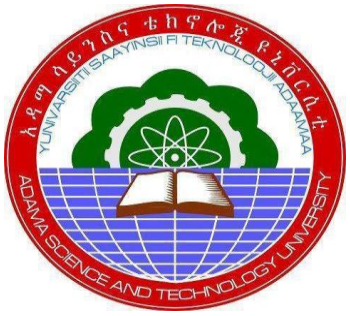

ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

OFFICE OF GRADUATE STUDIES

Assessment of Risk factors and Clinical Presentation of Ectopic pregnancy among suspected women visiting Bishoftu General Hospital, East Showa zone, Oromia Regional State, Ethiopia

A Thesis

Submitted to the Department of Applied Biology

School of Applied Natural Science

In Partial Fulfillment of the Requirement for the Degree of Master's in Biology

By:

Dawit Mitaw

Adama, Ethiopia

September, 2017

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Approval of Board of Examiners

We, the undersigned, members of the Board of Examiners of the final open defended by Dawit Mitaw Lashargee have read and evaluated his thesis entitled "Assessment of Risk factors and Clinical Presentation of Ectopic pregnancy among suspected women visiting Bishoftu General Hospital, East Showa zone, Oromia Regional State, Ethiopia," and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirement of the Degree of Masters in Biology

Supervisor /Advisor	Signature	Date
Chairperson	Signature	Date
Internal Examiner	Signature	Date
External Examiner	Signature	Date

Declaration

I hereby declare that this MSc Thesis is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been duly acknowledged.

Name: Dawit Mitaw Lashargee

Signature: _____

This MSc Thesis has been submitted for examination with my approval as thesis advisor/ Supervisor.

Name: Dr. Yeshiembet Major

Signature: _____

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Supervisor's/Advisor's approval sheet

To: Applied Biology department

Subject: Thesis Submission

This is to certify that the thesis entitled "Assessment of Risk factors and Clinical Presentation of Ectopic pregnancy among suspected women visiting Bishoftu General Hospital, East Showa zone, Oromia Regional State, Ethiopia" submitted in partial fulfillment of the requirements for the degree of Master's in Biology the Graduate program of the department of Biology, and has been carried out by Dawit Mitaw Lashargee Id. No- GSU/0402/06, under my/our supervision. Therefore, I/we recommend that the student has fulfilled the requirements and hence hereby he/she can submit the thesis to the department.

Name of major Advisor/supervisor _____

Signature: _____

Date: _____

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ACRONYMS

BGH	Bishoftu General Hospital
β-hCG	Beta subunit of human chorionic gonadotropin
CEP	Cervical ectopic pregnancy
CL	Confidence interval
CSEP	Cesarean scar ectopic pregnancy
D&C	Dilation and curettage
EP	Ectopic pregnancy
GIFT	Gamete intra fallopian transfer
HCG	Human chorionic gonadotropin
IUD	Intra uterine device
IVF	In vitro fertilization
mIU	mili international units
miu/ml	mili international units per milliliter
MTX	Methotrexate
ng/ml	Nano gram per milliliter
OEP	Ovarian ectopic pregnancy
OR	Odd ratio
PID	Pelvic Inflammatory Diseases
STD	Sexually transmitted diseases
UPT	Urine for pregnancy test
USG	Ultrasonography

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OPERATIONAL DEFINITIONS

Abdominal pregnancy: - is a pregnancy which grows in the abdominal cavity that can attach to different organs like omentum, intestine, liver etc.

Amenorrhea:-cessation of menstruation

Anemia:-Hemoglobin value of <10.5mg/dl

Appendicitis: - a condition where the appendix (a tubular structure attached to the large colon) becomes infected and inflamed and can be associated with the formation of adhesions in the proximity of the fallopian tube.

Cervix: - is the lower narrow end of the uterus that connects the uterus to the vagina.

Classical triad: - is the presentation of amenorrhea, lower abdominal pain and vaginal bleeding.

Dilation and curettage (D&C):- An outpatient surgical procedure during which the cervix is dilated and the lining of the uterus is scraped out.

Ectopic pregnancy:-a pregnancy outside of the uterus, usually in the fallopian tube.

Endometriosis:-is abnormally tissue growing on ovaries, in fallopian tubes and in abdominal cavity & causing pain, inflammation, tissue scar and may be associated with infertility.

Expectant management: - is the treatment of EP by close observation without intervention any improvement on a patient to choose other alternatives like surgical and medical.

Fallopian tube:-A pair of hollow tubes attached one on each side of the uterus through which the egg travels from the ovary to the uterus and a place of fertilization & common site of EP.

Fimbriae:-is a finger-like end of fallopian tube that sweeps over the surface of the ovary and helps to direct the egg into the tube.

Gravidity: - Number of pregnancy was including the present one, irrespective of the outcomes.

Gynecology:-is a medical specialty that deals with the health of female reproductive system (vulva, vagina, uterus, ovaries & fallopian tubes) & breasts.

Laparoscope:-a thin, lighted, telescope-like viewing instrument that is usually inserted through the navel into the abdomen to diagnostic and operation.

Laparoscopy:-is insertion of laparoscope and other instruments to inspect the organs in abdominal cavity and surgical correction of abnormalities like EP.

Laparotomy: - is a major abdominal surgery through an incision in the abdominal wall.

Long hospital stay: - is the day the patient stays in the hospital more than three days.

Medical management of ectopic pregnancy:-is use of different medication to treat ectopic pregnancy.

Molar pregnancy: - is a trophoblastic disease characterized by abnormal proliferation of the trophoblastic cells with vesicular chorionic villi transformation.

Obstetrics: - is a medical specialty that deals with pregnancy, child birth & postpartum period.

Ovaries:-female sex glands located one on each side of the uterus to produce eggs and hormones including estrogen, progesterone and androgen.

Pelvic inflammatory disease:-PID is an ascending infection of the female genital tract below the internal cervical os and a major cause of female infectious morbidity, ectopic pregnancy, infertility, and of chronic abdominal pain.

Progesterone:-a female hormone secreted by the corpus luteum after ovulation during the second half of the menstrual cycle (luteal phase).

Reproductive age: - is a child bearing age usually from 15 to 49 years of age.

Salpingotomy:-A surgical treatment of ectopic pregnancy that used to conserve tube and the incision left un-sutured.

Salpingostomy:-A surgical treatment of ectopic Pregnancy that conserves tube and the incision sutured.

Salpingectomy: - A surgical treatment of ectopic Pregnancy by removing the tube.

Salpingo-ophorectomy: - A surgical removing the tube and ovary in ectopic pregnancy.

Shock: -A state of deranged vital sign with systolic B/P < 90mmhg systolic and diastolic < 60mmhg.

Surgical management of ectopic pregnancy:-is treating by cutting or incising of the fallopian tube to take out embryo its site.

ABSTACT

Ectopic pregnancy (EP) is one of the leading causes of maternal death in the first trimester. The present study was designed to asses Risk factors and Clinical Presentation of Ectopic pregnancy among suspected women visiting Bishoftu General Hospital from January to July 2017. Primary data were collected using questionnaire from patients purposively and analyzed using statistical software SPSS version 20. A total of 1230 patients were admitted during the study time. Among this 84 (6.83%) of them suspected to have ectopic pregnancy and about 62 (73.81%) patients had ectopic pregnancy that was confirmed by surgical result giving ratio of five per 100. The history reveling lower abdominal pain (100 %), Amenorrhea (99 %) and vaginal bleeding (90 %) were the most clinical presentation. Ruptured ectopic pregnancy was (88.7 %). Most patients were presented with more than one symptom like abdominal tenderness, rebound tenderness and muscle guarding the same value (94 %), hypertension (88.1 %) and shock (60.7 %). Classical triad and urine pregnancy test had highest predictive values to diagnosis ectopic pregnancy. The average days of hospital stay was 4 days that was related with low hemoglobin level and blood transfusion. Past sexually transmitted diseases (86.9 %), alcoholism (84.5 %) and past history of cesarean section (13.1 %) were the most common relevant risk factors of ectopic pregnancy. Ovary cyst (22.6 %), ovarian-torsion (22.6 %), pregnancy related condition (14.35 %), endometriosis 13.1 % and kidney disease (13.1 %) had mostly related signs and symptoms with ectopic pregnancy. All patients (100%) were treated surgically with good out-come. The most clinical exhibitions were lower abdominal pain, Amenorrhea and vaginal bleeding. Past sexually transmitted diseases, alcoholism and past cesarean section were significant risk factors for causing ectopic pregnancy. Ovary cyst, ovarian-torsion, pregnancy related condition, endometriosis and kidney disease were the most common differential diagnosis of ectopic pregnancy. In early pregnancy with lower abdominal pain, amenorrhea, vaginal bleeding and shock, ectopic pregnancy must be suspected and health professionals must be ectopic minded to early diagnosis of the case.

***Key-words/phrases*:** Amenorrhea, Bishoftu Hospital, Clinical-presentation, Ectopic-Pregnancy, Endometriosis, Salpingectomy, Risk factors

1. INTRODUCTION

The word ectopic pregnancy (EP) came from Greek word “ektopos” means out of place and refers to the development of the fertilized ovum outside of the uterine cavity. It was first described in the 11th century and until the late 20th century considered as an event leading to an inevitable fatal outcome (Cunningham *et al.,* 2010).

Dream of motherhood is not always pleasant with ectopic pregnancy and it is a life threatening condition. During the 19th century surgical treatment of ectopic pregnancy resulted in more than 80% of maternal mortality. Thereafter surgery was rarely performed because of maternal mortality it resulted. Since then, several developments in the management of ectopic pregnancies have led to a remarkable success in "saving the mother’s life". Recently further development is shifting to "saving the woman’s fertility" in addition to life of mothers. Maternal morbidity and mortality decreased due to advancement of diagnostic tools and knowledge about gynecological condition (Yao *et al.,* 1997).

EP occurs in any of abnormal locations with different characteristics of growth patterns and treatment options. But mostly or ninety-eight percent of ectopic pregnancies implant in the fallopian tube. As we know the uterus is a uniquely place and designed to accommodate, develop, nourish (source of blood supply) for growing embryo and has communications with the mother’s vascular system (Pisarska *et al.,* 1998). But EP occurs outside of uterine that unable to provide adequate nutrient and vascular support. Since 98 % occurs in narrow place in fallopian tube, it commonly results in rupture. In addition to this severe hemorraging may result when EP outgrows in limited space and may lead to a life-threatening complication (Brzezinski and Schenker, 1994).

It is usually unexpected and often emotional trauma. Many women diagnosed as EP without even knowing as they were pregnant and suddenly think about the possibility of major surgery. But early diagnosis and treatment of high risk women allowed a definitive medical management of EP than surgery (Stovall *et al.,* 1989). Management like, medical, expectant, laparoscopy and uterine artery ligation increases chance of

future fertility, reduce hospital stay and complications caused by surgery (Murray, 2005). Highly suspicion, early clinical diagnosis, trans-vaginal ultrasound and β-hCG test increase success of medical treatment, reduce morbidity, mortality and even cost of surgery (Tulandi and Lau, 1999). But early suspicion and diagnosis before rupture is the main challenge in developing counties. Delay at home, lack of experience to diagnosis clinically and lacks of advanced tool are other problems next to early suspicion and diagnosis (Amoko and Buga, 1995). It is possible to diagnosis EP clinically by knowing clinical presentations in mind. Clinical diagnosis is good, if supported by ultrasound and urine pregnancy test for checkup.

1.2. STATEMENT OF THE PROBLEM

Delay in diagnosis results up to 92 % tubal rupture in developing countries and < 30 % in developed one, which is three times greater in developing countries (Job *et al.,* 1999). It is a life-threatening situation for women at childbearing age (Thonnaeu *et al.,* 2002) and resulted in death of mothers from 10 to 15% in developing world predominantly in Africa. But rupture of EP and death of maternal in developed counties is far less because of their early suspicion and having advanced tools to diagnosis. Rupture of EP with poor diagnostic tools is two-third in 2011 from the total ectopic pregnancy diagnosed in developing Africa countries. Although there have been studies on ectopic pregnancy, there is no identified clinically markers of EP that used to confirm a diagnosis. If such tests were available, it would certainly revolutionize the diagnosis of this potentially fatal complication of pregnancy. Early diagnosis before rupture of EP and conservative management was common problems in our setup also resolved by clinical presentation.

Secondly diagnosis situation like poor transport, letting in health center (Perrin *et al.,* 1997), rupture intervention, blood-transfusion (Esra, 2012) and lack of advanced equipment & hospital stay in developing countries will also be resolved which is common in all developing Africa countries including Ethiopia (Amoko and Buga, 1995; Perrin *et al.,* 1997).

Thirdly the definitive cause of EP is unknown. So awareness about the risk factors of EP and its fatality in community prevents loss of many lives. Diagnosing and treating based on clinical presentation reduces maternal mortality & morbidity caused by ectopic pregnancy. Even though it is the second leading cause of maternal mortality and morbidity; few researches had been done with respect to the issue only in some African countries. As a result little is known about the problems. The same is true in our country and Bishoftu.

And therefore this study to assessing the risk factors and clinical presentation of ectopic pregnancy among the suspected women that visited Bishoftu general hospital, so as to generate input for the hospital and my county.

1.3. RATIONALE

Ectopic pregnancy is the cause for early fetus loss in developing countries and incidental problem that causes loss of mothers suddenly (Makinde and Ogunniyi, 1990, Baffoe and Nkyekyer, 1999, Abdul, 1999, Elhelw, 2003; Okunlola *et al*, 2006). Like other problems, ectopic pregnancy has clinical manifestations, factors that cause, differential diagnosis and complication but not well documented in Ethiopia. Even there is no research done in Oromia region about ectopic pregnancy to compare this study with previous study done locally and at national level. This study is, therefore, aimed at assessing the risk factors and clinical presentations among women suspected of ectopic pregnancy that visiting in Bishoftu General Hospital. Diagnosis is also problem before rupture of fallopian tube and there is an information gap about clinical presentation, risk factors, differential diagnosis and associated complications. So, this study attempted to explore about clinical diagnosis of ectopic pregnancy, risk factor that causes EP, differential diagnosis and management of EP. Knowing clinical presentation is important to suspect and diagnosis EP early before rupture of fallopian tube. It can also reduce fetal loss and infertility that caused is by salpingectomy.

1.4. OBJECTIVES OF THE STUDY

1.4.1. General Objective

To assess the risk factors and clinical presentations of ectopic pregnancy among women suspected that visited Bishoftu General Hospital.

1.4.2. Specific Objectives

- To suggest the clinical presentation of ectopic pregnancy.
- To identify differential diagnosis of ectopic pregnancy.
- To explore factor that cause ectopic pregnancy.
- To determine factors that increase long hospital stay in ectopic pregnancy patient.

1.5. Research questions

1. What are clinical presentations of ectopic pregnancy?

2. What are factors associated with increasing risk of ectopic pregnancy?

3. What are the differential diagnoses of ectopic pregnancy?

4. What factors of ectopic pregnancy increases hospital stay?

1.6. Hypothesis of the study

Mechanism of implantation of ovum in the uterus is believed that the ciliated fimbria the ends of fallopian tube sweep across the surface of ovary to pick up ovum from the ovary during ovulation. Then the ciliated fimbriae transport the ovum into infundibulum and ampulla. Sometime pick up of ovum from ovary may fail. This could be

- The high incidence of ectopic pregnancy in Bishoftu general hospital could be due to past history of sexually transmitted diseases, alcoholism and past history of cesarean section.
- Other possibility would be cilia damage from the tube that reduce contractility of smooth muscle & dysfunction of the fallopian tube that caused by history of past sexually transmitted diseases infection, alcoholism and scar formed by prior surgery for delivery and previous EP.

- Ectopic pregnancy could cause fallopian tube rupture that result blood in the peritoneum and that produces clinical presentation like lower abdominal pain, vaginal bleeding, shock, hypotension and tachycardia.
- Ectopic pregnancy could lead to long hospital stay due to low hemoglobin level and blood transfusion, sepsis and tachycardia.
- Ectopic pregnancy could have similar signs and symptoms with conditions with ovary endoplasm, ovarian-torsion, with pregnancy related condition, endometriosis and kidney disease.

1.7. Significance of the study

Knowing clinical presentation of ectopic pregnancy is important for many purposes in diagnosis of EP. First for early diagnosis and treat accordingly. Second it can reduce long hospital stay and safe mother's life. Third it is important to estimate the burden of EP, so that health care and public health policies maker are better informed. Lastly the study may be used as reference for the future survey and to educate both community & health professionals to increase awareness about ectopic pregnancy in general.

1.8. Limitation of the study

The major limitations of the study were shortage of time to collect data, lack of reference about EP especially in Bishoftu (as well as in Ethiopia) and inaccessibility of the patient like other gynecological case was the major constraint of this study.

2. LITERATURE REVIEW

2.1. EPIDEMIOLOGY OF ECTOPIC PREGNANCY

Ectopic pregnancy is one of the leading causes of maternal deaths at first trimester that accounts for 10% from all pregnancy related deaths (Akbar *et al.,* 2002; Farquhar, 2005) and other, annual statistics reported death of mother up to 13-15 % in between 2005 to 2009 (POGS, 2009). It is gynecological emergency (Laura, 2004) that remains a serious health problem at childbearing age of women (Zane *et al.,* 2002). EP is cause for 10-15% maternal morbidity world-wide at first trimester and the second killer next to abortion (Makinde and Ogunniyi, 1990). The main causes of these deaths are due to bleeding and its consequences like; shock, pulmonary embolism, sepsis, disseminated intravascular coagulopathy, some-time acute renal failure and other (Murray, 2005).

The incidence of EP has been raised in the world (Walker, 2007) and it varies from country to country depending on the risk factors predominant in the geographical region. Globally, the reasons for the rising trend were thought due to earlier diagnosis of cases, use of reproductive technology, due to tubal surgeries, rise of pelvic inflammatory infection and sterilizations in developed counties (Arup *et al.,* 2007). In most of Europe and North America incidence has been tripled on average at the past 30 years and in 2002 it was about 2 % (Patrick *et al.,* 2002). It is increasing in the world and in most of European countries like, Norway increased from 1.4 % to 2.2 % (Storeide, 1997; Patrick *et al.,* 2002), in Wales and England from 0.3 to 1.6 % (Rajkhowa, 1996), in USA from 1.9 to 2.3 % (Saraiya, 1999) and in India 7.1 % of all pregnancy related death (Arpia, 2013). Data on EP are rare and often out of date in developing countries, particularly in Africa (Patrick *et al.,* 2002). Even though, incidence from 1960s to mid-1980 was between 0.5 % and 2.3 % (Thonnaeu *et al.,* 2002; Patrick *et al.,* 2002). In industrialized countries the incidence rate was increased by four-folds from 0.3 % to 1.2 % (Tang *et al.,* 2006; Rotas *et al.,* 2006). Incidence in some African country, in South Africa 1.1 % (Amoko and Buga, 1995), in Tanzania 1.4 % (Kajura, 1998), in Uganda raised from 1 % to 3 % (Aliya, 2010), in Ghana 4 % (Baffoe and Nkyekye, 1999), in Benin 4.9% which is the largest (Perrin *et al.,* 1997) and Ethiopia, from 1981 to 1987 at

Black lion hospital it was doubling corresponding to (0.5 to 1.2%) of the hospital based EP incidence rate over the period (Yoseph, 1990).

This suggests that the incidence of EP in developing African countries is increasing in recent decades. It is simultaneous with incidence of pelvic inflammatory diseases (Barnhat and Reinll, 2003) suggesting a causal relationship and improvement in diagnostic modalities like HCG & vaginal ultrasonography (Lundorff *et al.,* 1991). Ectopic pregnancy is not only causes for maternal mortality & morbidity; it also reduces fertility and has chance of reoccurrence (Chaw *et al.,* 1987). Another peculiarity of ectopic pregnancy is recurrence feature nearly 15 % and 25 % to have another ectopic after first and second Ectopic pregnancy respectively. This signals that how the problem is becoming significant issue for the community and has direct impact upon women reproductive health.

The main treatment option in developing countries is surgery, because there is delay in diagnosis and noticing risks of rupture (Perrin *et al.,* 1997). Even though, treatment is given in different hospitals of Ethiopia like other African countries there is no more data in our cases unlike other African countries.

2.2. Sites of occurrence for ectopic pregnancy

The site of ectopic pregnancy is not easily determined and can occur in a number of abnormal locations, each with different characteristics of growth patterns and treatment options. Generally sites are two type, extra uterine (Tubal, abdominal and ovarian) and intra uterine (cervical and cornu of the uterus) (Storeide *et al.,* 1997; Bouyer *et al.,* 2002). Mostly it occurs in the fallopian tubes, that accounts for about 98 % of all and other sites like ovary, cervix, cornua of the uterus (Rajkhowa, 1996) and more rarely in the abdominal cavity (Patrick *et al.,* 2002).

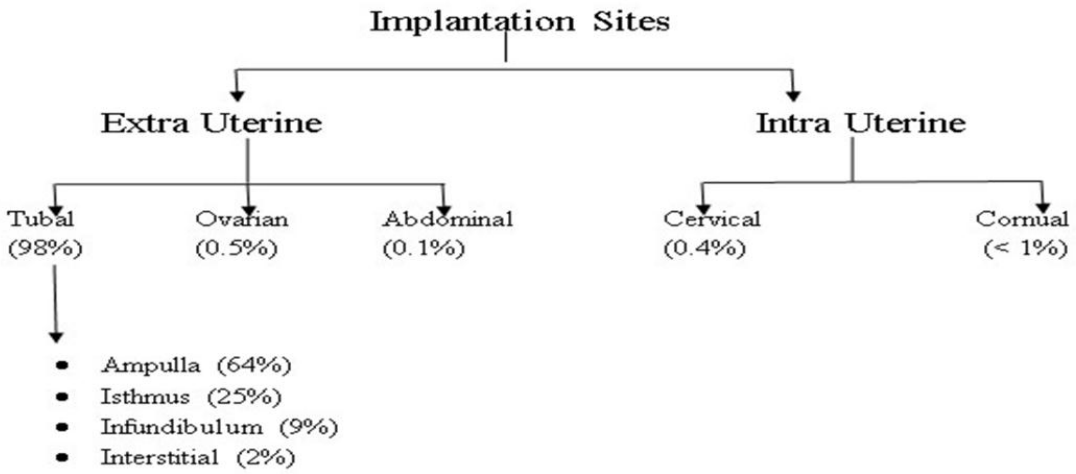

Figure 1: Classification of ectopic pregnancy based on site of uterine as extra and intra uterine. Source; (Panagiotis *et al.*, 2011).

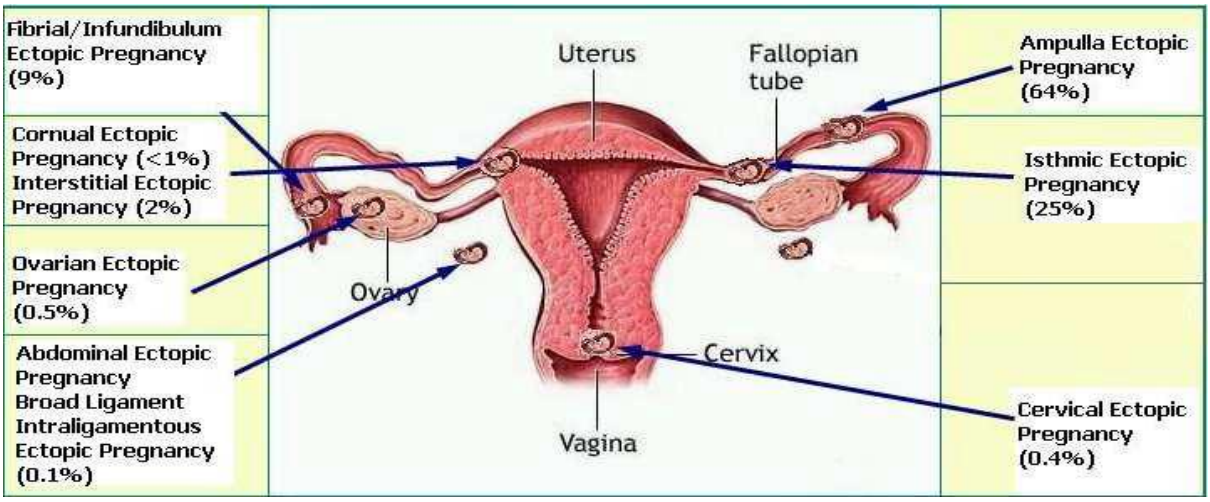

Figure 2: Different sites for ectopic pregnancy

source; (Panagiotis *et al.*, 2011).

2.3. Risk factors of ectopic pregnancy

In normal conception, fertilization occurs inside the fallopian tube of ampulla, then embryo travels through to reach uterus within 3 to 4 days. A factor that block or damage fallopian tube is risk factors that cause EP. If it occurs in fallopian tube, it cannot support the growing embryo and after weeks the tube can rupture & bleed (Korell *et al.*,

1997). So, anything that blocks or damages the fallopian tube can cause EP which includes the following:-

1. Past history EP that increases 16- folds in second pregnancy.

2. Tubal surgery like adhesion formation.

3. STD like Chlamydia and gonorrhea are greater pelvic infections that increase risk.

4. Use of assisted reproductive technology such as in vitro fertilization (IVF) and gamete intra fallopian transfer (GIFT).

5. Use of intra uterine device (IUD), uterine cavity scar, non-infectious pelvic inflammation (endometriosis, foreign body) smoking, alcoholism, increased age and anything that hinder the movement of egg (zygote) are risk factor to cause EP (Mol *et al.*,1997; Buster and Bouyer, 2003).

2.4. Types of ectopic pregnancy

Pooman *et al.* (2013), there are different types of EP based on site and causes which includes the following;

1. Fallopian tube is a dominant site of ectopic pregnancy. From all EPs ampulla 64 %, isthmis 25 %, fimbria 5 % in the end of the fallopian tube.

2. Cervical ectopic pregnancy (CEP) 0.4 % and ovarian ectopic pregnancy (OEP) 0.5 %.

3. Abdominal EP 0.1 % and serious form of extra-uterine gestation that result uncontrolled bleeding from the placental.

4. Cesarean scar ectopic pregnancy (CSEP) is another EP with an incidence of 1:1,800.

5. Other like in vitro fertilization.

2.5. Clinical presentations of ectopic pregnancy

Ectopic pregnancy has always challenging tasks of the Obstetricians and Gynecologists by its bizarre clinical picture. It is one, which can mimic practically each and every gynecological disorder as well as many surgical catastrophes. Each woman is affected differently by an ectopic pregnancy. Some women have no symptom; some have a few

symptoms while others have many symptoms. Because of symptoms vary so much, it is not always straightforward to make a diagnosis of an ectopic pregnancy. The symptoms of an ectopic pregnancy may include; majorly lower abdominal pain, amenorrhea and vaginal bleeding (Bansal, 2011). Abdominal pain varies in severity and nature that starts with dull pain caused by tubal stretching followed by sharp colicky types of pain. Other symptoms like abdominal tenderness, referred shoulder pain and irritation from blood in the peritoneal cavity also suggested (Dartal *et al.,* 1999).

Study in Africa diagnosed clinically except few that diagnosed by ultrasound (Kajura, 1998). Patients with amenorrhea and lower abdominal pain diagnosed, UPT positive. Patient with vagina spotting and bleeding was sometime UPT positive (Abass, 2008; Thonnaeu, 2002). In place where no ultrasound and laboratory test; clinical presentation is very important like in most developing countries particularly in our cases. But clinical diagnose is very nice and good, if supported by ultrasound and laboratory tests for final decision.

2.6. Physical examination of ectopic pregnancy

There are no specific signs and symptoms that are pathognomonic but findings may be suggestive gives clue to diagnosis EP and about fallopian tube. Therefore, there should be high index of suspicion all the time when early pregnancy followed by any abnormal physical findings like shock, pallor and abdominal mass.

The ruptured tube result shock and pallor due to complication of bleeding (Stabile and Grundzinskas, 1990). This in turn results other complications like tachycardia, hypotension, hematuria and intra-abdominal bleeding. Physical examination also used to detect peritoneal signs, such as rebound tenderness and cervical motion tenderness, which indicate the possibility of hemoperitoneum. Others like oliguria, adnexal mass mild, uterine enlargement and rarely fornixes bogginess observed (Vyas, 1998). Physical examination alone has lower value, if not supported by clinical symptom & other tests (Dartal *et al.,* 1999).

2.7. Diagnosis of Ectopic pregnancy

No uniform diagnostic techniques of ectopic pregnancy and all diagnoses are used in combination to differentiate EP (Stovall *et al.,* 1990; Ankum *et al.,* 1993; Pisarska *et al.,* 1998). Diagnosis of EP must be supported by history and experience of patient with above mentioned risk factors. EP occurs 1-2 % in absence of the risk factor and 25 % in multiple risk factors (Fylstra, 1998). Some of the common diagnosis techniques are the following;

2.7.1 Ultrasound test and Urine pregnancy test

Ultrasonography is first choice to diagnosis EP. Because its 99 % sensitive and 71 % specific (Kirk, 2008). But its availability in developing countries and gestational age matters. Trans-vaginal ultrasound is preferable than trans-abdominal ultrasound because it allows direct visualization of an ectopic mass (Kirk and Bourne, 2009). In normal pregnancy, HCG concentrations increase 66-100 % during the first 6 weeks of pregnancy within 48 hours. If hCG level is < 66 % (Buster and Carson, 1995) and no intrauterine gestational sac by ultra sound, EP must be suspected (Kirk, 2008). Even though hCG-level varies from 1,500 to 2,000 mIU per mL, use with ultra sound to insure viability of intra-uterine pregnancy, that can't be by ultrasound (Savaris *et al.,* 2007). UPT is accurate 97.4 % when used by technician and 75 % by costumers soon after missed period. Because of one week before pregnancy HCG level in urine is between 5-50 miu/ml. UPT is sensitive to detect 50 miu/ml of HCG in urine (Bastian, 2008). Therefore, use of ultrasound and beta HCG is cost-effective (Gracia and Barhart, 2001).

2.7.2. Progesterone test in ectopic pregnancy

Progesterone is a single screening but not in high risk patients (Pisarska *et al.,* 1998; stoval *et al.,* 1992). Progesterone concentration > 25 ng/ml is highly correlated (> 95 %) with a normal intrauterine pregnancy while a concentration < 5 ng/ml is highly correlated (almost 100%) with an abnormal and non-viable pregnancy.

2.7.3. Laparoscopy test in ectopic pregnancy

Laparoscopy is also used to confirm the diagnosis of an ectopic pregnancy. A small camera called a laparoscope is placed into the abdominal cavity through small incision (cut) of umbilicus. It also uses to remove EP through the incisions and no hospital stay is necessary following laparoscopy (Ling and Stovall, 1994; Carson 1995).

2.8. Differential diagnosis of ectopic pregnancy

There are some other diseases that have similar presentation with EP and that may confuse. Like abortion, urinary tract infection, diverticulitis, pregnancy-related conditions, ovarian neoplasms, endometriosis, pelvic inflammatory disease, ovarian torsion, kidney stones, gastroenteritis and appendicitis are some of the conditions that may have similar signs and symptoms with ectopic pregnancy (Marina *et al.,* 2011; Panagiotis *et al.,* 2011).

2.9. Factors associated with long hospital stay of ectopic pregnancy

Embryo that implanted in fallopian tube has not support to growing from uterus. After weeks, the tube can rupture and result in bleeding and unstable vital signs. Complication of rupture like shock, amount of bleeding, need of blood transfusion and sepsis leads patient long hospital stay. Other symptoms like nausea, vomiting, and diarrhea which may confuse with gastrointestinal and other disorders can also cause long hospital stay (Murray, 2005). Fever and need of ventilator after post-op (Kajura, 1998), are other factor that also results long in hospital stay (Vyas, 1998).

2.10. Management of ectopic pregnancy

Management of ectopic pregnancy is very difficult because the patient came with ruptured fallopian tube. However, there are three main important management options of ectopic pregnancy. These are surgical, medical and expectant management. From all this surgery is the most commonly used and it reduce risk of fallopian tube rupture caused by other.

2.10.1. Surgical management of ectopic pregnancy

Surgery is a definite treatment in the following conditions like, ruptured EP, hypotension, anemia, sac with > 4cm in diameter and for persistent pain. Types of surgeries can be laparoscopy and laparotomy (major abdominal surgery) (Buster *et al.*, 1995), Salpingectomy (removal of the entire tube) (Brzezinski and Schenker, 1994) that avoids rupture of tube in the next pregnancy (Clausen, 1996), Salpingostomy (opening fallopian tube and remove EP while leaving the tube in place) that has high fertility rate than salpingectomy (Balasch and Barri, 1994). In Salpingostomy 5 to 15 % of ectopic tissue may remain and continue to grow. This has high rate of recurrence of ectopic pregnancy (Yao *et al.*, 1997; Fernandez *et al.*, 1998; Mol *et al.*, 1998).

Total salpingectomy Partial salpingectomy

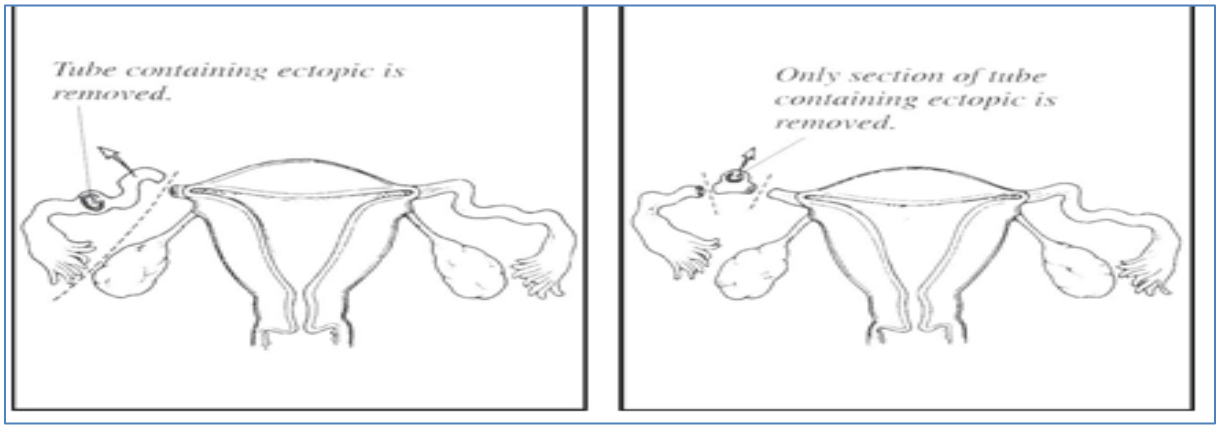

Figure 3: Total and Partial salpingectomy *source;* American Society Reproductive (2014).

2.10.2. Medical management of ectopic pregnancy

Medication is less expensive than surgery but not much thought (Rodrigues *et al.*, 2012). It's important to avoid risks of infertility. Medication is possible with sac < 4cm in diameter and if no contra-indication to drugs (Stovall *et al.*, 1991). Medication includes methotrexate (MTX) (Van Mello *et al.*, 2013), folic-acid antagonist, local potassium chloride, hyperosmolar glucose, prostaglandins, diazole, ectoposide, and mifepristone (Raughley *et al.*, 2007; Hajenius *et al.*, 2013). MTX is the most commonly used to destruct the fetus within 4 - 6 weeks. MTX has nearly the same outcomes with

laparoscopic salpingostomy (Buster and carson, 1995; Stoval *et al.,* 1990) but increase risk of rupture and sepsis after it has been done.

2.10.3. Expectant management of ectopic pregnancy

Expectant management is an observation without actively involvement to treat; knowing that 25 % EP will resolve and applied in self-limiting EP (Carson *et al.*, 1991; Quasim *et al.,* 1996). Identification criteria for expectant are non-tubal EP, hemodynamically stable, hemoperitoneum < 50ml, mass < 3.5cm without heart-beat and Beta HCG < 1000 IU/L. It has risk of ruptured during the observation.

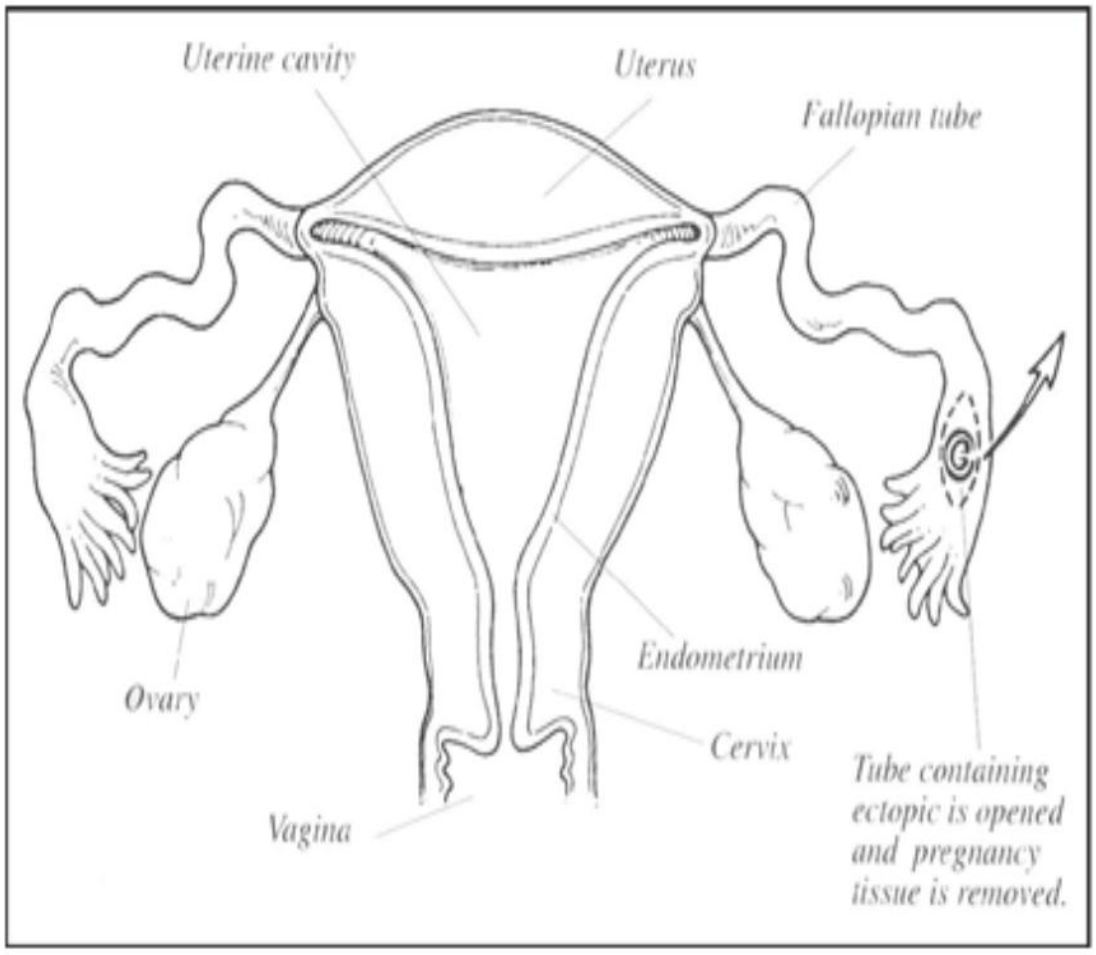

Figure 4: Salpingostomy, opening fallopian tube and removing ectopic pregnancy. *Source;* (American Reproductive Society, 2014).

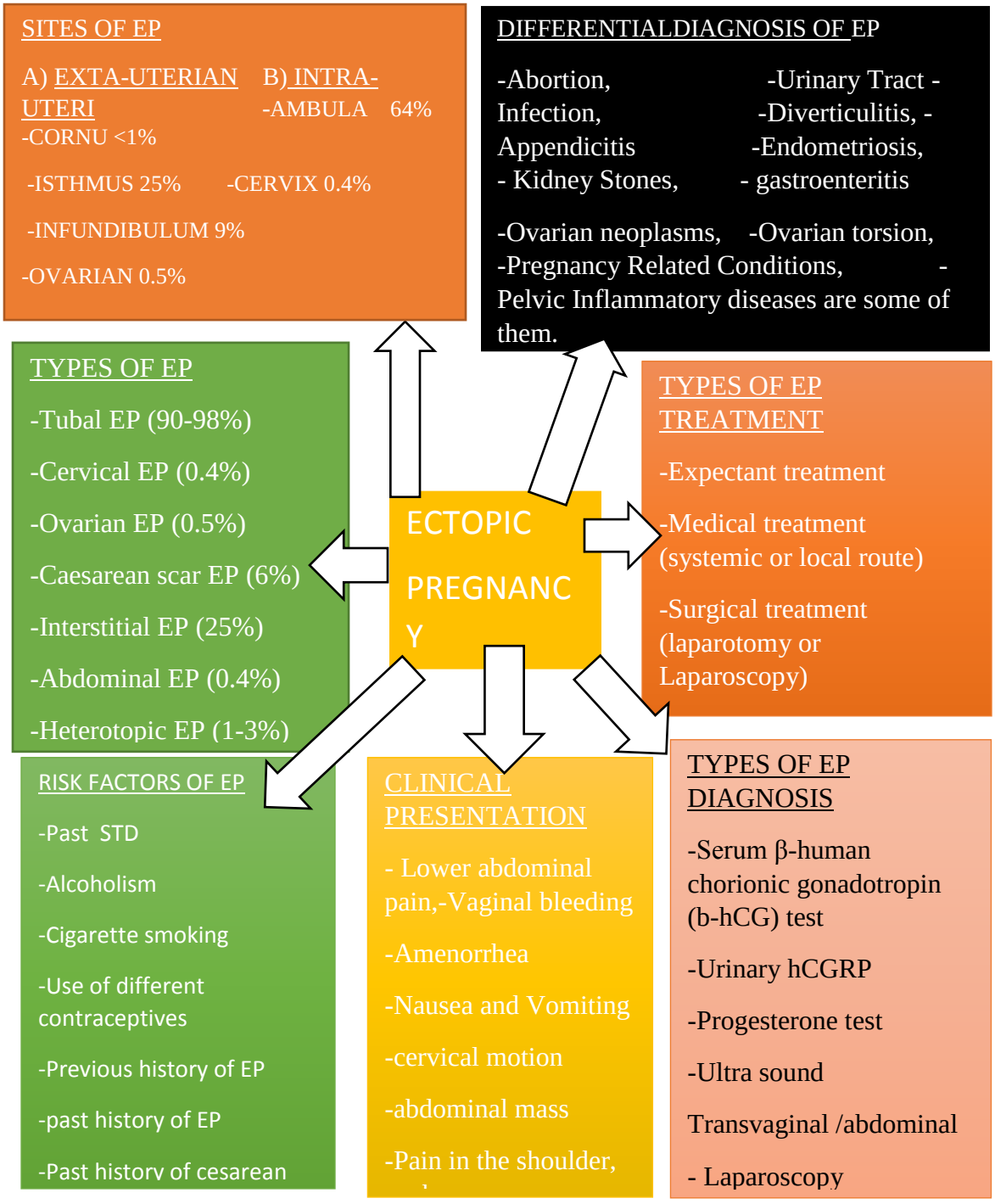

Figure 5: Conceptual framework of ectopic pregnancy.

3. MATERIAS AND METHODS

3.1. Description of the study area

The study was conducted in Bishoftu General Hospital found at Bishoftu town. Bishoftu special zone is situated between 8° 43′-8° 45′ N latitude and 38° 056′ -39° 01‟ E longitude. It is located at a distance of 47 km South East of Addis Ababa. The altitude ranges from1900-1995 meters above sea level. Thus, it belongs to Woina Dega Zone (Bishoftu City Administration Office, 2006).

Its average temperature and annual rainfall are 26.08^0C and 735 mm, respectively. According to the 1999 E.C census and population projection made from 2005 E.C up to the end of 2006 E.C, the city had a total population of 154,340. Of which, 73,736 (48%) were males and 80,574 (52%) were females and in terms of age distribution 62% of the population were in the age range of 15-64 years (Bishoftu City Administration Office, 2006).

Bishoftu special zone has 2 governmental Hospitals, 20 non-governmental (private) clinics, 5 health centers, one malaria control center and one multi drug resistance TB clinic in Bishoftu Hospital. Out of the total health facilities, this study was conducted in Bishoftu General Hospital as it is the only Hospital that provided cervical cancer screening and treatment service in the area. Based on the national standard of the country the health coverage of Bishoftu Special zone was 85 % (Bishoftu Special zone health bureau report, 2017). EP is a major surgery that treated at hospital level that is why the site BGH was selected (Bishoftu health Bureau, 2017).

Map of the study area

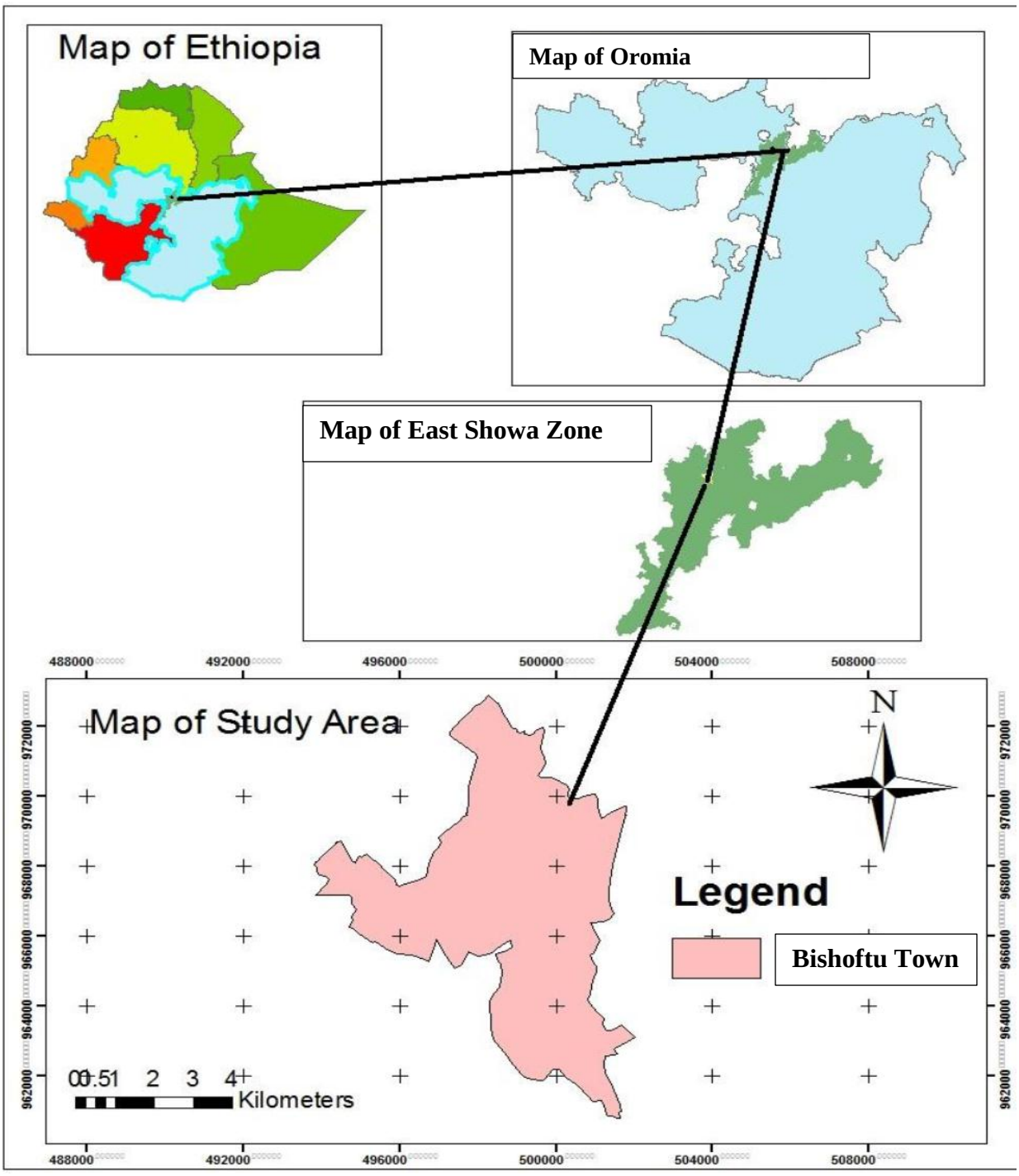

Figure 6: Map of the study area

(*Source:* Bishoftu administration office, 2006)

3.2. Study Design

The study was conducted from January to July 2017 at Bishoftu General Hospital. All the patients with ectopic pregnancy were taken as a sample purposively and included in the study. Structured and pretested questionnaire was prepared and distributed for the patient and health professionals to collect information from the patient or participants.

3.3. Study population

All women who attended at Bishoftu General Hospital with first trimester pregnancy and suspected to have ectopic pregnancy from January to July 2017 and that satisfy the inclusion criteria were taken as study population.

3.4. Sample Size and Sampling Techniques

All the patients that were suspected to have ectopic pregnancy were taken as to collect information and they were recruited as they came in with purposively. Those entire patients presented with ectopic pregnancy at the study period were enrolled. The sample size was determined by using Cochrane formula for the study (Cochran, 1963)

$N=Z^2$ P (1-q)\E Where by N=Desired sample size

Z=Standard normal deviation that corresponds to 95 % confidence interval

P=Prevalence was taken from Addis Ababa hospital as 0.03 in the study EP.

E=Degree of accuracy set at 0.05. The minimum estimated sample was 50 with contingency 10 % and equal numbers of health professionals were involved to increase accurate representations of the whole population. However 84 patients were suspected at the study time and taken as a sample with 50 health professionals, totally 134 samples were taken.

3.5. Data sources and Methods of data collection

The study used primary data and this data was collected directly from patient or study participants using questionnaires.

Structured questionnaire containing socio-demographic characters (age, marital status, educational level, occupation, gestational age, parity) and risk factors of EP (like previous scars, STD, intra uterine devise, alcoholism, use of different types of contraceptives) was prepared in English and translated to Afan-oromo to distribute for participants. The distributed questionnaires were collected from patient. Then the collected data from patient translated back to English for its consistency and then data's were analyzed.

3.6. Data entry, management and analysis

After collecting, coding and entering the data into the computer, they were exported into SPSS version 20 for analysis. The process involved descriptive statistics of tables and figures for data summarizing. The data gathered using questionnaire were first arranged and organized in tables and changed into frequency and percentage, and then it is classified and tabulated. The Pearson's chi squared test was used to test the significance of the difference in distribution of various patients, factors that cause EP and long hospital staying. Variables were considered to be significant when $P < 0.05$.

3.7. Inclusion and Exclusion criteria

All women at reproductive age group (15-49 years old), that was suspected to have ectopic pregnancy at first trimester and that informed to participate in the study at Bishoftu General Hospital enrolled or used as inclusion criteria. All women who have not consent to participate in the study, no parents to give consent on and women that were not suspected to have ectopic pregnancy or age above 49 and less than 15 years old patients were used as exclusion criteria.

3.8. Study variables

- **Independent variables:**
  - ✓ Amenorrhea
  - ✓ tenderness (un-ruptured),
  - ✓ features of peritonitis (ruptured),
  - ✓ loss of consciousness,
  - ✓ hypotension, shock,

- ✓ hemo-peritoneum,
- ✓ need of blood transfusion,
- ✓ sepsis,
- ✓ days of hospital stay,
- ✓ survived and
- ✓ died
- ✓ Sexually transmitted infection
- ✓ Contraceptive use
- ✓ Intra operative finding
- ✓ Previous ectopic pregnancy

➢ **Dependent variables**:

- ✓ Outcome of Ectopic pregnancy

3.9. Ethical Considerations

The research proposal was first presented to the Adama Science and Technology University for Department of Applied Biology for approval and later the approved proposal was brought to Oromia health Bureau of ethical clearance committee. The Oromia health Bureau gave the ethical clearance for researcher. The clearance was given to Bishoftu health Bureau and hospital manager to get permission from. Finally after getting permission the study was conducted in Bishoftu general hospital. The importance of the study was explained to the participant before recruitment into the study and informed consent was given then followed by signed informed consent paper (appendix v).

3.10. Dissemination of study result

Findings of the study submitted to Adama science and Technology University as partial-fulfillment of Master's degree in Biology and Oromia health Bureau committee. Effort will also be made if possible to publish the results in a peer reviewed journals

4. RESULTS

4.1. Enrollment chart of patients admitted at Gynecological ward during study time

About 1230 patients were admitted in Gynecological ward during the study time and 84 were suspected to have EP. From this about 62 (73.81%) patients had ectopic pregnancy that confirmed by clinical presentation, ultra sound and urine HCG. There were patients with other gynecological problems shown in fig.7.

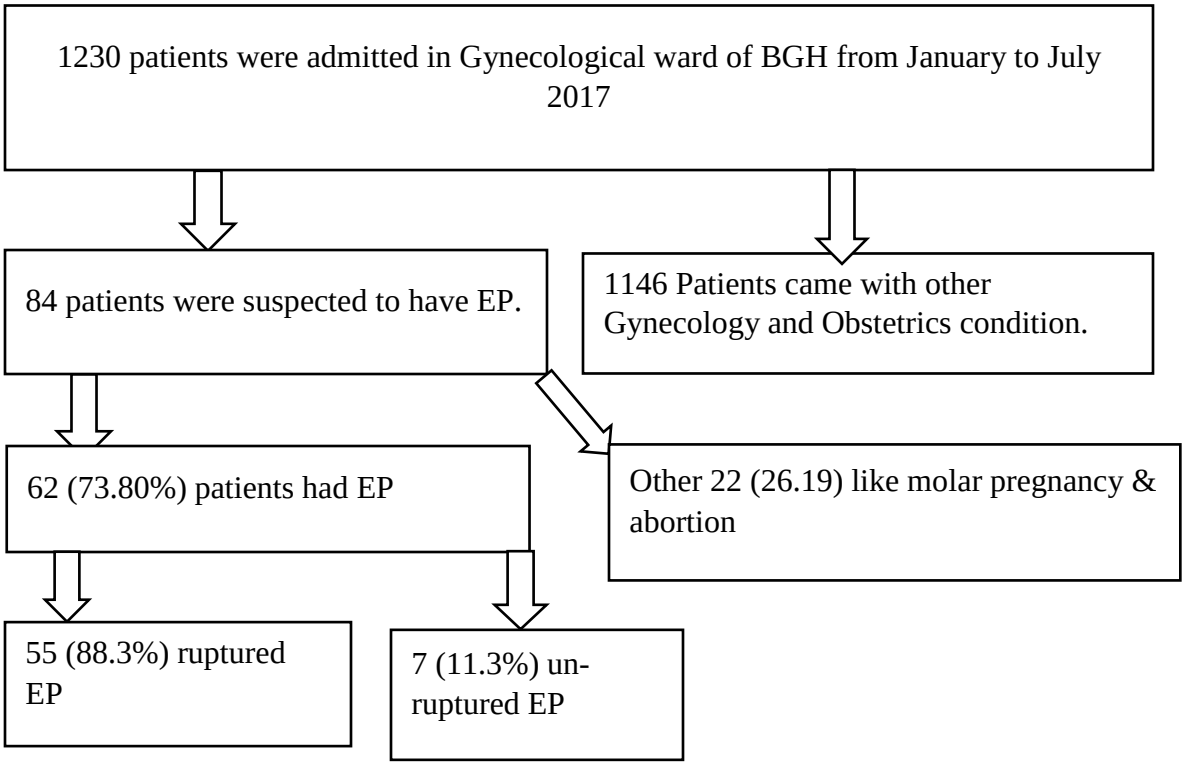

Figure 7: Enrollment chart of all patients that admitted at Bishoftu General Hospital from January to July 2017

4.2. Socio-Demographic characteristics of the study participants

Most of the patients age ranges from 18 to 44 years with gestation period of less than 10 (60.6 %) weeks and they were (72.6 %) multipara, 56 (66.7%) was unemployed 79 (94%)

came from home and 5 (6 %) from referral. Socio-demographic characteristics of the study participants are shown in (Table 1).

Table 1: Socio-Demographic characteristics of the target group at Bishoftu General Hospital from January to July 2017

Character	Alternatives	frequency	%
Age	10-20	12	14.3
	21-30	39	46.5
	31-40	28	33.2
	41-50	5	6
Gestational age weeks	1-5	6	7.2
	6-10	51	60.6
	>11	27	32.2
Parity	prime	15	17.9
	Multi	61	72.6
	Grand multipara	8	9.5
Marital status	Single	31	36.9
	Married	47	56.0
	Other	6	7.1
Education	None	9	10.7
	Primary	5	6.0
	Secondary	17	20.2
	higher	53	63.1
Occupation	house wife	9	10.7
	Student	19	22.6
	Unemployed	56	66.7
	Employed	0	0
Mode of admission	Home	79	94
	Referred	5	6

4.3. Education Status of the respondants

Sixty three percent were educated preparatory (11 – 12th) and 5 (6 %) was primary education. The patient that educated up 11 – 12th who engages unsafe sex, use contraceptives inapropratly, infected by STDs and are more vernarable to EP. Educational status of the respondants in relation to cause of ectopic pregnancy is shown in the following graph (fig. 8).

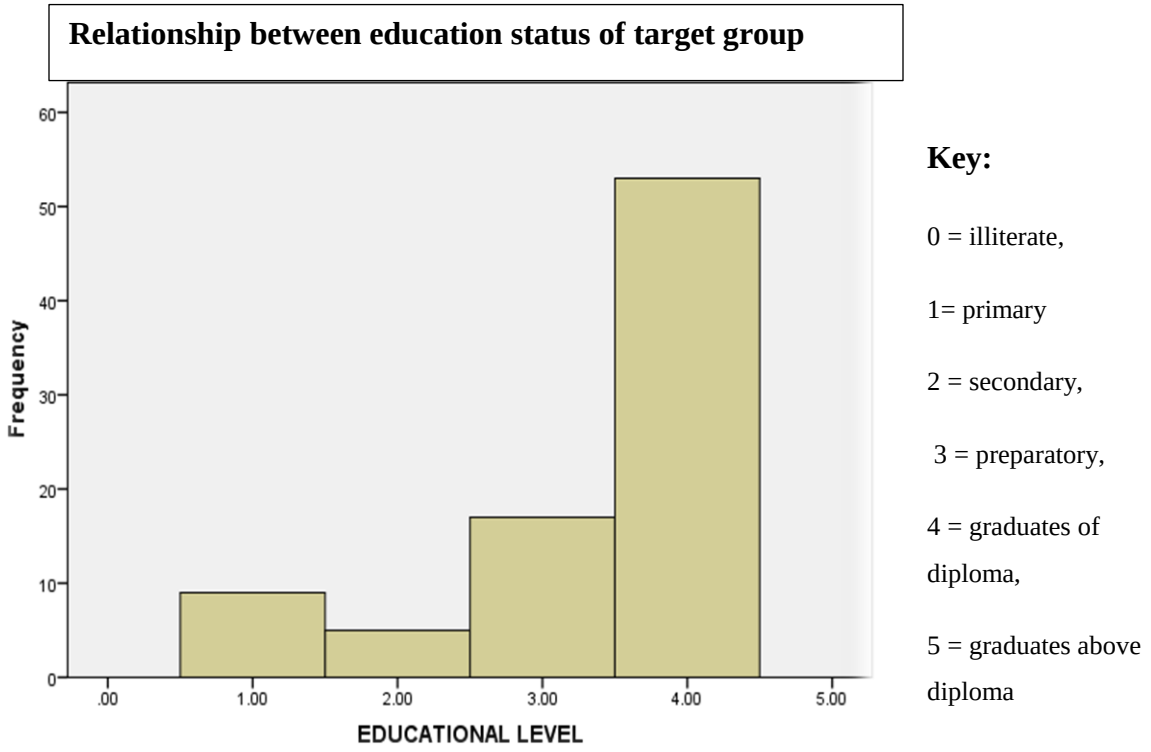

Figure 8: Education level of the patients at Bishoftu General Hospital from January to July 2017.

4.4. Clinical presentation in the study participants

Most of the patients gestational age in this study was less than 11 weeks 56 (66.67 %) and 61 (72.6 %) were multipara. Lower abdominal pain (100 %), amenorrhea 77 (91.7 %) and vaginal-bleeding 76 (90 %) were the most clinical presentation in this study (Table3).

Table 2: Clinical presentations of the study participant at Bishoftu General Hospital from January to July 2017

Clinical	Alternatives	Frequency	%
Amenorrhea	Yes	77	91.7
	No	7	8.3
Vaginal bleeding	Yes	76	90
	No	8	10
Vaginal spotting	Yes	6	7.1
	No	78	92.9
abdominal pain	Yes	84	100
Abdominal distention	No	100	100
Abdominal palpation mass	Yes	79	94
	No	5	6
Abdomen tenderness	Yes	79	94
	No	5	6
Rebound tenderness	Yes	79	94
	No	5	6
Muscle guarding	Yes	77	91.7
	No	7	8.3
Site of abdominal pain	Right	21	25
	Left	60	71.4
	Both	3	3.6
Shoulder pain	Yes	10	11.9
	No	74	88.1

4.5. Examination and Investigation of the study participants

Urine pregnancy test (100 %) was highly sensitive test than ultrasound (84.5 %) results. Tachycardia 84 (100 %), hypotension 74 (88.1 %) and shock 51 (60.7 %) were most important clinical presentation (Table 3).

Table 3: Examination and Investigation result at Bishoftu General Hospital from January to July 2017

Investigation	result	Frequency	%
Urine pregnancy	Tested	73	86.90
	untested	11	13.09
	Positive	73	100
Ultra sound tested	Tested	73	86.9
	Positive	71	84.5
	Negative	13	15.5
Pulse rate	60-100	17	20.2
	>100	67	79.8
Hemoglobin	<13g/dl	73	86.9
	>13g/dl	11	13.1
Respiration	>12	79	94
	<12	5	6
Shock	Yes	51	60.70
Blood pressure	<120/80	74	88.1
	=120/80	10	11.9
Paleness	Mild	48	57.1
	Moderate	29	34.5
	Sever	7	8.3
Level of consciousness	Yes	81	96.4
Tachycardia	Yes	84	100

4.6. Risk factor that causes ectopic pregnancy

In this study smoking (90.5 %), past history of sexually transmitted disease (86.9 %) and that had experience of different types of contraceptives users 55 (65.5 %) patients were the most highly observed risk factors for causing ectopic pregnancy in bellow (Table 4).

Table 4: Experience or habits of the patients that were potentially considered to be a risk to cause Ectopic Pregnancy at Bishoftu General Hospital from January to July 2017

Habits	Status of EP	Frequency	%
Past ectopic pregnancy	Yes	8	9.5
	No	76	90.5
Past cesarean section	Yes	11	13.1
	No	73	86.9
Past sexually transmitted disease	Yes	73	86.9
	No	11	13.1
Use of different contraceptives	Yes	55	65.5
	No	29	34.5
Alcoholism	Yes	71	84.5
	No	13	15.5
Smoking	Yes	76	90.5
	No	8	9.5

4.7. Association of risk factors and ectopic pregnancy

History of past cesarean section (OR: 6.636, P = 0.000), history of past sexually transmitted disease (OR: 6.636, P = 0.000) and alcoholism (OR: 5.462, P = 0.000) were significant to cause ectopic pregnancy with having positive relation. However use of

different types of contraceptives, past history of smoking and past history of ectopic pregnancy were insignificant. Risk factors of ectopic pregnancy by odd ratio, chi square test and significant value are shown in the (Table 5).

Table 5: Association of risk factors and ectopic pregnancy at Bishoftu General Hospital from January to July 2017

Factors	X^2	OR	95% CI		P
			Lowe	Upper	
Smoking	4.749	2.673	0.310	23.055	0.371
Past history of EP	14.349	0.5556	0.121	2.547	0.449
Past history of cesarean section	18.351	6.636	1.299	2.760	0.000*
Past history of STD	3.088	6.636	1.447	2.656	0.000*
Use of contraception	3.229	0.688	0.252	1.875	0.199
Alcoholism	0.793	5.462	1.230	2.250	0.000*

* Significant value less than 0.005

4.8. Days of hospital stay of the study participants

Forty-two (50%) of the study participant stayed in the hospital for four to six days, 19 (26%) s stayed in hospital for one to three days periods and only one (1.2%) of the patient laps in the hospital above seven days duration during the study time. Many of the patients were stayed in hospital four to six days (50%). The mean days of hospital stay were four days after treatment of the patients of ectopic pregnancy.

4.9. Complication of EP that result patient long hospital stay

Blood transfusion (48.38 %) and tachycardia 29 (46.77%) was the most complication that leads long hospital stay. Rarely patients developed sepsis or infection 2 (3.22 %) after treatment and no death and burst abdomen observed (Table 6).

Table 6: Types of disease that leads the patient long hospital stay at Bishoftu General Hospital from January to July 2017

No	Post complications	Frequency	%
1.	Sepsis	2	3.22
2.	Cardiac arrest	1	1.63
3.	Need of blood	30	48.38
4.	Tachycardia	29	46.77
5.	No burst abdomen	0	0
6.	Death	0	0

4.10. Association of examinations, complications and long hospital stay

Hypotension (P = 0.008), cardiac arrest (P = 0.000), hemperitonim (P = 000), low hemoglobin level (P = 0.005), sepsis (P = 0.005), hypotension (P = 0.008) and tachycardia (P = 0.000) were the most common complication that lead the patient longer hospital staying and which were statistically significant having positive relationship (Table 7).

Table 7: Hospital stay outcomes of the participants, examination and Investigation at Bishoftu General Hospital from January to July 2017

No	Investigation	Alternative	Frequency	%	P value
1.	Hemoglobin	<13g/dl	73	86.9	0.005
		>13g/dl	11	13.1	
2.	Sepsis		5	6	0.005
3.	Shock	Yes	51	60.70	0.466
		No	33	39.30	
4.	Hypotension	<120/80	74	88.1	0.008
5.	Cardiac arrest		1	1.2	0.000*
6.	Hemperitonim		84	100	0.000*
7.	Blood transfusion		14	16.67	0.037
8.	Unconsciousness	Yes	81	96.4	0.707
		No	3	3.6	
9.	Tachycardia	Yes	84	100	0.000*
10.	Paleness				0.050
11.	Age				0.496

* Significant value less than 0.005

4.11. Differential diagnosis of ectopic pregnancy

In this study different types of diseases have been revealed to have the same signs and symptoms with ectopic. Ovarian cyst 19 (22.6%), ovarian-torsion 19 (22.6%) and endometriosis 11 (13%) were the most differential diagnosis of ectopic pregnancy in the study (Table 8).

Table 8: Different types of diseases that have similarity with ectopic pregnancy at Bishoftu General Hospital from January to July 2017

No	Types of diseases	Frequency	%
1.	Urinary tract infection	7	11.29
2.	Kidney	8	12.91
3.	Appendices	2	3.22
4.	Ovary cyst	14	22.58
5.	Endometriosis	8	12.91
6.	Ovarian-torsion	14	22.58

4.12. Managements and support given during treatment

Blood was given to 62 (100%) patients during and after operation. One liter blood was transfused to 60 (96.77%) during operation and two liters was given to 2 (3.23%) during and after operation, fallopian tube rupture was detected in 55 (88.7%) patients, the location or the site of ectopic pregnancy was not specified in each patient and surgically salpingectomy 62 (100%) was the management option used (Table 9).

Table 9: Managements and support given during treatment at Bishoftu General Hospital from January to July 2017

N_O	Characteristics	Alternatives	Frequency	%
1.	Blood	Yes	62	100
2.	Need of blood during operation	Yes	62	100
3.	Blood given during operation	1L	62	100
4.	Blood after surgery	One	60	96.8
		Two	2	3.22
5.	Tubal rupture	Yes	55	88.7
		No	7	11.3
6.	Location of EP	Unspecified	62	100
7.	Histopathology findings	EP	62	100
9.	Types of surgery	Salpingectomy	62	100
10.	Out-comes of treatment	Survived	62	100

5. DISCUSSION

A total of 1230 pregnancies were admitted during this study and out of this 62 cases (5 %) were diagnosed as EP. This finding is comparable with the report of Dorfman (1987) in developing countries and Perrin *et al.* (1997), in Benin. There is evidence that the overall incidence of EP has been rising depending on the prevalence of risk factors and the methods of diagnosis available (Jurkovic, 2007; Morcau *et al.* 1995; Thonneau *et al.*, 2002). Goyaux *et al.* (2003) reported that it is impossible to draw a formal conclusion on incidence of EP in Africa; due to late presentation to health facility, late diagnosis, complications and surgical treatment in recent decades.

This result demonstrated that most patients' age ranged from 18 to 44 with mean 31 years. Similarly Kopani *et al.* (2010), found mean age of 30.38 years. From this study majority of women (46.5%) belonged to age group of 21-30 years old in this study, which is similar with Yoseph (1990) (47 %) that conducted in Addis Ababa Black lion hospital and close to the study one by Udigwe *et al.* (2010), 52%. Farquhar (2005) reported that advanced age; over 35 year old is significant risk factor to cause EP. The work of Nybo *et al.* (2000) and Godijn *et al.* (1996), also suggest that incidence of EP increases with age, at age of 21 years old incidence of ectopic pregnancy increase (1.4 %) and at age of 44 years old increase to (6.9 %).

In this study EP was common among multigravida (72.2 %) and which is similar with the report of Yoseph (1990) (73 %) conducted in Addis Ababa Black lion hospital and work of Panchal *et al.* (2011) (71.66 %). The higher incidence in multipara is probably due to previous miscarriages and infections resulting in tubal damage.

The finding of this study reveals that the most common clinical presentation was lower abdominal pain (100 %) followed by Amenorrhea (98.8%) and vaginal bleeding (90%). This finding is similar with work of Yoseph (1990) which was conducted in Addis Ababa Black lion hospital from 1981 to 1998, that lower abdominal pain (98.8 %), amenorrhea (82.9 %), and vaginal bleeding (73 %) was the most common clinical presentation and also supported by other studies. Airede and Ekele, (2005), reported that lower abdominal pain was the most frequent (100 %) sign and symptom of EP that is caused by irritation of blood in the peritoneum. Yakasai *et al.* (2012), also reported in

Nigeria lower abdominal pain (97.03 %), Makunja, (2013) abdominal pain (100 %) and amenorrhea was (98.9 %). Udigwe *et al.* (2010), reported that lower abdominal pain was (100 %), Thonneau, (2002) amenorrhea was (98 %), abdominal pain (96.2 %) in Conakry Guinea and Moreau *et al.* (1995), abdominal pain and amenorrhea presented in all patients (100 %) in South Africa which were similar with this findings.

All literatures explain as abdominal pain occurs in (100 %), Amenorrhea in (74 %) to (99 %) and vaginal bleeding occurs up to (68 %) on average. If embryo is implanted in fallopian tube it could not be supported from uterus and after weeks the tube ruptured which result in bleeding. As bleeding continues more and more in turn lead to other complications like shock and unstable vital signs. That is why abdominal pain and vaginal bleeding happens. Other works by Udigwe *et al.* (2010), agree with the idea of blood flowing into the peritoneal cavity as result pain and shock.

The Common physical examination and sign observed in this study were tachycardia (100 %), unconsciousness (96.4 %) and muscle guarding in majority of them (91.7 %), abdominal palpation mass, abdominal tenderness, rebound tenderness happens in the same amount in most patients (94 %), then hypotension was followed (88.1 %) and shock was somewhat lesser than the other (60.7 %). Majority of them were with mild pale (57.1 %) and few with severe pale (8.3 %) due to bleeding complication. Shoulder pain in few and no abdominal distension was also observed. This finding is similar with Yoseph (1990) conducted in Addis Ababa Black lion hospital from 1981 to 1998. The study also agreed with the research finding of Makunja, (2013) and Yakasai *et al.* (2012) who reported that abdominal tenderness, rebound tenderness, muscle guarding, tachycardia, hypotension (93.03 %) and shock (12.9 %) were common physical finding and sign reported. Moreover Amoko and Buga, (1995) reported that anemia or paleness was (62.2 %) which caused by delaying in health facility, lack of skills to diagnoses, lack of accurate diagnostic tools like Trans-vaginal ultrasound and far distance which agree with this study.

In this study haemoperitoneum and tubal rupture were (100 %) and (88.70 %) respectively. This finding is similar with Yoseph (1990) (89 %) cases were ruptured and slightly lower than the reported value in Dakar (Senegal) (90%, Moreau *et al.*, 1995)

and Ile-Ife (Nigeria) (97 %, Makinde and Ogunniyi, 1990). This is also supported with the work of Amoko and Buga, (1995) who reported that tubal rupture was 93 % in Conakry and rupture was 87 % and haemoperitonum was in (100 %) patients in Transkei South Africa. Rebound tenderness and cervical motion tenderness was indication of blood in the peritoneum cavity and uses to detect peritoneal signs according to Perrin *et al.* (1997).

Surgical finding in this study was (73.80 %) ectopic from all suspected patients and salpingectomy was done (100 %), but the site of ectopic pregnancy was not specified unlike other study. This finding is similar with Yoseph (1990) (100 %) cases were treated by surgical and was different from the work of Thonneau, (2002) in Conakry and Benin who reported salpingectomy was noted (96 %) and (94 %) respectively and the work of Thonneau, (2002) in Conakry suggest that as (72 %) EP was located in ampulla. The difference occurred because of most of the patient were with ruptured tube in our setup. According Perrin *et al.* (1997), this was because salpingectomy was a treatment option for ruptured or with severely damaged fallopian tube. Dart *et al.* (1999), also reported similarly that abdominal pain with peritoneal sign in pregnancy needs emergency surgery. That was why in many developing countries surgery remains the treatment option. No expectant and medical treatment was seen in this study, because majority of them came with ruptured fallopian tube.

Salpingectomy reserve extensive intra-peritoneal bleeding, intravascular compromise, or poor visualization of the pelvis at the time of laparoscopy. However this cause risk of future infertility. Kemmann *et al.* (1994), reported that risk of infertility can be solved by Salpingostomy. Hajenius *et al.* (1997), reported that after salpingostomy, it is important to check β-hCG level on a weekly basis to ensure that it reaches zero.

Urine pregnancy tests were most sensitive test (100 %) than ultrasound (84.5 %) which is similar to work of Makunja (2013) (87.18 % for ultrasound) and Vyas, (1998) (89.47 % for ultrasound).

This study revealed that many of the patients stay four to six days (50 %) and the mean day of hospital stay was four, however very small numbers (1.2 %) of patient stayed more than seven days because of complications resulted like blood transfusion, low

hemoglobin level, sepsis and Cardiac-arrest. Similarly, Makunja (2013) reported that 54.8% of patients stayed from four to six days with the mean of four days of hospital stay. The factors that delays the patient in the hospital in this study were blood transfusion (100 %), tachycardia 29 (100 %), sepsis in (3.22 %) and cardiac arrest (1.61 %). Nevertheless maternal death, abdominal distention, abdominal burst and maternal death were not observed. A work of Makunja (2013), identified that sepsis, burst abdomen, hemoglobin and Cardiac-arrest, as a reasons for long hospital stay. Rajkhowa *et al.* (2000), agree as mortality decreased because of availability of improved diagnostic tools to diagnosis and due to attention paid by professional to treat EP than before. In our cases, the good management techniques and actively involvement of the physicians to manage EP in despite of coming late with ruptured ectopic pregnancy saved the mothers' life.

Longer hospital stays have positive association with low hemoglobin level (100 %), sepsis, shock, and hypotension. To all (100 %) patients' blood was transfused during operation. This is similar with the work of Makunja (2013) in Tanzania who observed low hemoglobin level and need of blood transfusion were significant (p= 0.00). To all patients 1000 ml blood was transfused and to very few patients 200ml was transfused. This is similar with the work of Udigwe *et al.* (2010), in Nigeria.

The exact etiology of ectopic pregnancy is not known but different risk factors have been implicated as contributing elements that were believed to be the cause of ectopic pregnancy. Transport of the fertilized ovum through fallopian tube is controlled by a combination of smooth muscle contractions and ciliary beating.

In this study smoking was the major was observed (90 %) which in line with the work of Bouyer, (2003) who identified smoking as the major cause or (88.7 %) of EP. Most studies like Knoll *et al.* (1995), and Talbot & Riveles (2005) investigated the effect of smoking as decrease ciliary beat and smooth muscle contraction of fallopian tube.

Shaw *et al.* (2010), thought tubal EP was consequence of embryo retention within the fallopian tube due to impaired smooth muscle contractility and alterations in the tubal that caused by smoking. Li *et al.* (2008), and Evans *et al.* (2008), worked as cigarette

could decrease smooth muscle contractility that prevents the move of embryo to uterus that lead to ectopic pregnancy.

Past history of STD in this study was the second most important factor (86.9 %) that increases risk of EP which disagrees with the work of Anorlu *et al.* (2005*),* (26 %). More over Ault *et al.* (1998) reported that past history of sexually transmitted disease increases the risk of EP nine-fold. This was because of antibody response to STD increase heat cause a tubal inflammatory response leading to tubal blockage or a predisposition to tubal implantation. Rank *et al.* (1995) showed that repeated infections increase tubal damage that causes EP. Habit of alcoholism in this study was other factor that causes EP and that increases alteration of contractility of smooth muscle in the fallopian tube.

The finding of this study showed that the use of different types of contraceptives specially the emergency contraceptives increased the risk of EP by 65.5%. Clayton *et al.* (2006), also agreed that contraceptives, especially progesterone only contraception and intrauterine contraceptive increases risk of EP.

Past history of cesarean section and past history of ectopic pregnancy was (13.1 %) & (9.5 %) respectively in this study. This is similar with the work of Jurkovic (2007), who reported previous history of ectopic pregnancy increases the risk for another ectopic pregnancy (12-18 %). According to Chi *et al.* (1986); and Anorlu *et al.* (2005) use of any intrauterine contraceptive device increases risk of ectopic pregnancy from 5 to 16 % after any sterilization.

The work of Bouyer, (2003) suggests that ectopic pregnancy was more common with any conditions that damage the integrity of the tube and impair the function. This could be due to tubal infertility, previous ectopic pregnancy, history of pelvic infection and smoking. Moreover, Ankum *et al.* (1996) & Rashmi *et la.* (2012), reported that as tubectomy and previous cesarean section increase EP, in 16.21% and 8.1% respectively, and history of past ectopic pregnancy, use of post pills and past history of pelvic inflammatory disease each with 2.7 %.

Patrick *et al.* (2002), also reported that STDs, pelvic sepsis during pregnancy (12.9 %), use of different types of contraceptives (15.4 %), tubal ligation (2.6 %) and previous EP (2.6 %) as a risk factors that cause ectopic pregnancy.

Okohue *et al.* (2010) and Doyle *et al* (1991), suggested that as scarring causes anatomical abnormalities of the fallopian tube, to cause abnormal embryo transport to increase risk of ectopic pregnancy. It can also predispose to abdominal pregnancy Fylstra, (2002). Reconstruction of tubal surgery and abdominal surgery were other risk factor for ectopic pregnancy (Zouves *et al.*, 1991).

In this study EP was associated with the condition of the patient like use of, alcoholism, history of sexually transmitted disease, past-history of cesarean section, different types of contraceptives, past history of ectopic pregnancy and history of smoking. Alcoholism, previous infection of sexually transmitted disease and past history of cesarean section has positive relation and they were significant to cause ectopic pregnancy whereas smoking, use of different types of contraceptives and past history of ectopic pregnancy had association though the relation were insignificant. This was similar with the work of Ankum *et al.* (1996) who suggested EP had positive association among tubal ligation or surgery, the use of different types of contraceptives, past history of cesarean section, previous history of ectopic pregnancy were significant to cause EP but smoking insignificant.

In this study association between EP and its risk factors showed significant including past history of cesarean section was relevance more than six time, past history of STD showed relevance to cause ectopic pregnancy more than six time and alcoholism more than five times. However, smoking past history of EP and use of different types of contraception were not relevance to cause ectopic pregnancy. Similarly the work of Ankumzsz *et al.* (1996), revealed that women with previous EP, previous infection, previous caesarian section were at a greater risk and use of contraception was found to slightly increase the risk of EP. However, smoking showed no relevance with EP that agrees with the current study.

In this study numerous conditions revealed that has the same signs and symptoms with EP like urinary tract infection (11.29 %), kidney disease (12.91 %), appendicitis (3.22

%), endometriosis (12.91 %), ovarian-torsion (22.58 %), Ovarian cyst (22.58 %) and others pregnancy related conditions (14.51 %).

In this study ovarian-torsion (22.58 %) was observed as the most differential diagnosis which contains the same signs like; severe lower abdominal pain, vaginal bleeding, shock and sudden onset. This is similar with the work of Panagiotis *et al.* (2011), who reported ovarian torsion has severe lower abdominal pain, vaginal bleeding, shock and sudden onset like EP and unlike EP abdominal pain was unilateral that worsens occasionally over many hours, peritoneal signs are often absent and ovarian enlargement.

The finding of this study showed that as EP has abdominal pain at lower quadrant, nausea, tenderness, and rebound tenderness like appendicitis (3.22 %). This is similar with the work of Marina *et al.* (2011), who reported that as acute appendicitis has anorexia, per umbilical pain at right lower quadrant, nausea, tenderness and rebound tenderness like EP and Unlike EP temperature increase, pulse varies, tenderness localized at Mc Burney's point and no masses found during pelvic examination.

In this study ovarian enlargement or ovarian cyst (22.58 %) was observed as differential diagnosis of EP having lower abdominal pain, vaginal bleeding and amenorrhea. This is similar with the work of Marina *et al.* (2011), who reported that as ovarian endoplasm is differential diagnosis of EP having bleeding, lower abdominal pain and amenorrhea.

Pelvic inflammatory diseases (PIDs) or tubo-ovarian abscess (11.29 %) was observed as a differential diagnosis of EP containing lower abdominal tender, abdominal pain, cervical motion tenderness and rebound tenderness. This is similar with the work of Panagiotis *et al.* (2011), who reported that PID has lower abdominal tender, abdominal pain, cervical motion tenderness and rebound tenderness like EP and unlike body temperature > 38.4°C and WBC raise, fully vaginal discharge, no nausea and no vomiting.

The finding of this study showed that nephrolithiasis or urinary tract infection (11.29 %) was observed as differential diagnosis of EP containing; lower abdominal pain, peritoneal irritation, shock and fainting. Panagiotis *et al.* (2011), agree as nephrolithiasis

has lower abdominal pain, peritoneal irritation, shock and fainting like EP but unlike patient remains motionless and often presents with unilateral or bilateral flank.

In this study the most clinical presentation of EP were lower abdominal pain, amenorrhea and vaginal bleeding. Marina *et al.* (2011) reported similarly that as abortion is differential diagnosis of EP often that presents with vaginal bleeding in the first trimester, accompanied by abdominal discomfort secondary to uterine contractions. Unlike EP there was disappearance of symptoms such as breast tenderness and nausea.

In this study the most clinical presentation of EP were lower abdominal pains, amenorrhea vaginal bleeding and shock. Ruptured corpus luteal cyst or follicle similarly reported as differential diagnosis of EP having nausea, vomiting, lower abdominal pain, hemorrhagic shock and bleeding like EP. Unlike EP follicle has non-specific nausea, vomiting, sharp pelvic pain and severe unilateral & progressive type of bleeding Marina *et al.* (2011).

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

There were no specific signs and symptoms that are pathnognomonic but condition of findings may be suggestive of an ectopic pregnancy. Therefore, there should be high index of suspicion in early pregnancy with symptoms of lower abdominal pain, amenorrhea, vaginal bleeding, hypotension, shock and fainting. The classical triad (lower abdominal pain, amenorrhea and vaginal bleeding) and urine pregnancy test has high predicting values to diagnosis EP. Long hospital stay was mostly attributed by blood transfusion and low level of hemoglobin. Increased incidence of ectopic pregnancy was credited significantly by experience of sexually transmitted disease, past history of cesarean section and alcoholism. Habits of smoking, use of different type contraceptive and past history of ectopic pregnancy were insignificant risk factors to cause EP. High incidence of ectopic pregnancy may be related to a higher incidences of tubal disease notably infection. Ovarian-torsion, ovarian cyst, endometriosis and kidney disease were the most differential diagnosis having the same clinical presentation with ectopic pregnancy. Surgical treatment enables improved outcomes to reduced case fatality with risk of infertility.

6.2. Recommendations

Based on the finding and objectives of the study, the following recommendations are forwarded.

- ✓ In early pregnancy patient with lower abdominal pain, amenorrhea, vaginal bleeding, shock and fainting EP must be suspected by health professionals.
- ✓ Early detection (diagnosis) and being ectopic minded is recommended to treat by expectant and medical to increase future fertility of women.
- ✓ EP must be included in educational curriculum to increase awareness in the community by ministry of education.
- ✓ Amount of bleeding, the types of pain in lower abdomen, vaginal bleeding, being amenorrhea at least for months, hypotension, shock and fainting can be used by

professionals to differentiate ectopic pregnancy from other disease that has the same signs and symptoms.

- ✓ It is recommended to do further research by investigator on management of ectopic pregnancy that increases fertility of women.

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APPENDIX I QUESTIONNAIRES ONE IN ENGLISH

ADAMA SCIENCE AND TECNOLOGY UNIVERSITY SCHOOLOF APPLIED NATURAL SCIENCE DEPRTMENT OF BIOLOGY

QUESTIONNAIRES FILLED BY PATEINTS

Dear respondents, this questionnaire is for study on Clinical presentation and risk factors associated with suspects of ectopic pregnancy at Bishoftu general hospital. Quality and success of this study depends on the information you supply, so you are kindly requested to provide your genuine response. I would like to assure for you that your response use for research only and confidentiality kept. You have right to leave and out any time you need. Thank you in advance for your cooperation and timely responses.

Age (years) ---------- GA----------parity

SOCIAL DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION

I) EDUCATION LEVEL

a) None ☐ b) Primary ☐ c) Secondary ☐ d) Higher level ☐

(II) MARITAL STATUS

a) Single ☐ b) Married ☐ c) Cohabiting ☐ d) other ☐

(III) OCCUPATION

a) Housewife ☐ b) Student ☐ c) Employee ☐ d) Other ☐

(IV) MODE OF ADMISSION

a) Home ☐ b) Referral from primary health center ☐

(V) CLINICAL PRESENTATION

a) Amenorrhea Yes ☐ No ☐ b) Vaginal bleeding Yes ☐ No ☐

c) Spotting vagina bleeding Yes ☐ No ☐ d) Lower Abdominal Pain Yes ☐ No ☐

e) Site of abdominal pain Right ☐ Left ☐ Both ☐ f) Shoulder pain Yes ☐ No ☐

g) Site of shoulder pain Right ☐ Left ☐ Both ☐ h) Unconscious Yes ☐ No ☐

(VI) HABITS THAT CAN INCREASE ECTOPIC PREGNANCY

a) Smoking ☐ b) Alcoholism ☐ c) Past history of EP ☐ d) Past history of STD ☐

e) Past history of cesarean section ☐ f) Use of different types of contraceptive ☐

VII) MODE OF TREATMENT a) Medical ☐ b) Expectant ☐ c) Surgical ☐

VIII) DAYS OF HOSPITAL STAY a) 1-3 ☐ b) 4-6 ☐ c) 7 ☐ d) >7 ☐

(IX) POST-OPERATIVE COMPLICATIONS

a) Sepsis ☐ b) Burst abdomen ☐ c) cardiac arrest ☐ d) tachycardia ☐

(X) EXAMINATION

1. Vital signs: Blood Pressure-------- Pulse rate----- Respiratory rate---- Temperature---

2. Physical examinations: a) Paleness mild ☐ moderate ☐ severe ☐

b) Level of Conscious moderate ☐ sever ☐ c) Extremities Warm ☐ Cold ☐

d) Shock Yes ☐ No ☐ e) Tachycardia Yes ☐ No ☐

3. Abdominal examination a) Distension Yes ☐ No ☐ b) Tenderness Yes ☐ No ☐

c) Palpable mass Yes ☐ No ☐ d. Rebound tenderness Yes ☐ No ☐

e) Abdominal muscle guarding Yes ☐ No ☐

(XI)INVESTIGATIONS

4. Hemoglobin ……g/dl Yes ☐ No ☐

5. Urine Test Yes ☐ No ☐ if yes in urine test is it, Positive ☐ Negative ☐

6. Use of ultrasound Yes ☐ No ☐ if yes was results Positive ☐ Negative ☐

APPENDIX II QUESTIONNAIRES TWO IN ENGLISH

ADAMA SCIENCE AND TECNOLOGY UNIVERSITY SCHOOLOF APPLIED NATURAL SCIENCE DEPERTMENT OF BIOLOGY

QUESTIONNAIRES FILLED BY HEALTH PROFESSIONALS

Dear respondents, this questionnaire is for study on Clinical presentation and risk factors associated with suspects of ectopic pregnancy at Bishoftu general hospital. Quality and success of this study depends on the information you supply, so you are kindly requested to provide your genuine response. I would like to assure for you that your response use for research only and confidentiality kept. You have right to leave and out any time you need. Thank you in advance for your cooperation and timely responses.

Sex……. age……Level of education…… Job……

(XII) INTRA-OPERATIVE FINDINGS

7. Haemo-peritoneum Yes ☐ No ☐ if yes go question no.8

8. Need of blood transfusion Yes ☐ No ☐ if yes go question no.9 & 10

9. Intra-operative blood given in liter a) one ☐ b) two ☐ c) more than ☐

10. Postoperative unit of blood given a) one ☐ b) two ☐ c) more-than ☐

11. Tubal rupture Yes ☐ No ☐

12. Location EP a) Ampulla ☐ (b) Isthmus ☐ (c) cornu ☐

(d)Fimbria ☐ (e) not specified ☐

(XIII) HISTOPATHOLOGICAL FINDING

a) Ectopic pregnancy ☐ b) Molar pregnancy ☐ c) Others not specified ☐

XIV) OTHER DISEASES THAT HAVE SIMILAR SIGNS AND SYMPTOMS

a) Urinary tract infection ☐ b) Kidney stones ☐ c) Appendicitis ☐

d) Ovarian-neoplasms ☐ e) endometriosis ☐ f) Pelvic inflammatory disease ☐

g) Pregnancy-related conditions ☐ h) other ☐

(XV). TREATMENT OUTCOMES a) Survived ☐ b) Died ☐

APPENDIX III BAR-GAAFFII 1FFAA AFAAN OROMO

YUNIVERSIITII SAAYISII FI TEKNOLOJII ADAAMAA

DAMEE APLAAYIIDII SAAYINSII UMAMAA

MUMMEE APLAAYID BAAYOOLOJII

Bar-gaaffii Malatoowwan kiliinniikaalaa fi sababoota ulfaa gadameessan ala saaxiilan ulfaa gadameesaan alaa Hospitaalaa wali-galaa Biishooftuutti dhufan.

Kabajamttuu Deebisa/ttu bar-gaaffii kana, kaayyoon bar-gaaffii kanaa haala odeeffannoo kiliinniikaalaa fi sabbaboota ulfaa gadameesaan ala saaxiilan beekuuf. Kanaafuu ,deebiin isin kenitan galma gahiinsa qorannoo fi qu'annoo kanaaf eddoo guddaa waan qabnuuf deebii keessan haala gaafatameen akka naaf deebistan kabajan gafadha. Maqaa keessan barressun hin barbaachisu.Yaada naaf kenitaniif galatooma.

Qajeelfama; 1. Mallattoo(X) saanduqaa filate keessaa ka'ii.

ODEFFANNOO WALIIGALAA GAAFATAMTOOTAA

Umrii (waggaa)…… Yeroo ulfaa(tobeen)…… hamma/si'a deesse

I. SADARKAA BARNOOTA a) Kan hinbaranee ☐ b) Sadarkaa 1fffaa ☐

c) Sadarkaa 2ffaa ☐ D) Sadarkaa 2ffaa olan (kuta 12 olli) ☐

II. HAALA GAA'ELA a) kan hinherumne ☐ b) kanherumte ☐

c) walin-jirachuu ☐ d) kan biro ☐

III. HAALA HOJII a) haadha mana ☐ b) barattuu ☐

c) hojii motummaa ☐ d) hojii biraa ☐

IV. HAALA DHUFINSAA GARA HOSPIITALIICHAA

a) mana irraa qajelaan ☐ b) buffaata fayyarra ergamtte ☐

V		Fillaano		
V)Malato owwaan kiliinikal aa	A	hafuu laguu	Hin jira	Hin jiru
	B	dhangala.u dhigaa		
	C	Cophu dhigaa		
	D	dhukubu garacha gajalaa		
			garamir gaa	garab itaa
	E	iddo dhukubii garracha		
	F	dhukubu gatetti		
	G	giddo dhukubi gatetti		
VI) Dharraa wwan ulfaa gaddame ssa ala dabalan			Eyyen	Miti
	A	Xuuxu		
	B	Yeroo ulfaa baayisani Dhugu		
	C	Kanaan durra ulfa gaddamessan saaxilamte		
	D	Kanaan durra dhukkuboota wal-qunamti saalan qabamtani beektu		
	E	Kannan durra gara baqassaan dahu		
	F	Kannan dura dawoo ulfaa ittisaan adda addaa fayadamu		

VII) AKKAKUUN WALDHANSAA KENNAMEFI

a) Qorichan ☐ b) hordofin ☐ c) baaqasun ☐

VIII) TURTI HOSPITAALA KEESSA a) 1-3 ☐ b) 4-6 ☐ c) 7 ☐ d)>7 ☐

IX) GARAA BAQASAAN BOODDE DHUKUBOOTA MULDHATAN

a) malaa'u (infection) ☐ b) tarsaa'u gara ☐ c) dhabachuu rukuta onne ☐

X) QORRANNOOWWAN

1) Malatoo bu'ura; dhibba dhiga(BP)……palsirreti(pulse rate)…..ho'ina(tempreture)….. arriti argensuu(respiratory rate)…….

2. Qorrannoowwan qamma a) Addachu(paleness) xinno ☐ giddugallessa ☐ baayye ☐ b) Sadarkaa of beekudhabu giddugallessa ☐ baayye ☐

c) Qoruu harkaa fi luka (extremities) qoru ☐ ho'u ☐

d) Tasa kufu (shock) eye ☐ miti ☐

e) Oleen halan oli rukutu nirukuit ☐ hinrukutu ☐

3	A	dhiita'e (Distension)	Eyyen	Miti
Garaachi	B	dhukubu gara enatuqan(Tenderness)		
	C	Suntura'u ture (Palpable mass)		
	D	Baka dhukubicha tuqani erga dhiisan boode dhukubu		
	E	Baka dhukubicha harkan qabu		

XI) QORANOOWWAN GAGEEFAMAN

4. Hemooglobinii……g/dl eyee ☐ miti ☐

5. Qorano fincaan eyee ☐ miti ☐ yoqorannon fincaan gagefaam posotiivi ☐ negatiividhamo ☐

6. Qorannoaltraa-saawundi eyee☐ miti☐ qorannoon ☐ posotiividhamo negatiividhamo ☐

APPENDIX IV BAR-GAAFFII 2FFAA AFFAN OROMO

YUNIVERSIITII SAAYINSII FI TEKNOLOJII ADAAMAA

ISKUULII APLAAYIDI SAAYINSII UMAMAA

MUMMEE APLAAYID BAAYOOLOJII

BAR-GAAFFII KAN OGGESSOOTAN GUUTAMU

Bar-gaaffii Malatoowwan kiliinniikaalaa fi sababoota ulfaa gaadameessan alaa saxiilan ulfaa gadameesana alaa Hospitaalaa wali-galaa Biishooftuutti dhufan.

Kabajamoo/ttu Deebisttu bar-gaaffii kana, kaayyoon bar-gaaffii kanaa haala odeeffannoo malatoowwan kiliinniikaalaa fi sabbaboota ulfaa gadameesana alaa saxiilan beekuuf. Kanaafuu ,deebiin isin kenitan galma gahiinsa qorannoo fi qu'annoo kanaaf eddo guddaa waan qabnuuf deebii keessan haala gaafatameen akka naaf deebistan isin gaafadha.Deebiin isiin kennitan hundii hojii qo'annoo qofaa kan fayyaduu ta'uu isiinii ibsa. Maqaa keessan barressun hin barbaachisu.Yaada naaf kenitaniif galatooma.

Qajeelfama: 1. Mallattoo(X) sanduqaa filaatan keessaa ka'a.

ODEFFANNOO WALIIGALAA GAAFATAMTOOTAA

saala……. umri……sadrnota barnoota…… hojii……

XII. YEROO GARAAN BAQAFFAAMU WANTI ARGAME

7. dhigaa garaa eyee ☐ miti ☐ yo argame gaafi lakk.8 cee'i

8. dhignii kennamefi eyee ☐ miti ☐ yokennamef gaafi lakk.9 dhaqi

9. yeroo garaan baqaffaamu dhigni kennamef litiraan a) 1 ☐ b) 2 ☐ c) >2☐

10. erga garaan baqaffaamu booda dhigni kennamef litiraan a) 1 ☐ b) 2 ☐ c) >2 ☐

11. tarssa'u ujumo gadamessa eyee ☐ miti ☐

12. baki ujumon gadamessa tarsa'e a) ambuullaa ☐ b) izmaasi ☐ c) cornu ☐

d) fimbra☐ e) eddoon hinbeekamne ☐

XIII) GARAA BAQASUN ARGAME

a) ulfaa gadamessa ala☐ b) dhukuba kaansarii ☐ c) hin bekam☐

IX) DHUKUBOOTA KAN BIROO MALATOOWWAN WAL-FAKATAA QABAN

a)ujumo fincaani ☐ b) dhukuba kale ☐ c) appendiisaayiiti ☐

d) ovaariyaan niiyoplasimi ☐ e) indometiriiyosisi ☐ f) paalvik inflaameshinii☐

g) wanta ulfaan walfakaakatu ☐ h) kan biroo ☐

VX. BUʾAA WALAʾANSAA

a) fayyu ☐ b) duʾu ☐

DEEEBII NUUF KENNITAANIF GALATOOMAA

APPENDIX V

PARTICIPANT'S AGREEMENT

The study explained to me and I have read the above information to participate voluntarily in the study.

I voluntarily agree to be in this study.

Name:_____

Signature or thumb print: _____

Date: -_____

Name of an independent witness:-_____

Signature of the witness:-_____

Date signed by the witness:-_____

Investigator

Name:- _____

Signature:-_____

Date:-_____