determine maternal outcome of premature rupture of membrane.
- To determine fetal outcome of premature rupture of membrane

4. METHOD AND MATERIALS

4.1. The study area and period:

A retrospective review of records of term PROM cases seen at gynecologic outpatient department of Tercha General Hospital from January 1/ 2015 to December 31, 2016 . The Hospital is located south west of Addis Ababa 489km along the Jimma road and 282km far from Hawasa which is capital city of NSSPR. The zonal climate temperature ranges from 15.1-27.5^oc, annual rain fall 120-1800ml and 500m -2820m above sea level. The service has been operative since 1995E.C. The service is owned by MOH. Dawro Zone has total population 573077 and 4436km² area i.e. 129 inhabitants per km². The total number of population in the catchment area is 850,000. Out of this the number of women in the reproductive age group (15-49year) is 131808 and the expected number of deliveries per year is 20289. There are 18 Health Centers, 175 health posts, 7 private clinics, and 6 rural drug venders from 5 Woredas and Tercha town using the Hospital as referral center.

The Hospital has 112 beds. There are 48 beds in the Maternity ward, 1 Labor Beds and 2 Delivery Beds. There is 1 obstetrician/gynecologist, 1 surgeon, 5 GPs, 3 Health officer, 3 pharmacists, 5 druggists, 55 nurses, 4 laboratory technologists, 5 lab technicians, 10 midwiferies. There are 87 supportive staff members.

4.2 Study design:

The institutional base retrospective cross sectional study design employed using two years (from January 1, 2015 up to December 31, 2016) data in order to achieve the objective of the study.

4.3. Source population:

The source population was all pregnant women who were admitted and given birth to an infant in Tercha General hospital, during the study period January 1,2015-December 31,2016.

4.4. Study population:

All pregnant mothers of term PROM records who were admitted and given birth in Tercha General Hospital, during January 1/2015/December 31|2016.

4.5 Inclusion and exclusion criteria

4.5.1 Inclusion Criteria

All records of pregnant mothers who are managed as term PROM and given birth in Tercha General hospital.

4.5.2 Exclusion Criteria

Incomplete and lost patients' cards, twin pregnancy and any co-morbidity with PROM were excluded .

4.6 Sample Size Determination and Sampling Technique

4.6.1. Sample Size:

No need to determine sample size ,because,all cards of mother who are managed as term PROM from January 1/2015 up to December31|2016 G.C were included in the study.

4.7. Data Collection and Measurement

4.7.1. 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

4.8. Study variable

4.8.1. Dependent variable;

Maternal outcome.

Fetal outcome.

4.8.2. 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 labor

Color of liquor

Fetal factor: - APGAR score

Weight

ICU admission

4.9. Data Processing and Analysis

The collected data of each questionnaire was checked for completeness and coded before data entry. Data entered, cleaned and analyzed using SPSS version-22. Different frequency tables, graphs, charts and descriptive summaries were used to describe the study variables. Binary logistic regression was performed to identify the associations and predictors of the outcome variable. The 95% confidence interval set to determine the level of significance P – Value of < 0.05 was considered to be statistically significant.

4.10. 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 involved in data collection. Furthermore principal investigator and supervisors give feedback and correction on daily basis at the end of every data completed to data Completeness, accuracy, and clarity of the collected data checked carefully. Any errors, ambiguity, incompleteness encountered addressed on the following day before starting next day activities.

4.11. Ethical Consideration

Letter of ethical clearance was obtained from Research Ethics Committee of Jimma University. Letter of permission was obtained from Tercha 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 were excluded and confidentiality ensured for any response obtained from the records of mothers.

4.12. Dissemination Plan Of The Study Findings

The study finding will disseminated to Jimma university college of Public Health and medical science, regional health bureau, allege zone health bureau. For health institution which was be participated in this study. Other concerned governmental & NGO. Further attempt will be made the result in standard scientific Journals. to publish

4.13. Limitation of the study ;

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

4.14. Operational definition

Normal APGAR- Apgar score greater than or equal to seven.

Low APGAR-Apgar scores less than seven.

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

5. RESULT AND DISCUSSION

During the two years period a total number of 1871 deliveries were conducted at Tercha General Hospital. From this 1401 (74.9%) was by spontaneous vaginal delivery (SVD) and 379 (20.3%) by caesarian section (C/S), thirty three (1.8%) early Fetal death (ENND), 60 (3.2%) still birth and six Maternal mortality. A total of 132 cases were term pregnancy complicated by premature rupture of membrane (PROM), out of which seven patients had lost or incomplete cards were not included in the analysis only 124 included in the analysis.

5.1 Socio-demographic Characteristics

Among the 124 patients included in this retrospective cross sectional study, the mean maternal age was 24.4 years (range 17–38 years). Ninety three (75%) of mothers were under the age category of 18-35 years, twenty six (21%) were age category of above 35 years and five (4%) were age category of below 18 years. One hundred seven (86.3%) mothers were come from outside Tercha town whereas seventeen (13.7%) were come from Tercha town. As it is shown in (Table 1)

Table1: Socio-demographic characteristics of mothers admitted with the diagnosis of term PROM at Tercha General Hospital from January 1/2015 to December 31/2016

Variables	category	Frequency	Percent
age of the patient	<18years	5	4.0
	18-35years	93	75.0
	>35years	26	21.0
	Total	124	100.0
place of residence	urban	17	13.7
	rural	107	86.3
	Total	124	100.0

5.2 Obstetric profile

Among participants of this study one fifty three (42.74%) of the mothers had no ANC follow-up.

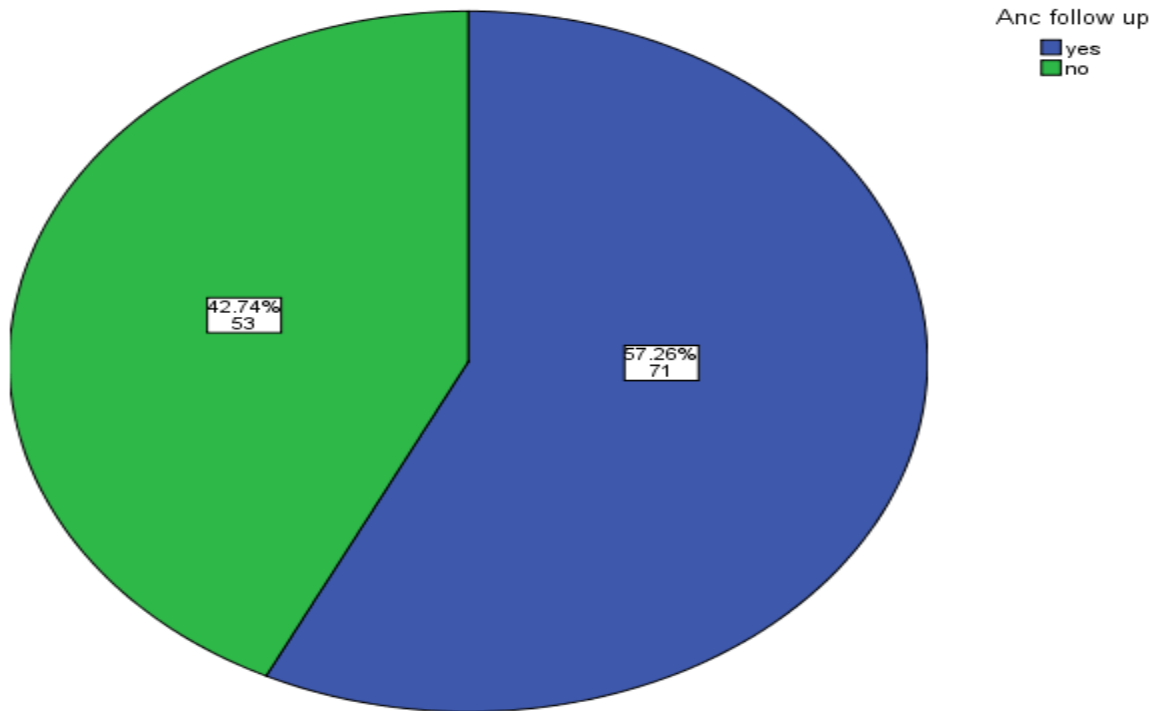


Figure 2: Trends of ANC follow up in Tercha General Hospital from Jan1/2015G.C – Dec 31/2016G.C

Fifty nine (47.6%) of mothers were primigravida. One hundred twelve (90.3%) of mothers were duration of PROM at admission greater than eight hours .Of all the study subject eighteen (14.5%) of them were previous history of PROM .In ninety five (76.6%) of labor was induced. Seventy four (59.7%) of them were gave birth by SVD followed by C/S and instrumental delivery respectively thirty seven (29.8%) and thirteen (10.5%).Common indication for C/S was Non reassuring fetal heart rate pattern (NRFHRP)seventeen (13.7%). Ninety two (74.2%) of mothers were duration of PROM to delivery greater than 24hr. Seventy nine (63.7%)of mothers were duration of hospital stay less than 3days, forty two (33.9%) were 3-7days and the rest were greater than7days of hospital stay. AS shown in the (Table2)

Table 2: Obstetric profile of mothers admitted with the diagnosis of term PROM at TGH from January 1/2015G.C –December 31/2016G.C

Variables	Category	Frequency	Percent
Gravidity	primigravida	60	48.4
	multigravida	64	51.6
	Total	124	100.0
duration of premature rupture of membrane in hour	< 8hrs	12	9.7
	8-24hrs	77	62.1
	>24 hrs	35	28.2
	Total	124	100.0
duration of prom to delivery in hour	< 24 hrs	32	25.8
	24-48hrs	65	52.4
	>48hrs	27	21.8
	Total	124	100.0
duration of hospital stay in days	< 3 days	79	63.7
	3-7days	42	33.9
	>7days	3	2.4
	Total	124	100.0
c/s indication	no cesarean section	87	70.2
	failed induction	10	8.1
	NRFHRP	17	13.7
	PROM +malpresentation	6	4.8
	PROM + scar	2	1.6
	other	2	1.6
	Total	124	100.0
onset of labor	spontaneous	18	14.5
	induced	95	76.6
	other	11	8.9
	Total	124	100.0
history of previous prom	Yes	18	14.5
	No	106	85.5
	Total	124	100.0

In this study thirty one (16.8%) of pregnancy complicated by term PROM had meconium stained color of liquor. Of all 124 study subject twenty nine (23.4%) of them developed sign of chorioamnionitis. From the sign and symptom of chorioamnionitis among participants of this study twenty one (16.9%) of them developed maternal fever, thirteen (10.5%) of them developed maternal tachycardia, nine (7.3%) and fifteen (12.1%) of them developed foul smelling vaginal discharge and fetal tachycardia respectively. Ninety seven (78.2%) prophylactic antibiotics were given.

Table 3: Frequency distribution of sign and symptom of chorioamnionitis of pregnancy complicated by term PROM at Tercha General Hospital from Jan 1/2015 up to Dec 31/2016

Variables	Category	Frequency	Percent
color of liquor on admission	clear	99	79.8
	meconium stained	25	20.2
	Total	124	100.0
develop choriamnionitis	yes	29	23.4
	no	95	76.6
	Total	124	100.0
maternal fever	yes	21	16.9
	no	103	83.1
	Total	124	100.0
maternal tachycardia	yes	13	10.5
	no	111	89.5
	Total	124	100.0
fetal tachycardia	yes	15	12.1
	no	109	87.9
	Total	124	100.0
mother get antibiotics	yes	97	78.2
	no	27	21.8
	Total	124	100.0

5.3 Maternal outcome

There were 124 mothers had their pregnancy complicated by term PROM of which twenty one (16.9%) of mothers were unfavorable maternal outcome, of unfavorable maternal outcome fourteen (13.7%) of them were complicated by puerperal sepsis followed by six (4.8%) wound site infection and the rest one (0.8%) of them were others (pneumonia, urinary tract infection and unknown cases). Out of the study subject one (0.8%) maternal deaths due to puerperal sepsis.

Table 4: Maternal outcome of pregnancy complicated by term PROM at Tercha General Hospital from Jan/2015G.C up to Dec 31/2016 G.C

Variables	categories	Frequency	Percent
Maternal outcome	favorable	107	86.3
	unfavorable	21	16.9
Postpartum complication	Yes	21	16.9
	No	107	86.3
If complication what	Puerperal sepsis	14	13.7
	Wound site infection	6	4.8
	Others	1	0.8
General maternal condition	Alive	123	99.2
	Dead	1	0.8

5.4 Fetal outcome

There were twenty nine (23.4%) of the fetus had unfavorable outcome. Twenty three (18.5%) of the fetus were 1st minute Apgar score below normal. One hundred twelve (90.3%) were 5th minute Apgar score was normal. One hundred eighteen (95.2%) of the fetus were weight greater or equal to 2500g. Of all the study subject twenty seven (21.8%) of the fetus were need ICU admission

Table 5:Fetal outcome of pregnancy complicated by term PROM in TGH from Jan 1/2015 up to Dec 31/2016

Variables	categories	Frequency	Percent
Fetal outcome	favorable	95	76.6
	unfavorable	29	23.4
Out of unfavorable	Alive with complication	24	19.4
	Still birth	4	3.2
	ENND	3	2.4
APGAR score at first minute	<7	27	21.7
	>7	97	78.3
APGAR Score at fifth minute	<7	12	9.7
	>7	112	90.3
Weight of the fetus	<2500g	6	4.8
	>2500g	118	95.2
Needs ICU admission	Yes	27	21.8
	No	97	78.2
General out come of fetus	Alive	109	87.9
	Dead	15	12.1

5.5 Maternal outcome and associated factor

Mode of delivery had statistically significant association with maternal outcome (OR=18.7(1.78, 196.02))and (OR=7.14(1.07,47.45)) .

Mother get antibiotic has also statistically significant association with maternal out come(OR=16.94(3.02,93.11)) ,where as residence ,age ,duration of prom to delivery ,presence of chorioamnionitis, gravidity ,previous history of PROM, onset of labor and duration of hospital stay had no statistically significant association with maternal out come.

In multi logistic regression: Mother who got antibiotic had 16.94 times greater favorable maternal outcome than those who did not get antibiotics (AOR=16.94(3.02, 93.11)). As it is shown in the table below cesarean delivery and instrumental delivery had 7.14 and 18.7 times(AOR=7.14(1.07,47.45)) and(AOR=18.7(1.78, 196.02)) unfavorable outcome than spontaneous vaginal delivery respectively.

Table6: Multi-logistic regression of maternal outcome associated factor of pregnancy complicated by term PROM at TGH from Jan/2015G.C - Dec/2016G.C

Variables	Category	maternal out come				COR 95% CI	p.value	AOR 95% CI	p.val ue
		Favourable		unfavourable					
		No.	%	No.	%				
ANC follow up	Yes	71	100.0%	0	0.0%	1	.000	1	0.27
	No	27	51.4%	26	48.6%	0.2(0.21,0.247)		2.69(0.01, 5.02)	
develop choriamnionitis	yes	35	71.4%	14	28.6%	2.15(0.152,5.75)	.000	5.2(0.21,11.309)	0.65
	no	72	96.0%	3	4.0%	1		1	
mother get antibiotics	yes	97	100.0%	0	0.0%	1	.000	1	.001
	No	10	37.0%	17	63.0%	0.092(0.029,0.29)		16.94(3.02,93.11)	
mode of delivery	spontaneous vaginal delivery	73	98.6%	1	1.4%	1		1	
	instrumental delivery	6	46.2%	7	53.8%	0.13(0.03,0.52)	0.003	18.7(1.78, 196.02)	0.015
	cesarean delivery	28	75.7%	9	24.3%	2.5(0.63,10.56)	0.18	7.14(1.07, 47.45)	0.042

5.6 Fetal outcome and associated factor

Weight of the fetus had 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 5thmin had statistically significant association with fetal outcome(OR= 57.9(12.7,62.9))P<0.005.

Whereas ANC follow up, gravidity ,duration of PROM ,residence, ,chorioamnionitis ,mode of delivery, duration of hospital stay had no statistical significant association

According to multi logistic analysis, APGAR score at 5thmin below normal 57.9times more likely unfavorable fetal outcome as compared to normal Apgar score at 5th min (AOR== 57.9(12.7,62.9)).

Weight of the fetus less than 2500g 3.99 times more likely unfavorable fetal outcome as compared to weight of the fetus greater than 2500g (AOR= **3.99(1.3, 11.8)**).As shown in the following table.

Table7: Multi-logistic regression of fetal outcome and associated factor of pregnancy complicated by term PROM at TGH from Jan/2015G.C - Dec/2016G.C

Variables	Category	fetal out come				COR 95% CI	P value	AOR 95% CI	P value
		favourable		unfavourable					
		No.	%	No.	%				
ANC	YES	93	97.9	21	72.4	1	0.000	1	.32
	NO	2	2.1	4	13.8	1.5(0.72,3.32)		3.5(1.4,8.6)	
APGAR score at fifth minute	<7	0	0	8	27.6	22.2(9.2,32.1)	0.001	57.9(12.7,62.9)	.002
	>7	95	100	17	58.6	1		1	
Weight of the fetus	<2500g	2	2.1	4	13.8	1.82(0.99,4.2)	0.000	3.99(1.3,11.8)	.001
	>2500g	93	97.9	4	13.8	1		1	
Needs ICU admission	Yes	2	2.1	25	86.2	7.2(2.3,11.4)	0.001	50.4(11.1,68.3)	.05
	no	93	97.9	4	13.8	1		1	
mother get antibiotics	yes	85	89.5	12	41.4	1	0.000	1	0.22
	no	10	10.5	58.6	21.8	0.52(0.12,2.4)		5.2(2.33,11.42)	

5.7 DISCUSSION

PROM is a high risk obstetric condition which is a common problem among pregnant women and a big challenge to the neonatologists.

Following the premature rupture of membranes, both the mother and fetus have an increased risk of infection (9). This study tried to look at maternal and fetal outcome of term PROM in Tercha General Hospital from January 1/2015 G.C up to December 31/2016 G.C.

The result of the present Study showed that, incidence of term PROM is 7.05% which is approximately similar with other research done in Pharma, and India the range of 5%-10% and 8%-10% respectively (27)

The study showed mothers who had ANC follow up 57.26% compared to study done in Mizan Aman which was 29.2%(14) , the study done in yeme south west Ethiopia and EDHS 2005 rural population ANC services consistent which was 28.5%(25) it was increased greater than two times probably due to small catchment area and awareness of health seeking behavior increases from time to time.

The study showed mothers who got antibiotic had 16.94 times greater favorable maternal outcome than those who did not get antibiotics (AOR=16.94(3.02, 93.11)).Antibiotic reduces maternal and fetal infection (7) The study result also showed cesarean delivery and instrumental delivery had 7.14 and 18.7 times(AOR=7.14(1.07,47.45)) and(AOR=18.7(1.78, 196.02)) unfavorable outcome than spontaneous vaginal delivery respectively.

Twenty one (16.9%) of the mothers unfavorable outcome and also 13.7% maternal morbidity and 0.8% maternal mortality, the most common fourteen (13.7%) postpartum maternal complication was puerperal sepsis followed by wound site infection six (4.8%).There was one maternal mortality (0.8%) caused by puerperal sepsis. 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% (16).

47.6% of term PROM were in primigravida,76.6% of labor was induced, mode of delivery (59.7%) by SVD almost consistent compared to the study done in Karnakata it is 63% primigravida 72.4 spontaneous onset of labour and 65.5 % mode of delivery by SVD (16).

The rate of C/S is 29.3% majority and 13.7% with the indication of NRFHRP. Vaginal delivery was the commonest mode of delivery. There was a four fold increase in the caesarian section rate, the rate of LSCS to 27% in Sita ram shresta et al study and 30% in Kodkany telang et al study(25).

The present study showed about the fetal data (76.6%) favorable fetal outcome and (23.4%) of unfavorable fetal outcome. APGAR score at 5th min below normal 57.9 times more likely unfavorable fetal outcome as compared to normal Apgar score at 5th min (AOR= 57.9(12.7,62.9)).

Weight of the fetus less than 2500g 3.99 times more likely unfavorable fetal outcome as compared to weight of the fetus greater than 2500g (AOR= **3.99(1.3, 11.8)**) 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.

The present study showed about the Fetal data ninty five (76.6%) favorable fetal outcome and twenty nine (23.4%) of unfavorable fetal outcome. There was twenty four (19.4%) fetal morbidity and fifteen (12.1%) fetal mortality.

There were three (2.4%) ENND, four (3.2%) still birth. 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 karnakata 28% and 3.5% respectively (15) higher than EDHS 2011 perinatal 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 hospital 127/1000 Perinatal mortality 86/1000 ENND (27).

There was no statistical significant association between gravidity, mode of delivery, residence, duration of hospital stay and onset of labor with maternal and fetal unfavorable outcome. This is similar with the study done in Karnataka (16).

5.8 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 Tercha 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 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 TGH.
- ❖ As my study was retrospective, associated psychological and other long term post-operative problems which are associated with surgery was not included.

6. Conclusions

The result of this study shows that, PROM is a high risk obstetric condition which is a common problem among pregnant women and a big challenge to the neonatologists. Evaluation of risks of PROM and timely diagnosis is essential to reduce maternal and prenatal morbidity and mortality. Antibiotic administration to women with PROM significantly reduces maternal and neonatal morbidity. Active management is needed to enable delivery within 24 hours of PROM and it offers better maternal and neonatal outcome. The main objective of the obstetrician should be early screening, adequate antenatal visits and improvement of general condition of the mother, identifying risk factors , treating associated complications ,correct diagnosis of rupture of membranes and induction of delivery that gives a high rate of successful vaginal deliveries without a rise in neonatal and maternal infections.

A healthy neonate as well as healthy satisfied mothers is natural aims for the obstetrician.

7. Recommendation

- TO Federal MOH to Improve the maternal and Fetal mortality and morbidity in the hospital by fulfilling basic obstetric & laboratory material and medication.
- TO Dawro zone health bureau more emphasize should be given 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.

REFERENCE

1. Frenette P, Dodds L. Preterm prelabour rupture of membranes: effect of latency on neonatal and maternal outcomes. 2008;25-6
2. Ledford L. Pre labor ruptures Of the Membranes at or near Term Clinical and Epidemiological Studies. 1998;(2)23-7.
3. Hackenhaar A, Albernaz E. Preterm Premature Rupture of the Fetal Membranes: Association with Socio demographic Factors And Maternal Genitourinary. 2013;24-8.
4. World Health Report Make Every Mother And Child Count 2005 31-3.
5. World health statistics, monitoring health for the sustainable development goals. 2016:
6. Agency CS, Ababa A. Ethiopia Demographic And Health Survey. 2012(3)35-6.
7. Guideline CP, Prelabour P, Of R, Membranes The. Preterm Prelabour Rupture Of The Membranes (Pprom) Institute Of Obstetricians And Gynecologists, Royal College Of Physicians Of Ireland And Directorate Of Strategy And Clinical Care , Health Service Executive Guideline ; April 2015.(24):1–19
8. Modena AB, Kaihura C, Fieni S. Pre labor Rupture of the Membranes: Recent Evidence. 2004; 510-4.
9. WHO.”Trends In Maternal Mortality; 2015.35-8.
10. Ministry Of Health ,Health Sector Transformation Plan .2015.25-8.
11. Duff P. Premature Rupture Of Membranes In Term Patients: Induction Of Labor Versus Expectant Management. 1998; 41: 883–891
12. Tigist E, Netsanet F, Desta G, Mamusha A maternal and fetal outcome of term prom in mizan aman hospital 2014;35-7.
13. Gardner SL. Sepsis In The Fetus. Crit Care Nursling NA; 2009;21(1):121–41.
14. Surgery M of. A Study Of Maternal and Prenatal Outcome In Premature rupture. 2012; 23-5.
15. The Incidence of Early Onset Sepsis in Prom Mothers 1. 2013; 3(1):254–6.
16. Manuscript A. NIH Public Access. 2011; 37(2):339–54.
17. Lieman J, Brumfield C, Carlo W, . Preterm Premature Rupture Of Membranes : Is There An Optimal Gestational Age For Delivery ? 2005; 105(1):12–7.
18. Alam M, Saleem A, Shaikh A, Munir . Original Article Fetal Sepsis Following Prolonged Rupture Of Membranes In A Tertiary Care Hospital In Karachi .2008.(2);36-9.
19. For U. Practice Bulletin. 2007; 109(4):1007–19.
20. Reading F, Fetal G, Rates M, Variations G, Mortality N. Chapter 1 Problems Of The Newborn. 2000; 1–12.

21. HussinAk, Jamil U, Nanu D. Original Study Early Rupture Of Membrane A Risk Factor For Cesarean Section In Term Pregnancy. 2013 ;(2):95–9.
22. Hospital S, Sciences M. The Cesarean Section Rate In Cases With Premature Rupture Of Membrane (Prom) At 36th Week Of Pregnancy Or Later. 2000;(3);45-6
23. Bahilu T, Tewodros B, Mariam Ag, Dibaba Y. Original Article Factors affecting Antenatal Care Utilization In Yem Special Woreda , Southwestern Ethiopia.2011;25-8.
24. Gutema H, Shimye A. Caesarean Section And Associated Factors At Mizanaman General Hospital Southwest Ethiopia. 2014;2(3):37–41.
25. Gandhim, Shahf, Panchalc. Obstetric Outcomes in Premature Rupture O f the Membrane (Prom).The Internet Journal of Gynecology and Obstetrics.2012; 16(2).
26. Kodkany BS Telang MA : Premature rupture of membrane – A study of 100 cases , Indian journal of obstetrics and gynaecology 1991;41:492-6.
27. Bayou G, Berhan Y. Perinatal mortality and associated risk factor: Case control study 2009;22(3):153- 4

ANNEX- 1 CHECK LIST

Data collection format:

Jimma University, college of public health, faculty of medical science coordinating office of integrated emergency obstetrics and surgery, check list format is designed to analyze maternal and fetal outcome of premature rupture of membrane conducted at Tercha General hospital, a retrospective two years study from January 1/2015/December 31/2017 G.C. Please encircle the letter corresponding to the correct response.

Identification

I: Socio-demographic characteristic

1, Place of residence: A. Tercha town B. Outside Tercha 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 6 how 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 D) Grade IV

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

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

10, presenting part 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 labor 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

III 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) stillbirth D)
ENND

3, if alive with which complication A) low birth weight B) Me conium aspiration syndrome C) birth asphyxia
D) early Fetal sepsis E) 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-----

ASSURANCE OF PRINCIPAL INVESTGATOR

I, the under signed agrees to accept responsibility for the scientific, ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Faculty of public Health in effect at the time of grant is forwarded as the result of this application.

Name of the student Gobena Fedessa (BSC)

Date_____ Signature_____

Approval of the advisors

1. Dr Fitsum Araya

Date_ _____Signature _____

2.Ato Dechasa Bedada

Date _____ Signature_____

