

**PREVALENCE AND MANAGEMENT OUTCOME OF ECTOPIC
PREGNANCY IN ADAMA HOSPITAL MEDICAL COLLEGE
EASTSHOA ZONE, OROMIA REGION, ETHIOPIA**

By:

Girma Diriba (Bsc.)

**A thesis paper submitted to Jimma University College of public health
and medical sciences, postgraduate school for the requirement of partial
fulfillment for the degree of masters of Science in integrated emergency
obstetrics, gynecology and general surgery**

May, 2013 G.C

Jimma, Ethiopia

Jimma University College of public health & medical science

Post graduate, research paper on

Prevalence and management outcome of ectopic pregnancy: a three year retrospective study in Adama hospital medical college east Shoa zone, Oromia region, Ethiopia

By:

Girma Diriba (Bsc.)

Advisors:

1. Mr.Garumma Tolu (Bsc, MPH)

2. Mr. Desta Hiko (Bsc, MPHE)

May, 2013 G.C

Jimma, Ethiopia

ABSTRACT

Background - The prevalence of ectopic pregnancy has increased worldwide with an increase in pelvic infections and improvements in the diagnostic techniques. But the overall prevalence is difficult to determine because of variation in the availability of medical facilities and of course on an individual's socioeconomic status and attitude towards health, especially in the developing countries. Its frequency is different in various countries and is one of the most critical and life threatening emergencies in gynecological practice that requires immediate treatment. As the gestation enlarges, it creates the potential for organ rupture. So, this study was needed to know the burden of the case, management outcome of ectopic pregnancy and to conclude recommendations based on the findings of the result.

Objective: To determine the prevalence and management outcome of ectopic pregnancy patients in Adama Hospital Medical College (AHMC), from January 2010-Dec.30, 2012 G.C

Methods: Hospital based cross sectional study design was used from January1, 2010 to December 30, 2012.The period of data collection was March 1-15, 2013GC. The data of sampled patient's records were collected from medical records. The gynaecological admissions and records of the total pregnancies within the period of study were also used in the analysis. The collected data was checked for any error, coded and entered in to SPSS version 16.0 for data processing and analysis. Descriptive and logistic regression were used and statistically tested at the level of significance of 5%. Results were presented using statements, tables and figures. Finally interpretation, discussion, and recommendations were made based on the findings of this research.

Results: 10,801 total pregnancies and 2,867 gynecological admissions were recorded during the three years study period. Records of 158 patients with ectopic pregnancy were retrieved for further analysis making a retrieval rate of 95.8%. 92(58.2%) of the patient was from rural. The mean age of the study participant was 26.54(SD± 4.89) years. The prevalence of ectopic pregnancy was 1.5% of total pregnancies and 5.5% of Gynecologic admissions. The most common site of implantation was tubal in 156(98.7%) which mostly occurred in the right tube 84(57.1%) and the other site was in the ovary. 9(5.7%) developed post-operative complications. The commonest postoperative complication was paralytic ileus 5(3.2%). About 156(98.7%) patients improved and discharged and 2(1.3%) died postoperatively from complications.

Conclusion and Recommendation: Surgery (salpingectomy/salpingo-oophorectomy) was the main stay of treatment. The hospital-based prevalence of ectopic pregnancy per pregnancy has increased over time during the study period. Duration of presentation to hospital, vital sign and amenorrhea duration were found to be predictors of management outcome. The frequency can be reduced by awareness of reproductive health care. Early diagnosis and timely referral may be helpful in treating the patients prior to tubal rupture with decreased morbidity and mortality.

Keywords: Ectopic pregnancy, prevalence, management outcome

ACKNOWLEDGEMENT

First and foremost I am very grateful to my advisors Mr.Garumma Tolu and Mr.Desta Hiko for their professional and valuable assistance, constructive comments and suggestion throughout the development of my research proposal and the report.

My heartfelt gratitude also goes to Jimma University, College of public health and medical sciences, coordinator of Integrated Emergency Gyn/Obs and Surgery for giving this chance to conduct the research on prevalence and management outcome of ectopic pregnancy in Adama Hospital Medical College East Shoa, Ethiopia and I would like to thanks Adama Hospital Medical College administrative office and those who helped me in data collection.

At last but not least my appreciation goes to my friends who have given important inputs in doing this research.

TABLE OF CONTENTS

ABSTRACT.....	i
ACKNOWLEDGEMENT.....	ii
LIST OF FIGURES.....	v
LIST OF TABLES.....	vi
ABBREVATIONS.....	vii
INTRODUCTION.....	1
1.1 Back ground	1
1.2. STATEMENT OF THE PROBLEM.....	3
2. LITERATURE REVIEW	5
2.1. Prevalence of ectopic pregnancy	5
2. Sites of Ectopic Pregnancy	9
3. Ectopic pregnancy and Clinical manifestations.....	11
3. SIGNIFICANCE OF THE STUDY	14
4. OBJECTIVES	16
4.1. General Objective	16
4.2. Specific Objective.....	16
5. METHOD AND MATERIALS.....	17
5.1. Study Area and Period	17
5.2. Study Design.....	17
5.3. Population.....	17
5.3.1. Source population.....	17
5.3.2. Study population.....	17
5.4. Inclusion and exclusion criteria.....	18
Inclusion criteria.....	18
Exclusion criteria	18
5.5. Sample Size Determination.....	18
5.6. Sampling Methods	18
5.7. Measurements and Study Variables	18
5.7.1 Data collection instruments.....	18
5.7.2. Study Variables	18

5.8. Data collection procedure.....	19
5.8.1 Data collection techniques, data collectors, supervisors	19
5.9. Data quality management.....	19
5.10. Data Analysis	19
5.11. Ethical Issues	20
5.12. Dissemination plan of the study findings.....	20
5.13. Operational and definition of terms	20
6. RESULT	22
6.1. Socio-demographic and Gynecologic characteristics of the study variables.....	22
6.2. In Hospital Prevalence of ectopic pregnancy.....	23
6.3. Clinical manifestations of ectopic pregnancy	23
6.4. Sites of Ectopic Pregnancy	25
6.5. Management outcome of Ectopic pregnancy.....	25
7. DISCUSSION.....	30
8. LIMITATION OF THE STUDY.....	33
9. CONCLUSIONS AND RECOMMENDATION.....	34
REFERENCES	35
ANNEX	37

LIST OF FIGURES

Figure 1: Conceptual Frame work on management outcome of ectopic pregnancy	15
--	----

LIST OF TABLES

Table 1: Socio-demographic and Gynecologic characteristics of patient's with ectopic pregnancy in Adama Hospital Medical College from Jan. 2010-Dec.2012 G.C.....	22
Table 2: Yearly distribution of Ectopic pregnancy per number of registered pregnancies in AHMC Jan.2010-Dec.2012 GC.....	23
Table 3 : Presenting Clinical features of patients with ectopic pregnancy in AHMC, Jan.2010-Dec.2012 GC.....	24
Table 4: Factors associated with management outcome of EP in Adama hospital medical college, Jan. 2010 -December 2012, Oromia region, Ethiopia.....	26
Table5: Association of selected variables with management outcome of EP in Adama Hospital Medical College Jan.2010-Dec.2012 GC.....	28

ABBREVATIONS

AHMC	Adama Hospital Medical College
AOR	Adjusted odds ratio
ART	Assisted reproductive technology
C/F	Clinical feature
CI	confidence interval
COR	Crude Odds Ratio
EP	Ectopic pregnancy
G.C	Gregorian Calander
HCG	human chorionic gonadotrophin
JU	Jimma University
MICU	Maternal intensive care unit
NGOs	Non Government Organizations
OEP	Ovarian ectopic pregnancy
OR	Odds Ratio
PID	Pelvic inflammatory disease
SPSS	Statistical package for social science
STDs	Sexually transmitted diseases

INTRODUCTION

1.1 Back ground

Ectopic pregnancy is derived from the Greek word 'Ekpos' meaning out of place and it refers to implantation of a fertilized egg in a location outside of the uterine cavity [2].

In many parts of the world, there has been a dramatic increase in the incidence over recent decades with studies showing at least a doubling of the rate. The incidence has increased worldwide with an increase in pelvic infections and improvements in the diagnostic techniques.

But the overall incidence is difficult to determine because of variation in the availability of medical facilities and of course on an individual's socioeconomic status and attitude towards health, especially in the developing countries. Ectopic pregnancy is one of the most critical and life threatening emergencies in gynecological practice and is a medical emergency that requires immediate treatment [2].

In ectopic pregnancies, fetus or embryo is often absent or stops growing. The abnormally implanted gestation grows and draws its blood supply from the site of abnormal implantation. As the gestation enlarges, it creates the potential for organ rupture because only the uterine cavity is designed to expand and accommodate fetal development [1].

Embryos that do not implant in the uterine wall are generally unable to develop normally. In addition, an ectopic pregnancy can cause rupture of the organ on which they are implanted, typically the fallopian tube. Rupture can result in severe internal bleeding, shock, and, rarely, death of the woman. Fortunately, the ability to diagnose, monitor, and treat ectopic pregnancy reduces the risk of these life-threatening complications. If the fallopian tubes are damaged or abnormal as a result of previous infection or surgery, tumors, or, rarely, due to malformations present since birth, there is an increased risk of ectopic pregnancy. Surgery to reconstruct the fallopian tube (to improve a woman's chances of becoming pregnant) can increase the risk of ectopic pregnancy. Women that has had one ectopic pregnancy have an increased risk of having another. The underlying tubal disorder that led to the first ectopic increases the risk for another ectopic pregnancy [3].

Many facets of tubal EP remain unclear, so it is difficult to predict the initiation and development of tubal EP. Unruptured EP can be diagnosed rapidly and accurately by transvaginal ultrasound and measurement of serum HCG. Despite improvements in the clinical diagnosis and

management of early-stage tubal EP, the treatment and prevention options are limited. Current treatment strategies are surgical intervention or medical therapy with methotrexate. Women with tubal EP are at increased risk of infertility and tubal EP in future pregnancies. A critical function of the human fallopian tube is to provide the optimal microenvironment for the transport and maturation of gametes and the establishment of pregnancy [4].

Although rare, “non-tubal ectopic” pregnancies are associated with significantly higher mortality and morbidity than tubal ones because they are often difficult to diagnose and tend to present late with sudden rupture [5].

Heterotopic pregnancy describes the relatively rare coexistence of one or more intrauterine gestations and one or more extrauterine (ectopic) gestations. The ectopic pregnancies are most commonly located in the fallopian tube, cornu, cervix, ovary, or abdomen [6].

Abdominal pregnancy is a very rare non-tubal ectopic pregnancy, may be secondary due to tubal abortion or rupture with implantation on any peritoneal or visceral surface or, more rarely primary, due to direct abdominal implantation, with normal fallopian tubes and ovaries and no tubal fistula identified [7].

Interstitial pregnancy is a rare form of ectopic pregnancy that occurs when a blastocyst implants between the ostium and the isthmic region of the fallopian tube, where the tube transverses the muscle wall of the uterus [8].

1.2. STATEMENT OF THE PROBLEM

Ectopic pregnancy is a common complication throughout the world the prevalence of which varies in different countries, so its prevalence in developing countries has reached from 1 in every 44 deliveries to 1 in every 21 deliveries, while in western countries its rate is between 1 in 233 to 1 in 280 deliveries and is a condition that occurs in all races, in all countries and in any socio economic class of women during the reproductive years. It is a life threatening surgical gynecological emergency and is 10 times and 50 times as dangerous as vaginal delivery and induced abortion respectively [1, 2].

It causes 10% of all deaths related to pregnancy. Not only do women die from this disease but also of greater clinical importance is the indirect morbidity of poor fertility prognosis and adverse outcome in subsequent pregnancies [2].

If ectopic pregnancy continues and tubal rupture occurs, it causes some complications (such as loss of fertility) and death during the first trimester. Serious adverse outcomes in ectopic pregnancies are typically caused by delayed diagnosis. After an ectopic pregnancy, the risk of recurrence is 7-15%. The probability of the next intrauterine pregnancy is 50-80% and the remaining patients will be infertile. Thus, after an ectopic pregnancy, the possibility of the next successful pregnancy will decrease, which mainly affects young women with low parity who want to become pregnant in the future. A maternal death caused by ectopic pregnancy is relatively uncommon in developed countries. Short-term complications are not fully proven, but its long-term psychological consequences can be important. Early diagnosis of ectopic pregnancy, before tubal rupture and excessive bleeding, is important to prevent life-threatening hemorrhagic shock and more damage of tube. In developed countries, the diagnosis of unruptured ectopic pregnancy has risen from 88-100%. Given that 10% of all maternal deaths are attributable to ectopic pregnancy and after an ectopic pregnancy, the likelihood of the next successful pregnancy decreases as well as the negative psychological effects that this has on mothers [1].

Several risk factors for EP have been identified including pelvic inflammatory disease (PID), smoking, previous EP, assisted reproductive technology (ART). Other factors, such as age, surgical and obstetric history are also thought to be involved. Prior induced and spontaneous abortions increased the risk of EP, especially for women with three or more spontaneous

abortions ,prior STDs and use of an intrauterine device were associated with an increased risk of EP. These risk factor is the same in both developed and developing countries with the exception of ART and smoking in developed countries [9].

Abdominal pregnancy is a life-threatening condition associated with haemoperitoneum. Laparotomy is usually required, with maternal mortality between 0.5% and 18%, and perinatal mortality after the age of viability is achieved, of 40%–95%. Complications include haemorrhage (which may be massive) potentiating disseminated intravascular coagulation. Visceral damage can occur, with fistulas due to the presence of fetal bones, faecal peritonitis and venous thromboembolism [7].

Interstitial pregnancy is the main cause of maternal death in the first trimester of pregnancy, and its associated risks are approximately seven times greater than the risks of ectopic pregnancies in general. This high maternal mortality rate can be attributed to the possibility of rupture [8].

No study was conducted in the area before and in Ethiopia at all. So, this study is needed to reveal the clinical diagnosis of ectopic pregnancy, burden of the cases at study area, its intervention and more possible management outcomes. It might contribute knowledge for policy planner and makers, local health planner and groups and individuals who implement the programs and the beneficiaries of the services. Hence, the objective of this study will be to analyse the various aspects of ectopic pregnancy with a view to suggest interventions which would decrease the prevalence of ectopic pregnancy in Adama Town, East Shoa Zone Oromia Region.

2. LITERATURE REVIEW

2.1. Prevalence of ectopic pregnancy

Ectopic pregnancy is a life threatening surgical gynecological emergency and is 10 times and 50 times as dangerous as vaginal delivery and induced abortion respectively. It causes 10% of all deaths related to pregnancy. Not only do women die from this disease but also of greater clinical importance is the indirect morbidity of poor fertility prognosis and adverse outcome in subsequent pregnancies [1, 2].

Worldwide, ectopic pregnancy complicates 0.25 – 2.0% of all pregnancies.[9]The studies show that the prevalence of ectopic pregnancy has increased in America, so that it has become 6 times as much over the last 25 years. This evident increase in the ectopic pregnancy can be due to the improvement of early detection and increase of risk factors of this disease. The incidence of a simple ectopic gestation varies from 1 in 300 pregnancies in Europe to as high as 1 in 20 to 50 pregnancies in Africa and West Indies. Despite the continued increase in the incidence of ectopic pregnancy, the rate of death from ectopic pregnancy has declined in developed countries primarily because of earlier diagnosis before tubal rupture. The incidence of ectopic pregnancy depends on the population studied and ranges from 1 % in rural general practice to 13 % in urban emergency department [2].

In one study, among 336,438 pregnancies recorded during April 2000 to March 2010 in Hamadan province, 872 cases of ectopic pregnancy were reported based on which the prevalence of ectopic pregnancy in Hamadan province is estimated 2.6 in every 1000 pregnancies. The prevalence of ectopic pregnancy and pregnancy termination cases in Hamadan province during 2000-2010 has reached from 1.5 in every 1000 pregnancies in 2000 to 4.8 in every 1000 pregnancies in 2010. Consequently, frequency of ectopic pregnancy has become 3.3 times as much from 2000 to 2010. The results show that the frequency of ectopic pregnancy in Hamadan province during 2000-2010 has been 2.6 in every 1000 pregnancies and 2.9 in every 1000 deliveries [1].

In most of Europe and North America, the incidence of EP has tripled over the last 30 years and is currently estimated at 2% of live births. A study in Norway found that the incidence of EP increased from 1.4% to 2.2% of live births between 1976 and 1993. In England and Wales, the incidence of EP increased by a factor of five between 1966 and 1996 (from 0.3% to 1.6% of live

births). Similarly, in the USA, the incidence of EP increased from 1.9% to 2.3% of live births between 1981 and 1991. However, recent studies have shown a decrease in the incidence of EP in Scandinavian countries. The incidence of ectopic pregnancy was found to be 2.0 % in France, 2.8 % in Finland and 2.2 % in the United States [2].

In, U.S. Armed Forces, among active component females younger than 49, there were 1,245 cases of treated EP affecting 1,216 individuals (29 women had more than one EP). These EPs comprised 0.64 percent of total pregnancies (n=194,956) during the period. Annual numbers of EP ranged from 91 (in 2010) to 151 (in 2003). Proportions were stable at approximately 0.70 percent of pregnancies during 2002 to 2005 and then declined through 2011 to 0.49 percent [11].

Another study over an 18-year period in America reported a rising incidence from 0.45 % to 1.68 %. It was reported to 1.24% in England. In most of Europe and North America, the incidence of ectopic pregnancy is estimated at 2 % of live births. At the Royal Commission Medical Centre, Yanbe Industrial city in the Kingdom of Saudi Arabia the incidence between 2005 to 2008 was found to be 1 in 171 deliveries that is 0.58 %. In India, the incidence of ectopic pregnancy is 1 in 161 (0.6%) deliveries. In recent decades majority of methodological limitations in various African published literature make it impossible to draw formal conclusions concerning the incidence of ectopic pregnancy in Africa. In African developing countries, a majority of hospital-based studies have reported ectopic pregnancy case fatality rates of around 1-3 %, ten times higher than that reported in industrialized countries. Late presentation to a health facility, late diagnosis leading in almost all cases to majority of complications and emergency surgical treatment are the key factors accounting for such high fatality rates in women suffering from ectopic pregnancy in Africa [1, 2].

The incidence of ectopic pregnancy in two cities in northern Nigeria is 18.1 / 1000 deliveries in Sokoto and 1.14 % in Zaria. It is 1.7% in Jos and 1.68 % in Benin City, Nigeria. A previous study on ectopic pregnancy done at Benin City, Nigeria revealed an incidence of 3.5 % of the total hospital births. In Markudi, Nigeria, ruptured tubal pregnancy of 0.87 % accounted for fetal births and 94.6 % of all ectopic pregnancies. There is a rising trend in the incidence of ruptured tubal pregnancy from 0.65 % in 2004 to 1.09 % in 2006. At the Nnamdi Azikiwe Teaching Hospital in southern Nigeria, ectopic pregnancy was responsible for 6.5 % of gynecological admissions with an incidence of 1.3 %, 3.30 per 100 deliveries in Calabar[2].

Data on EP are rare and often out of date in developing countries, particularly in Africa. A review of EP in developing countries from the 1960s to the mid-1980s showed that the incidence of EP was between 0.5% and 2.3% of live births in Africa. In 1992 and 1993, a study at Umtata general hospital (in the Transkei, South Africa) reported an EP incidence of 1.1%. Between 1993 and 1995, the hospital-based EP incidence was 2.9% at Nosy Be Hospital (Madagascar), and up to 4% at the gynecology and obstetrics clinic of the national teaching hospital in Cotonou (Benin). In Nigeria (Ile-Ife teaching hospital), the hospital-based incidence of EP quadrupled between 1977 and 1987 (from 0.4% to 1.7%), and in Gabon (university medical centre of Libreville) it more than doubled between 1977 and 1989, from 1% to 2.3%. At Yaoundé university hospital (Cameroon), the incidence of EP increased from 0.9% to 1.7% between 1984 and 1992 [10].

The case fatality rate of ectopic pregnancy in Ghana was found to be 27.9/ 1000. A study by Oloyede et al in Sagamu, Nigeria over a 12-year review reported an incidence by 3.1% or 1 in 32 of all births. In Lagos, Nigeria, ectopic pregnancy was found to be responsible for 8.6 % of maternal deaths and had a case fatality rate of 3.7%. An incidence of 23.1 / 1000 deliveries was reported and ectopic pregnancy was found to be responsible for 48.5% of gynecological emergencies [2].

During the study at Chang Gung Memorial Hospital, Lin-Kou Medical Center 169, 738 deliveries and 5408 (3.2%) EPs occurred. Of the 5408 EPs, 5079 (93.9%) were tubal pregnancies. Following in incidence were 182 (3.4%) interstitial pregnancies and 110 (2.0%) OEPs .The 110 OEPs occurred at a rate of 5.24 OEPs per year, for a prevalence rate of 1:1543 deliveries. Among the 110 patients, 78 (70.9%) were managed with laparoscopic surgery and 32 (29.1%) underwent laparotomy. The mean age of the OEP patients was 31.2 years, mean parity was 1.3, and mean gestational age was 6.8 weeks. A total of 56 patients had an implantation site on the right ovary; whereas the left ovary was involved in 54 patients. The mean postoperative stay was 2.7 days [12].

Out of total 11,286 deliveries at Obstetrics and Gynecology Department Royal Commission Medical Center (RCMC), Yanbu Industrial City, Kingdom of Saudi Arabia during the four year period from 1st January 2005 to 31ST December 2008, 66 presented with ectopic pregnancy during the specified study period of four years. The frequency of ectopic was found to be 1 in 171 deliveries that is 0.58%.The risk of ectopic increases progressively with increasing age. The

mean age of women was 30 ± 4 years and only 7% (n=5) were more than 40 years old. Twenty four percent (n=16) were primigravida. Multiiparous women found to be more prone to ectopic pregnancy were 64 % (n=42). The gestational age ranged between 4-12 weeks and the most frequent gestational age was around 6-8 weeks, 2 patients were more than 12 weeks of gestation. Mean duration of admission was 3-7 days [13].

As total 27 patients were presented at Maula Bakhsh Hospital in January 2008 –December 2008. All patients presented in this study were between 25 – 30 years of age except 2, one was 35 and other was 40 years old. Majority of patients were primigravida i.e. 22 vs 5 [14].

In a study conducted at Aminu Kano Teaching Hospital Nigeria between 1st September 2008 and 31st October 2011, ectopic pregnancy represented 4.26% of all deliveries, 5.55% of all gynaecologic admissions and 26.01% of all gynecological surgeries. The mean age of the patients was 27.8 years with a range of 15-41 years. The highest frequency occurred in the 25-34 year age groups (61.39%) [9].

The study was carried out in the department of Obstetrics and Gynecology, B.P Koirala Institute of Health Sciences, Dharan (Nepal). The incidence of ectopic pregnancy during this study period was 0.93 of total births and 2.92% of the total gynecological admissions. The peak age of incidence was in the range of 26-30 years [15].

In a retrospective study conducted at St. Luke's Specialist Hospital, Anua, Uyo in South-South geopolitical zone of Nigeria between January 2000 and December 2004 there were a total of 23,981 deliveries and 72 ectopic gestations recorded. This gives an incidence of 0.30% of total deliveries with highest incidence recorded in 2004 (0.46%) and lowest in 2003 (0.20%). The majority of ectopic gestations, 59 (81.9%) were in the 21-30 age group. Single women accounted for 51.4% of all cases with majority of them students (52.8%). the highest yearly incidence of ectopic gestation was recorded in 2004 (0.46%) as against 0.20% in 2003. Thirty seven (51.4%) of the ectopic pregnancy occurred in the right fallopian tube, 23 (31.9%) in the left fallopian tube, 6 (8.3%) in the cornua, 4 (5.6%) in the isthmus while 2 (2.8%) in the ampullary region. One patient was reported dead in the sampled period which gives a 1.4% mortality rate in the survey [16].

The incidence of spontaneous heterotopic pregnancy is extremely rare, conventionally reported to be between 1 in 7,900 and 1 in 30,000. They occur more frequently after ovulation induction and in vitro fertilization, with a reported incidence of up to 1%. Ovarian localization of an

ectopic gestation accounts for no more than 3% of all ectopic gestations, making ovarian heterotopic pregnancy, even after ovulation induction and assisted reproduction, very rare indeed [6].

Abdominal ectopic pregnancy is a rare event in which the fetus develops in the peritoneal cavity. The incidence is 1 in 402 pregnancies in developing countries, and 1 in 10000 pregnancies in the developing world [7].

2. Sites of Ectopic Pregnancy

Sites where an ectopic pregnancy can occur are the fallopian tube which is the commonest site, ovary, cervix, and the abdomen. When it occurs in the fallopian tube, it is known as tubal pregnancy. Implantation can occur at any point along the tube, although the ampulla is the commonest site. The isthmus is the next in frequency and the interstitial portion least common. While interstitial pregnancies represent a small fraction of ectopic gestations, they are especially feared due to their devastating outcomes. Ectopic pregnancies that involves implantation in the cervix, the interstitial portion of the fallopian tube, the ovary, the abdomen or a scar from a caesarean section account for less than 10 % of all ectopic pregnancies. These unusual ectopic pregnancies are difficult to diagnose and are associated with high morbidity [2].

From the various types of ectopic pregnancy in Hamadan province study, tubal pregnancy with a frequency of 95.2% is the most prevalent type of ectopic pregnancy which mostly occurred in the right tube (52.4%) and in the age group of 25-34 and after that ovarian pregnancy and abdominal pregnancy. Two heterotopic pregnancies (simultaneous occurrence of intrauterine and ectopic pregnancy) have been reported in subjects and the most common type of surgery was laparotomy (82.1%) [1].

In one study, 13 patients were managed for ectopic pregnancy making 8.23 % of gynecological emergencies at the hospital. Twelve patients presented with ruptured ectopic pregnancy. Only one patient had an unruptured ectopic pregnancy. All the patients had emergency exploratory laparotomy. Findings at laparotomy were right fallopian tube ectopic pregnancy in eleven patients and two patients had left ampullary ectopic pregnancy. Salpingectomy was done for all the patients. There was no history of previous ectopic pregnancy in the patients [2].

In a study conducted at Aminu Kano Teaching Hospital Nigeria, the main site of occurrence was tubal 89 (88.12%) and was commoner on the right side. Ovarian pregnancy was found in 7 (6.93%) of subjects. Two patients had a pregnancy in a rudimentary uterine horn (1.98%). One

patient had abdominal pregnancy. Eighty seven (86.14%) of the tubal pregnancies were ruptured while only one was unruptured and one patient had a fimbrial gestation. one patient had intrauterine pregnancy and all patients had laparotomy. Salpingectomy was done in 87 (86.14%) while 1 (0.99%) each had “milking out” and linear salpingostomy respectively. Excision and reconstruction was done for the 5 (4.95%) women with ovarian pregnancies. Laparotomy was negative in 5 (4.95%) of the women. The majority (80.20%) of the surgeries were done within 24 hours of presentation [9].

Heterotopic pregnancy is the simultaneous occurrence of an ectopic pregnancy with an intrauterine pregnancy. Its presentation is similar to ectopic pregnancy with simultaneous evidence of an intrauterine pregnancy. Laparotomy is performed to selectively remove the ectopic pregnancy. The intrauterine pregnancy survives to delivery in 66% of cases after treatment of the ectopic pregnancy. [2] The incidence of heterotopic pregnancy is estimated at 1 in 30,000 deliveries; however, assisted reproductive technology has resulted in an increase in the incidence of heterotopic pregnancy, to 1%. Heterotopic pregnancy involving a cesarean scar pregnancy is quite unusual as well. [17] Heterotopic pregnancy is associated with a high maternal morbidity and fetal loss. This is probably due to delayed diagnosis resulting from confusing clinical features especially when diagnostic facilities are not available [2].

Interstitial pregnancy accounts for 2 to 4% of all ectopic pregnancies and has a mortality rate of 2.0 to 2.5 % [8].

In a review of deliveries over a 20 year period at one institution, the incidence of abdominal pregnancy was approximately 1:5000 deliveries with nine early and six advanced abdominal gestations. Ovarian pregnancy occurs in 1:7000 pregnancies and is becoming more common or approximately 0.5 to 3 percent of ectopic pregnancies. In contrast to tubal pregnancy, a history of pelvic inflammatory disease or the use of an intrauterine contraceptive device does not increase the risk of ovarian pregnancy. Ovarian pregnancy appears to be a random event that is not associated with a history of infertility or recurrent extra-uterine pregnancy. Strict histopathological criteria are used to distinguish ovarian pregnancies from those originating in the fallopian tube [3].

Cervical pregnancy is a form of ectopic pregnancy due to abnormal implantation of the fertilized ovum in the cervical canal. Cervical pregnancy accounts for less than 1% of all ectopic pregnancies and has a reported incidence of 1 of 8628 deliveries [18].

In the United States between 1980 and 2007, 876 deaths were attributed to ectopic pregnancy. The ectopic pregnancy maternal mortality ratio declined by 57 percent between the periods of 1980 to 1984 and 2003 to 2007, from 1.15 to 0.50 deaths per 100,000 live births . The mortality ratio was 6.8 times higher for African Americans than whites and 3.5 times higher for women older than 35 years than those younger than 25 years during 2003 to 2007. Of the 76 deaths among women hospitalized with ectopic pregnancy between 1998 and 2007, 71 percent of the gestations were located in the fallopian tubes rather than other sites [3].

3. Ectopic pregnancy and Clinical manifestations

The main clinical findings in patients with ectopic pregnancy include amenorrhoea of variable duration, abdominal pain, vaginal spotting, and abdominal/adnexal tenderness. Others may present with classic picture of acute abdomen with hypovolaemic shock. The above scenario mostly applies to a ruptured extra-uterine gestation and it is the most common pattern in developing countries [9].

The clinical presentation of ectopic pregnancy varies. The earliest symptom is usually brown vaginal discharge, which often starts soon after the missed menstrual period. The intensity of bleeding varies, and some women report heavy blood loss, which may lead to an erroneous diagnosis of miscarriage. Between 10% and 20% of women with ectopic pregnancy report no bleeding. Abdominal pain is usually a late feature in the clinical presentation and typically follows tubal miscarriage, with bleeding through the fimbrial end of the tube into the peritoneal cavity. The intensity of the pain does not necessarily reflect the volume of blood present in the abdominal cavity. Almost 10% of women diagnosed with ectopic pregnancy do not report abdominal pain [5].

Diagnosis is frequently missed and should be considered in any woman in the reproductive age group presenting with abdominal pain or vaginal bleeding especially when combined with an Episode of collapse or syncope. The clinical presentation of ectopic pregnancy depends on whether it has ruptured or not. Ruptured ectopic pregnancy presents usually from 6 to 12 weeks of pregnancy. The combination of pain, vagina bleeding, and shock is the classical presentation of ruptured ectopic pregnancy. Some patients may have syncope attacks while others may just have a sudden excruciating abdominal pain. Patients usually present with the ruptured variety with attendant peritoneal flooding and its clinical consequence unlike the situation in the developed countries where up to 75 % are unruptured. The delayed diagnosis of ruptured ectopic

pregnancy is an important cause of death in women. EP mimics virtually every condition that causes acute abdomen in women of the reproductive age group [2].

Abdominal pain is the commonest symptom of ectopic pregnancy. The abdominal pain is caused by distension of the gravid tube, by its efforts to contract and expel the ovum and by irritation of the peritoneum by leakage of blood. The clinical manifestations in slowly leaking ectopic pregnancy are on and off lower abdominal pain, amenorrhea, irregular scanty vaginal bleeding. There will be evidence of blood loss. Rapid pulse rate, pallor, and reduced blood level. In severe haemorrhage, there is hypotension. Early presentation, high index of suspicion and use of modern diagnostic techniques will improve overall clinical outcome in patients. Abdominal pain and tenderness are the most frequent symptom and sign of ectopic pregnancy [2].

During the study at Chang Gung Memorial Hospital, Lin-Kou Medical Center, of the 110 OEPs patients, 98 (89.1%) presented with intermittent lower abdominal tenderness, 52 (47.3%) with vaginal spotting, 42 (38.2%) with a palpable adnexal mass, 29 (26.4%) with shoulder pain, and 13 (11.8%) in shock. Nine (8.2%) patients were asymptomatic [12].

Patient with ectopic pregnancies are widely reported to be of low parity. In a study in Benin city, Nigeria, majority of the patients with ectopic pregnancies were nulliparous and in their mid twenties [9].

In one study, Koirala Institute of Health Sciences, Dharan (Nepal) abdominal pain (69.3%), vaginal bleeding (45.3%) and syncopal attacks (21.3%) were the most frequent presenting complaints. Regarding the duration of ectopic, surprisingly 16 % patients did not miss their periods. The majority 58.6% had amenorrhea of 6-10 weeks followed by 4-6 weeks which constituted 24% of the total patients. Only 1.3% presented with amenorrhea of greater than 10 weeks. Adnexal mass was felt in 81.3% of cases. 69.3% had abdominal tenderness whereas 32% presented with abdominal distension either alone or in combination with other symptoms.

In 76% of the cases cervical motion tenderness could be elicited. 12% of patients were in shock at the time of admission [15].

The commonest site of ectopic gestation was seen in the ampulla- 62.6 % followed by the isthmus-21.3%. There were abdominal and ovarian gestations also, one each. Left side of the tube was involved in 49.3%, slightly more than that of the right-42.6%. The majority of patients had come with ruptured ectopic-82.6%. but only 12% were in shock. Only two patients had come with

tubal abortion in process. Majority of patients underwent salpingectomy (69.3%) followed by salpingo-oophorectomy (17.3%). Majority of patients required blood transfusion-70.6%. 42.6% had post-operative fever. 9.3% required MICU admission. But none of the patients had hospital stay longer than 10 days. Seven patients had come with gross haemoperitoneum and out of this one had 1.2-gram haemoglobin. There was no mortality. Majority of patients were in their third decade of life [15].

The commonest presenting symptoms in a study conducted at Aminu Kano Teaching Hospital Nigeria were abdominal pain in 98 (97.03%), amenorrhoea in 74 (73.27%) and vaginal bleeding in 65 (64.36%). Thirteen patients (12.87%) presented in shock [9].

Study In Al-Batool Teaching Hospital In Mosul – Iraq among forty EP cases, the period of amenorrhoea was 6 – 8 weeks in twenty nine of the patients (72.5 %). While longer period of amenorrhoea (8 – 10 weeks) was found in only five patients (12.5 %). Irregular uterine bleeding with no special rhythm was found in six patients (15 %). In sixteen patients (40 %) abdominal and pelvic pain was the only presenting symptom. While vaginal bleeding was the chief complaint in six patients (15%), and seventeen patients (42.5 %) were having the two symptoms together (i.e. pain and vaginal bleeding). Fever was the dominant problem in one patient (2.5 %). In the unstable group there were twenty - seven cases (67.5 %). Whereas the stable group included thirteen patients (32.5 %), of which three (23.07 %) were sub acute cases, nine (69.24 %) were labeled as chronic ectopic and one patient (7.69 %) had corneal pregnancy with an exceptional presentation [19].

3. SIGNIFICANCE OF THE STUDY

Ectopic pregnancy is a significant cause of maternal morbidity and mortality, as well as fetal loss. It is the leading cause of pregnancy-related death in the first trimester and accounts for 10% of all pregnancy-related deaths. With earlier diagnosis, however, both maternal survival and conservation of reproductive capacity are enhanced. In Ethiopia where early diagnosis and intervention is not equally performed at all setups due to lack of human resources, diagnostic facilities, inadequate transportation facilities, low awareness of community to seek health care early, which might contribute to difficulty of managements and increased risk of post operative complications and poor out comes.

This study, therefore, was designed primarily to review the prevalence and the management outcome of EP. As a result, the finding of this study may provide message for communities to develop health seeking behavior, help Adama hospital medical college and other stakeholder to understand the nature of the disease and clinical feature and identify individual age group who are likely to develop EP. Moreover the information generated will help health managers and health institutions to plan a head for the management of EP and its complications. This study may also be helpful as base line information for future research.

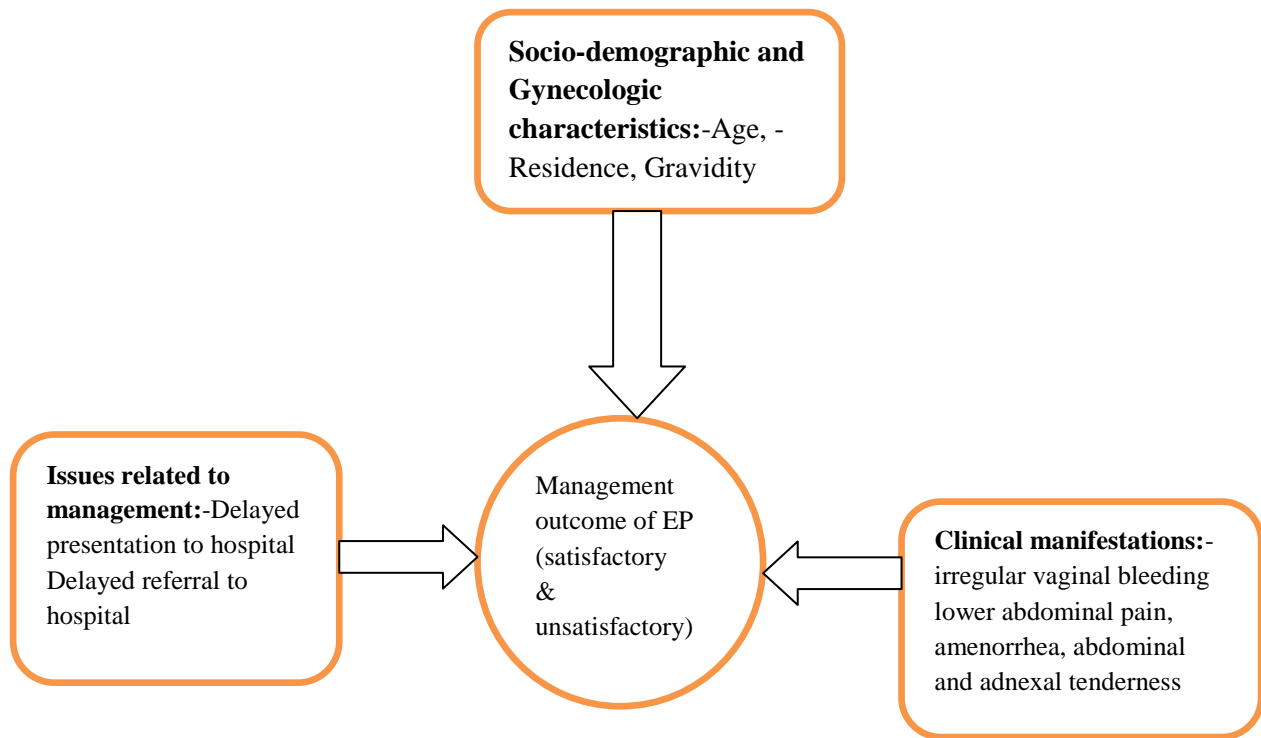


Figure 1: Conceptual Frame work on management outcome of ectopic pregnancy

4. OBJECTIVES

4.1. General Objective

To determine prevalence and management outcome of ectopic pregnancy in Adama Hospital Medical College from January 1, 2010-December 30, 2012 G.C

4.2. Specific Objective

To assess socio-demographic and Gynecologic characteristics of the patients

To determine in-hospital prevalence of ectopic pregnancy in Adama Hospital Medical College

To identify sites of ectopic pregnancy in Adama Hospital Medical College

To assess factors associated with management outcome of ectopic pregnancy in Adama Hospital Medical College

5. METHOD AND MATERIALS

5.1. Study Area and Period

The study was conducted in Adama hospital medical college, Adama town, East Shoa Zone of Oromia region. Adama town was located approximately 99 kilometers from Addis Ababa. At present the town was the capital of East Shoa and Adama special zone. The majority of the people in the town are followers of Orthodox religion. The town is surrounded by predominantly rural Woredas which produces ‘Teff’, cereals, khat, and vegetables which are used as a principal cash crop for producers and consumption goods to the people in Adama town.

The zones have 59 health centers which are government owned, and Adama hospital which is used as referral hospital and owned and run by the Government. (Adama Town health Administration Office, 2010)

The total population of the East Shoa and Adama special zone is 1,579,557; of which 806,550 are males and 773,007 are Females [20]. The hospital gives a referral service for different parts of the zone. The average delivery service in a month in 2010 was about 250.

Facility based cross - sectional study using quantitative data collection method was employed from January, 1, 2010- December 31, 2012 G.C and the data was collected from March 1-15, 2013 G.C.

5.2. Study Design

A three years hospital based cross sectional study design was used from Jan.1, 2010-Dec.30, 2012 GC.

5.3. Population

5.3.1. Source population

The source populations were all pregnancies admitted to AHMC in the past three years from January1, 2010 –December, 30, 2012 G.C.

5.3.2. Study population

Study populations were all valid records of all pregnancies admitted to AHMC in the past three years from January1, 2010 –December, 30, 2012 G.C.

5.4. Inclusion and exclusion criteria

Inclusion criteria

All medical records of pregnancies admitted to Adama Hospital Medical College in the past three years from January 1, 2010-December 30, 2012 were included.

Exclusion criteria

Medical records of patients with incomplete information were excluded for further analysis of management outcome of ectopic pregnancy

5.5. Sample Size Determination

All records of ectopic pregnant women managed from January 1, 2010-December30, 2012 G.C that were complete were included in the study for further analysis.

5.6. Sampling Methods

Records of all pregnancies admitted to AHMC in the past three years from January 1, 2010-December 30, 2012 GC were included in the study.

5.7. Measurements and Study Variables

5.7.1 Data collection instruments

Before the actual data collection, the checklist was tested. Then, necessary correction was made based on the result of the pre-test of the instrument.

The check list was developed in English language to extract relevant information about age, residence, Hx of previous EP, C/F and duration of presentation, operative finding, site of pregnancy and type of procedure and duration of hospital stay and management outcome of patients.

5.7.2. Study Variables

Dependent Variables

Management outcome (satisfactory and unsatisfactory outcome)

Independent variables

-Age, Residence

- Gravidity
- Previous history of EP
- Duration of presentation
- Clinical condition at admission
- Tubal status
- Duration of hospital stay
- Clinical condition on discharge

5.8. Data collection procedure

5.8.1 Data collection techniques, data collectors, supervisors

The Principal investigator gave training for data collectors on how to fill the pre prepared checklist, the importance of quality of data. Four clinical nurses were involved in the collection of data by prepared check list from patients' card and registration log-book as secondary data. Two health officers supervise the daily activity, consistency and completeness of the checklist and appropriate support given during the data collection process. The Principal Investigator checked the daily activities of supervisor.

5.9. Data quality management

The checklist was tested before the actual data collection period to ensure its clarity. The filled checklists were checked for their clarity, understandability, completeness and consistency and then correction were made accordingly by principal investigator. Training was given for data collectors and supervisors prior to data collection and they were instructed to check the completeness of each checklist at the end. The principal investigator, together with the supervisor, rechecked completeness of the checklist during submission.

5.10. Data Analysis

Data clean up was done and checked for accuracy, consistencies, & values by the principal investigator. Any error was identified and corrected. The obtained final data was analyzed using SPSS- 16 statistical software. Descriptive statistics was used to describe prevalence and

management outcome of ectopic variables. P-value <0.25 was considered throughout the analysis as a candidate for binary logistic regression and p-value <0.05 at 95%CI were considered throughout the analysis as cut off levels for statistical significance for multi variety logistic regression. The result was presented using frequency, percent, tables and statements. Finally, interpretation, discussion and recommendation were made based on the finding.

5.11. Ethical Issues

Ethical permission was obtained from Jimma University, college of public health and medical science, health research and post graduate coordinating office to Adama hospital. After the purpose and nature of the study explained to Adama hospital medical college, permission was taken to operation theatre and patient record room.

5.12. Dissemination plan of the study findings

The result of the study will be presented to JU community and it is disseminated to JU College of public health and medical science, coordinator of Emergency Gyn/Obs and surgery, Adama hospital, related health facilities and NGOs working on this area. Further attempt will be made to publish it on national and international scientific journals.

5.13. Operational and definition of terms

-Amenorrhea –the absence of menstruation.

-Ectopic pregnancy-the development of a fetus at a site other than in the uterus.

-Gravidity -total numbers of pregnancies a woman have regardless of pregnancy out come.

-Haemoperitoneum- is the presence of blood in the peritoneal cavity

- **Oophrectomy**-is surgical removal of the ovary

-Parity - total number of delivery that occur after 28 wks of gestational age.

-Satisfactory outcome-is those patients doesn't develop both post operative complications and not died

Salpingectomy- is surgical removal of a fallopian tube

Salpingostomy-is the operation performed to restore free passage through a blocked fallopian tube

Salpingo-oophrectomy-is surgical removal of both the ovary and fallopian tube together

-Unsatisfactory outcome-is those patients either develop post operative complications, died or both.

6. RESULT

There were a total of 10,801 pregnancies recorded in Adama hospital medical college from Jan.2010-Dec.2012 GC. One hundred sixty five patients were admitted with the diagnosis of ectopic pregnancy (EP), of whom data of 158(95.8 %) patients were retrieved and used for further data analysis.

6.1. Socio-demographic and Gynecologic characteristics of the study variables

The age of the patient was ranges from 18-45 years with mean age of 26.54(SD±4.89) years. The study revealed that 92(58.2%), 66(41.8%), 44(27.8%) and 80(50.6%) of the study participants were from rural, primigravida, gravida two and between 15-25 years in age respectively (table1).

Table 1: Socio-demographic and Gynecologic characteristics of patient's with ectopic pregnancy in Adama Hospital Medical College from Jan. 2010-Dec.2012 G.C

Characteristics	Frequency	Percent (%)
Age		
15-25 years	80	50.6
26-35 years	71	45
36-45 years	7	4.4
Total	158	100
Residence		
Rural	92	58.2
Urban	66	41.8
Total	158	100
Gravidity:		
Primigravida	66	41.8
Gravida two	44	27.8
Gravida three	31	19.6
Gravida four	12	7.6
Greater than gravida four	5	3.2
Total	158	100

6.2. In Hospital Prevalence of ectopic pregnancy

Among 10,801 pregnancies recorded during January 2010 to December 2012 in Adama Hospital Medical College, 158 cases of ectopic pregnancy were reported based on which the prevalence of ectopic pregnancy in Adama Hospital Medical College is estimated 14.6 in every 1000 pregnancies and 5.5% of the total gynaecological (2867) admissions. The peak age of prevalence was in the age group of 15-25 years followed by 26-35years.

The prevalence of ectopic pregnancy cases in Adama Hospital Medical College during 2010-2012 has reached from 12.3 in every 1000 pregnancies in 2010 to 18.9 in every 1000 pregnancies in 2012. Consequently, frequency of ectopic pregnancy has become 1.54 times as much from 2010-2012 (Table 2).

Table 2: Yearly distribution of Ectopic pregnancy per number of registered pregnancies in AHMC Jan.2010-Dec.2012 GC

Period	Registered pregnancies	Ectopic pregnancies	% of total
2010	3,482	43	1.23
2011	3,609	45	1.25
2012	3,710	70	1.89
Total	10,801	158	1.50

6.3. Clinical manifestations of ectopic pregnancy

Ninety four (59.5%) of patients presented within the first 24 hours of their illness while 64(40.5%) of them presented after 24hours of the onset of their illness. The mean duration of presentation was 24.77(SD±12.03) hours. The commonest presenting symptoms were abdominal pain in 155 (98.1%), vaginal bleeding in 126 (79.7%) and amenorrhoea in 116 (73.4%).Twenty six (16.5%) patients presented with unstable vital sign, 125(79.1%) had abdominal tenderness and 122(77.2%) had adnexal tenderness on examination.

40(25.3%) of the patients had no history of amenorrhea, 106 (67.1%) had amenorrhea of between 4-8weeks and 12(7.6%) of them had amenorrhea of greater than eight weeks (Table 3).

Table 3 : Presenting Clinical features of patients with ectopic pregnancy in AHMC, Jan.2010- Dec.2012 GC.

Characteristics	Frequency	Percent (%)
Abdominal pain		
Yes	155	98.1
No	3	1.9
Vaginal bleeding		
Yes	126	79.7
No	32	20.3
Amenorrhea		
Yes	116	73.4
No	42	26.6
Vital sign at presentation		
Stable	132	83.5
Not stable	26	16.5
Abdominal tenderness		
Yes	125	79.1
No	27	17.1
Not mentioned	6	3.8
Adnexal tenderness		
Yes	122	77.2
No	24	15.2
Not mentioned	12	7.6

6.4. Sites of Ectopic Pregnancy

From the various sites of ectopic pregnancy implantation, in this study, tubal pregnancy with a frequency of 98.7% was the most prevalent type of ectopic pregnancy which mostly occurred in the right tube 84(57.1%) where as 63(42.9%) occurred in the left tube. In nine (5.7%) of the cases the location was not mentioned. The other site of implantation was in the ovary which accounts 2(1.3%) of the total cases.

6.5. Management outcome of Ectopic pregnancy

Haemoperitoneum was observed in most women with tubal rupture in 115(81%).The results indicated that salpingectomy 117(74%) was the most common treatment of choice for ectopic pregnancy followed by salpingo-oophrectomy 36(22.8%).Salpingostomy in 2(1.3%), cornual excision in 1(0.6%) and oophrectomy done in 2(1.3%) of the total cases.

Post operative complications were developed in nine (5.7%) of the cases, of which paralytic ileus accounts 5(3.2%), wound infection 3(1.9%) and wound dehiscence in 1(0.6%) patients. Two (1.3%) maternal deaths were registered among the 158 women during the study period in which the cause of death was hypovolaemic shock and sepsis. All the other patients were improved and discharged. The duration of hospital stay ranges from 3-11 days with mean duration of 3.99(SD±1.41) days.

Table 4: Factors associated with management outcome of EP in Adama hospital medical college, Jan. 2010 -December 2012, Oromia region, Ethiopia

Variables	Management outcome			
	satisfactory	unsatisfactory	COR (95%CI)	P-value
Residence				
Rural	85(53.8%)	7(4.4%)	1.27(0.35- 4.55)	0.707
Urban	62(39.2%)	4(2.5%)	1	
Age				
15-25	76(48.1%)	4(2.5%)	0.31(0.03- 3.29)	0.335
26-35	65(41.1%)	6(3.8%)	0.55(0.05- 5.39)	0.611
36-45	6(3.8%)	1(0.6%)	1	
Gravidity				
primigravida	63(39.9%)	3(1.9%)	0.07(0.008- 0.60)*	0.015
Gravida II	40(25.3%)	4(2.5%)	0.15(0.019- 1.18)**	0.072
Gravida III	30(19.0%)	1(0.6%)	0.05(0.003- 0.73)*	0.028
Gravida IV	11(7.0%)	1(0.6%)	0.13(0.009-2.06)***	0.151
>Gravida IV	3(1.9%)	2(1.3%)	1	
Previous Hx of ectopic				
No	141(89.2%)	10(6.3%)	0.42(0.04- 3.88)	0.449
Yes	6(3.8%)	1(0.6%)	1	
Duration of presentation				
≤ 24 hours	93(58.9%)	1(0.6%)	0.05(0.007 -0.46)*	0.007
>24 hours	54(34.2%)	10(6.3%)	1	
Vital sign				
not stable	21(13.3%)	5(3.2%)	1	
stable	126(79.7%)	6(3.8%)	0.2(0.05 – 0.71)*	0.013
Amenorrhea				
<4 weeks	39(24.7%)	1(0.6%)	0.05(0.005- 0.50)*	0.011
4-8 weeks	100(63.3%)	6(3.8%)	0.12(0.02- 0.52)*	0.004
	8(5.1%)	4(2.5%)	1	

>8 weeks				
Abdominal pain				
No	2(1.3%)	1(0.6%)	1	
Yes	145(91.8%)	10(6.3%)	0.13(0.01 – 1.65)***	0.118
Vaginal bleeding				
No	31(19.6%)	1(0.6%)	0.3(0.04 – 3.03)	0.357
Yes	116(73.4%)	10(6.3%)	1	
Abdominal tenderness				
No	26(16.4%)	1(0.6%)	0.4(0.05 – 3.60)	0.446
Yes	115(72.8%)	10(6.3%)	1	
Adnexal tenderness				
No	19(13.0%)	5(3.4%)	1	
Yes	117(80.1%)	5(3.4%)	0.16(0.04 – 0.06)*	0.007
Tubal status				
not ruptured	25(17.6%)	2(1.4%)	0.92(0.19 – 4.63)	0.942
ruptured	106(74.6%)	9(6.3%)	1	

“, “”, “***”, “****” indicates significant at $p < 0.05, 0.1, 0.25$ respectively

1- Indicates reference

Gravidity, duration of presentation, abdominal pain, vital sign, adnexal tenderness and amenorrhea duration were entered in to multivariate logistic regression (Back ward stepwise Wald) for possible confounders. The outcome of the multivariate logistic regression model indicated that duration of presentation to hospital, vital sign and duration of amenorrhea were found to be significantly associated with patient management outcome.

Patients who presented with in the first 24 hours of their illness were less likely to develop unsatisfactory outcome compared to those presented after 24 hours significantly (**AOR=0.06, CI95%: 0.006-0.610, p-value=0.017**).

Patients presented with stable vital sign were less likely to develop unsatisfactory outcome compared to those presented with unstable vital sign (**AOR=0.03, CI95%: 0.001-0.993, p-value=0.049**). Those patients with amenorrhea duration of less than four weeks and between four to eight weeks were less likely to develop unsatisfactory outcome compared to those above eight

weeks of amenorrhea (AOR=0.07, 95%CI: 0.006-0.860, p-value=0.038 and AOR=0.08, 95%CI: 0.01-0.49, p-value=0.006) respectively.

Gravidity of the patient was insignificantly associated with patient management outcome after adjusted for possible confounders. But it shows patients less than gravida four were less likely to develop unsatisfactory outcome compared to those above gravida four.

Table5: Association of selected variables with management outcome of EP in Adama Hospital Medical College Jan.2010-Dec.2012 GC

Variables	Management outcome					
	satisfactor y	unsatisfact ory	COR (95%CI)	p-value	AOR (95%CI)	p-value
Gravidity						
primigravida	63(39.9%)	3(1.9%)	0.07(0.008- 0.60)*	0.015	0.38(0.01 -14.59)	0.604
Gravida II	40(25.3%)	4(2.5%)	0.15(0.019- 1.18)**	0.072	2.5(0.06 – 10.66)	0.621
Gravida III	30(19.0%)	1(0.6%)	0.05(0.003- 0.73)*	0.028	0.3(0.008 - 11.75)	0.523
Gravida IV	11(7.0%)	1(0.6%)	0.13(0.009- 2.06)***	0.151	0.9(0.02 – 14.73)	0.999
>Gravida IV	3(1.9%)	2(1.3%)	1		1	
Duration of presentation						
≤ 24 hours	93(59.0%)	1(0.6%)	0.05(0.007 -0.46)*	0.007	0.06(0.006 – 0.610)*	0.017
>24 hours	54(34.2%)	10(6.3%)	1		1	
Abdominal pain						
No	2(1.3%)	1(0.6%)	1		1	
Yes	145(91.8%)	10(6.3%)	0.13(0.01 – 1.65)	0.118	0.51(0.07 – 3.48)	0.492
Vital sign						
unstable	21(13.3%)	5(3.2%)	1		1	
stable	126(79.7%)	6(3.8%)	0.2(0.05 – 0.71)*	0.013	0.03(0.001 – 0.993)*	0.049
Adnexal tenderness						
No	19(12.0%)	5(3.2%)	1		1	
Yes	117(74.0%)	5(3.2%)	0.16(0.04 – 0.61)	0.007	0.25(0.05 – 1.31)**	0.103
Amenorrhea duration						

<4 weeks	39(24.7%)	1(0.6%)	0.05(0.005- 0.50)*	0.011	0.07(0.006-0.860)*	0.038
4-8 weeks	100(63.3%)	6(3.8%)	0.12(0.02- 0.52)*	0.004	0.08(0.01 – 0.49)*	0.006
>8 weeks	8(5.1%)	4(2.5%)	1		1	

"*", "**", "***" indicates significant at p<0.05, 0.1, 0.25

1- indicates reference

7. DISCUSSION

Due to advances in diagnostic techniques, it has become possible to identify and manage ectopic pregnancies before they cause clinical symptoms in many developed countries. However, the situation appears not to be the same in developing countries [16]. In recent years, in spite of an increase in the frequency of ectopic pregnancy all over the world, there has been a fall in the case fatality rate [19].

In this study most of the patients 92(58.2%) were from rural. Residence of the patient was insignificantly associated with patient management outcome, but it shows patients from rural were more likely to develop unsatisfactory outcome than those from urban. The age of the study patient ranges from 18-45 years with mean age of 26.54(SD± 4.89) years and majority patients were young nulliparous which are similar to findings of other studies done in Nigeria and Sargodha [9, 14]. The high null parity dominance may be due to early unprotected sexual intercourse before marriage and low practice of family planning before marriage.

These results showed that the prevalence of ectopic pregnancy was more in nulliparous or primiparous women and this can affect fertility strength of these women, who intend to have next pregnancies in future. Gravidity of the patient was insignificantly associated with management outcome.

Of the 158 women admitted to Adama hospital for EP between 2010 and 2012, 7(4.4%) had previous history of EP before the study period which is consistent with study reported from Guinea (5%) but higher than study done in Nepal (2.6%) [10,15] .Ectopic pregnancy represented 1.5% of all pregnancies and 5.5% of the total gynaecological admissions, which is related to the study done in Guinea, Nepal and Nigeria [10, 15, 16] .But this prevalence was lower than study done in Aminu Kano, Nigeria (9). The results explain that the frequency of ectopic pregnancy in Adama hospital has been increasing from 2010-2012, so that it has reached 12.3 in every 1000 pregnancies in 2010 to 18.9 in every 1000 pregnancies in 2012. Increasing over time in ectopic pregnancy in Adama hospital is consistent with study done in Hamadan province [1]. As a result, the prevalence of ectopic pregnancy has become 1.54 times as much during 2010 to 2012. The increasing of ectopic pregnancy over time may be due to improvement of diagnostic methods and increased risk factors of ectopic pregnancy. This could be a warning for further follow-ups in

order to reduce the yearly increment rate of ectopic pregnancy in Adama hospital in the next years.

In this study, the commonest symptoms of ectopic pregnancy were abdominal pain, vaginal bleeding, and amenorrhea which were found in 155(98.1%), 126(79.7%), and 116(73.4%) patients respectively, which is comparable with study done in Nigeria, abdominal pain 98(97.03%), vaginal bleeding 65(64.36%) and amenorrhea 74(73.27%) [9]. But higher than study reported from Nepal in which abdominal pain (69.3%), vaginal bleeding (45.3%)[15]. This difference may be due to late presentation of patients in our country. This may be improved by creating public awareness and early patient referral to hospital.

Abdominal tenderness was occur in 125(79.1%), adnexal tenderness in 122(77.2%) and 26(16.5%) were presented with unstable vital sign at the time of admission, which is in concordance with studies done in Nepal abdominal tenderness 79.3%, adnexal tenderness 76% and 12% presented with unstable vital sign [15]. Tubal gestation was the most prevalent type occurring in 156(98.7%) patients most of which had occurred in the right tube 84(57.1%) which is consistent with the findings of other studies done in Hamadan province (95.2% tubal), Nigeria (98.12% tubal) but in contrary with the studies done in Nepal and Iraq in which the left side of the tube were more involved [1, 9, 15, 19]. The other site of implantation was the ovary which accounts 2(1.3%) of the cases and tubal abortion was evident in four (2.5%) cases and is similar with the study done in Nepal ovary 1.3% and tubal abortion in 2.7% cases (15).

Regarding the duration of ectopic, surprisingly 40(25.3%) patients did not miss their periods(<4weeks). The majority i.e. 106 (67.1%) were in the 4-8 weeks and 12(7.6%) patients had amenorrhea of greater than 8weeks. Study done in Nepal 16% of patients did not miss their periods, 24% 4-6weeks, 58.6% 6-8weeks and only one patient crossed 10 weeks and in Iraq the period of amenorrhea was 6-8weeks in 72.5% and in 12.5% above 8 weeks amenorrhea[15, 19]. The duration of amenorrhea was significantly associated with management outcome.

In developed countries close to 90% or more of ectopic pregnancies are diagnosed unruptured, whereas in developing countries diagnosis before rupture is uncommon. In this study, haemoperitoneum was observed in most women, with tubal rupture in 115(81%), which is almost similar with study done in Nepal 82.6% [15]. However, majority of the women were haemodynamically stable at Presentation and this agrees with other studies done in Nigeria [9].

In Adama, as in many developing countries, Surgery remains the only principal treatment option for ectopic pregnancy management. These findings were related to findings done in Nigeria, Nepal and Iraq [9, 15, and 19]. This shows that the fertility of these patients can be affected in future. Especially since most patients in this study were nulliparous or primiparous, the importance of preserving fertility in this population has become important .Nine (5.7%) patients developed post operative complications with mortality rate of 2(1.3%) in this study which is consistent with studies done in Nigeria, 1.4%[16], in which the cause of the death was hypovolaemic shock and sepsis. The mean post operative hospital stay was 3.99 (1.41SD \pm) days which is relatively comparable with study done at Chang Gung Memorial hospital 2.7 days and 3.7 days in Saudi Arabia [12, 13].

This study is the first of its type to generate information on prevalence and management outcome of ectopic pregnancy patients in Adama Hospital Medical College.

8. LIMITATION OF THE STUDY

- The data was secondary and difficult to know how the original data were collected and knowing whether the data are biased.
- The study did not include private hospitals and incomplete data are excluded so that the study may not represent general population.
- Selection bias. Because, it was hospital based data.

9. CONCLUSIONS AND RECOMMENDATION

Conclusions

The study which was conducted among ectopic pregnant women treated in Adama Hospital Medical College to determine prevalence and management outcome has reached to the following conclusions:-

The prevalence of ectopic pregnancy in Adama Hospital Medical College during the mentioned years has been 1.5%, which was moderate. However, the prevalence of ectopic pregnancy in this Hospital has increased over time, so that it has become 1.54 times as much from 2010-2012. Rising rate of ectopic pregnancy was found in young, nulliparous women. Right tubal gestation was more dominant than the left and mostly ruptured. Salpingectomy was the most common principal treatment option for ectopic pregnancy. Abdominal pain followed by vaginal bleeding and amenorrhea, adnexal and abdominal tenderness were the commonest presenting symptoms and signs respectively. The overall post operative complication was 5.7% with mortality rate of 1.3%.

Recommendations:-

To health workers-

- Early diagnosis and timely referral to hospital in order to decrease rate of tubal rupture with decreased morbidity and mortality.
- Since most patients in this study were young nulliparous women, the importance of preserving fertility in this population is important. Therefore, it is recommended that using laparotomy surgery should be reduced as much as possible.
- Salpingostomy should be used in preference to salpingectomy in women with a damaged or absent contra lateral tube.
- Always think of ectopic when there is amenorrhea, lower abdominal pain and vaginal bleeding.
- Emotional support, more public education and counseling on future pregnancy with early ultrasound scan is required to encourage women to seek early confirmation of their pregnancy and its location.

REFERENCES

1. Shobeiri F, Parsa P, Nazari M. Epidemiology of ectopic pregnancy in Hamadan province. *Zahedan J Res Med Sci (ZJRMS)* 2012; 14(4): 46-49.
2. Buowari Yvonne Dabota. Management and Outcome of Ectopic Pregnancy in Developing Countries Medical Women Association of Nigeria, Rivers State Branch, Nov. 2011, 7(2):109-18.
3. Togas Tulandi, MD, MHCM. Incidence, risk factors, and pathology of ectopic pregnancy, upto date 19.3
4. Ruijin Shao, M.D, Xiaoqin Wang, M.Sc., Wei Wang, M.D., Elisabet Stener Victorin, R.P.T., Carina Mallard, Ph.D., Mats Brännström, M.D., and Hakan Billig, M.D. a Causalities and clues for Chlamydia-induced tubal ectopic pregnancy June 2012 ,6(2):110-14.
5. Davor Jurkovic consultant gynaecologist, Helen Wilkinson director .Diagnosis and management of ectopic pregnancy *BMJ* 2011; 342(6):d3397-100
6. Jana L. Allison, MD, Mira Aubuchon, MD, Jacqueline D. Leasure, RN, and Danny J. Schust, MD. Hyperosmolar Glucose Injection for the Treatment of Heterotopic Ovarian Pregnancy, August 2012; 120(2), Part 2
7. Muhammad Ahsan Akhtar, Kate Navaratnam, Mark J Davies, Sanjeev D Sharma. An unusual haemoperitoneum–secondary abdominal pregnancy *BMJ Case Reports* 2012; doi:10.1136/bcr.01.2012.5531
8. Nilson Abrão SzylitI, Sérgio PodgaecII, Evelyn TrainaIII, Rita de Cassia Sanches OliveiraIV. Video laparoscopic intervention for an interstitial pregnancy after failure of clinical treatment *Sao Paulo Med J.* 2012; 130(3):202-7.
9. Yakasai IA, Abdullahi J and Abubakar IS. Management of ectopic pregnancy in Aminu Kano teaching hospital Kano Nigeria: A 3-year *Global Advanced Research Journal of Medicine and Medical Sciences (ISSN: 2315-5159)* August, 2012; 1(7); 181-185.
10. Patrick Thonneau, Yolande Hijazi, Nathalie Goyaux, Thierry Calvez, & Namory Keita. Ectopic pregnancy in Conakry, Guinea *Bulletin of the World Health Organization* 2002; 80 (5):365-370.

- 11.** CAPT Kevin L. Russell, MD, MTM&H, FIDSA (USN). Ectopic Pregnancy, Active Component, U.S. Armed Forces, MSMR J July, 2012; 19 (7):150-55.
- 12.** Po-Chun KO, Liang-Ming Lo, T'sang-T'ang Hsieh, Po-Jen Cheng. Twenty-one years of experience with ovarian ectopic pregnancy at one institution in Taiwan Int J Gynecol Obstet August 2012, 1016(10):1230-36.
- 13.** Shaista Aziz, Bothaina Al Wafi, Hussain Al Swadi. Frequency of Ectopic Pregnancy in a Medical Centre, Kingdom of Saudi Arabia, J Pak Med Assoc March 2011,61(3):140-45.
- 14.** AFROZA ABBAS, MD, H. AKRAM MD. Ectopic pregnancy, audit at Maula Bakhsh Teaching Hospital Sargodha Professional Med J Mar 2011; 18 (1): 24-27.
- 15.** Dr. Poonam, Uprety D, Banerjee B. Ectopic pregnancy – Two years review from BPKIHS, Nepal Kathmandu University Medical Journal (2005),3(4), Issue 12:365-369.
- 16.** Etuknwa Bassey Tom, FRCS, Azu Onyemaechi Okpara, PhD, Peter Aniekan Imo, MD, Ekandem Gabriel John, PhD, Olaifa Kayode, BSc, Aquaisua Nyong, MSc, Ikpeme Enobong, MSc. ECTOPIC PREGNANCY:A NIGERIAN URBAN EXPERIENCE Korean J Obstet Gynecol 2012;55(5):309-314.
- 17.** Funda Gungor Ugurlucan, MD, Ercan Bastu, MD, Murat Dogan, MD, Ibrahim Kalelioglu, MD, Sebnem Alanya, MD, and Recep Has, MD. Management of Cesarean Heterotopic Pregnancy With Transvaginal Ultrasound–Guided Potassium Chloride Injection and Gestational Sac Aspiration, and Review of the Literature, Journal of Minimally Invasive Gynecology 2012, 19, 671–673.
- 18.** Thang Le, MD, Liina Poder, MD, Abby Deans, MD, Bonnie N. Joe, MD, Russell K. Laros, Jr, MD, and Fergus V. Coakley, MD. Magnetic Resonance Imaging of Cervical Ectopic Pregnancy in the Second Trimester, J Comput Assist Tomogr 2012;36: 249-252.
- 19.** Ghada Al-Daheen MBCh.B. Ectopic pregnancy- A Prospective Study in Al-Batool Teaching Hospital in Mosul – Iraq Al-Kindy Col Med J 2007; 4(1): 63-69.
- 20.** Federal Democratic Republic of Ethiopia Population census commotion. Summary and Statistical Report of the 2007 Population and Housing Census Results.

ANNEX

DATA COLLECTION INSTRUMENTS

CHECKLIST TO COLLECT DATA ON RETROSPECTIVE REVIEW OF PREVALENCE OF ECTOPIC PREGNANCY AND MANAGEMENT OUT COME OF PATIENTS IN ADAMA HOSPITAL MEDICAL COLLEGE FROM JAUNARY 2010 -DEC 2012 G.C.

I. Card no. _____

II .Socio demographic characteristics

1. Age _____

2. Gravidity _____

3. Place of residence: 1. Urban 2. Rural 3 not mentioned

III. Clinical features and hospital courses

4. Did she have previous history of the same attack (EP)? 1. Yes 2. No 3. Not mentioned

5. Duration of presentation in hours _____

6. Presenting clinical features

1. Symptoms:

A. abdominal pain 1. Yes 2. No 3. Not mentioned

B. Vaginal bleeding 1. Yes 2.No 3. Not mentioned

C. amenorrhea 1 Yes 2. No 3. Not mentioned

D. others (specify) _____

2. Physical findings (sings):

A. vital sign at presentation: 1.Stable _____ 2. Not stable _____

B. abdominal tenderness presents 1. Yes 2. No 3.Not mentioned

C. adnexal tenderness 1.Yes 2.No 3 .Not mentioned

D. others (specify) _____

7. Duration of amenorrhea in week's _____

8. Site of ectopic pregnancy (implantation site) _____

9. If number 8 is tubal pregnancy. 1. Right tube 2. Left tube 3. Not mentioned

10. Tubal rupture? 1. Yes 2. No 3. Not mentioned

11. Procedure done _____

12. Year of procedure _____

13. Post operative complications develop? 1. Yes 2. No

14. If number 13 is yes specify _____

15. Outcome of the patient 1. Improved and discharged 2. Died

16. If died probable cause of death _____

17. Length of hospital stays in days _____

DECLARATION

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

Name: Girma Diriba

Signature: _____

Name of the institution: Jimma University

Date of submission: _____

This thesis has been submitted for examination with my approval as University

Advisor:-

Name and Signature of the first advisor

Mr. Garumma Tolu (MPH)

Name and Signature of the second advisor

Mr. Desta Hiko (MPHE)
