



## Research Article

# Magnitude and associated factors with ectopic pregnancy treated in Adigrat hospital, Tigray region, Northern Ethiopia

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### ABSTRACT

**Background:** The magnitude of ectopic pregnancy is relatively common in different parts of the world. Even though the management modalities and associated risk factors are same, the reporting rate is low in developing country like Ethiopia as this has long term impact on women reproductive health

**Methods:** The study was conducted in Adigrat Hospital which is found in Adigrat town, at a distance of 898km from Addis Ababa to the North and 120km from Mekelle to east. This study was conducted from september1, 2003 to pagume 6, 2007 E.C and the study was conducted by retrospective study from document review (card, medical records of patients, operation book) managed for ectopic pregnancy prior to data collection training was given by investigators and data first checked manually for completeness then coded and entered to SPSS 20 software for analysis and result disseminated to different department and journals.

**Proposed Budget-** To conduct this study 9763.05 amount of estimated birr will be used

**Result:** Majority 40 (51.9%) of mothers were in the age group of 25-29 years. magnitude of ectopic pregnancy among total deliveries and gynecological surgeries was 0.82% and 3.74% respectively. Abdominal pain, vaginal bleeding and amenorrhea were the most common symptoms at presentation. Genital tract infection, previous abortion and cases with low parity were found to have statistically significant association with unfavorable maternal outcomes. Most mothers with ruptured ectopic pregnancy 47 (61%) were from urban those used contraceptive and lack of awareness; but address had no statically significant association with un favorable maternal outcomes.

**Conclusions:** magnitude of Ectopic pregnancy is increasing with unfavorable maternal outcomes and mothers with history of genital tract infection, abortions and low parity were more affected. Ruptured ectopic pregnancy is a true medical emergency which warrants Open abdominal surgery of (Salphingectomy) with blood transfusion.

**Key words:** magnitude, ectopic pregnancy, Tigray, Ethiopia

## INTRODUCTION

### BACKGROUND

Ectopic pregnancy is a condition when implantations of the zygote other than the endometrium of the uterus. It is a gynecological importance, particularly in the developing world, because of the high morbidity and mortality associated with it and the enormous threat to life. When ruptured, ectopic

pregnancy is a true medical emergency. It is the leading cause of maternal mortality in the first trimester and accounts for 10%–15% of all maternal deaths<sup>1</sup>.

Most ectopic pregnancies occur because the fertilized egg cannot pass through the fallopian tube to the uterus. The egg is unable to pass through narrowed or blocked tubes.

Any condition that may have damaged the fallopian tubes increases a woman's risk for an ectopic pregnancy<sup>1</sup>.

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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. With the rapid decline in the number of intrauterine pregnancy, during the past decade, the frequency of extra uterine pregnancy become more apparent because of attitudinal change in sexual activity, young population, the rising incidence of venereal disease, the effective role of modern antibiotics, therapy in salpingitis, use of contraceptive measures and assisted reproductive technique<sup>2</sup>.

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<sup>3</sup>.

This study aims on the magnitude and factors associated with ectopic pregnancy treated in Adigrat hospital, which might help on formulating a guiding principle on the diagnosis and management of Ectopic pregnancy in this area.

#### STATEMENT OF THE PROBLEM

Ectopic pregnancy is defined as a pregnancy in which the implantation of the embryo occurs outside the uterine cavity, most frequently in one of the two fallopian tubes or, more rarely, in the abdominal cavity<sup>6</sup>. Ectopic pregnancy presents a major health problem for women of childbearing age<sup>11</sup>. Without timely diagnosis and treatment, ectopic pregnancy can become a life-threatening situation. The case-fatality rates of rupture of fallopian tubes declined in developed Countries after the advent of trans-vaginal ultrasonography and beta subunit of hCG (beta-hCG) tests, and in developing countries, a majority of hospital-based studies have reported ectopic pregnancy case-fatality rates of around 1%–3%, which is ten times higher than those reported in developed countries<sup>7</sup>.

It is a common obstetric problem the world over. Though the global incidence has been rising during the last three decades<sup>7,8</sup>. The incidence of the condition varies from country to country depending on the risk factors predominant in the geographical region. It remains an important cause of morbidity and mortality in early pregnancy. The rate of ectopic pregnancy has followed an increasing trend during the last three decades throughout the world<sup>9</sup>. Globally, the reasons for the rising trend are thought to include earlier diagnosis of cases that would otherwise have resolved on their own. This is due to availability of more sensitive methods such as hormonal tests, Transvaginal ultrasound and laparoscopy<sup>10</sup>.

Due to advance in modern technology like diagnostic laparoscopy and ultrasonography diagnosis has become less difficult. Yet each method is having its own limitation. An accurate history and physical examination and its correlation to the modern diagnostic technology are believed to be the most important in the diagnosis. To diagnosis ectopic pregnancy, one has to be “ectopic minded”. Thus, in spite of advance in modern

technique of diagnosis and management of ectopic pregnancy, it still remains a very serious threat to maternal health<sup>11</sup>.

The peak incidence of ectopic pregnancy or population most affected includes around mid-twenties. A two year (April 02-April 04), retrospective survey in B.P Koirala Institute of Health Sciences, Dharan (Nepal) 75 cases of ectopic pregnancy showed that majority of cases were between 26-30 years<sup>13</sup>.

A ten year retrospective survey in Ayub teaching hospital Abbottabad, Pakistan; out of 255 patients 43 (16.86%) had unruptured tubal Pregnancy, 183 (71.76%) had ruptured ectopic pregnancy and 22 (8.62%) had chronic ectopic pregnancy. At laparotomy, salpingectomy was done in 229 (89.80%) patients, salpingo-oophorectomy in 2 patients (0.78%), and linear salpingectomy in 15 (5.88%) patients. The classic clinical tirades were: abdominal pain, amenorrhea and vaginal bleeding. Medical treatment was given to 5 patients and 8 patients were treated conservatively. There was no maternal mortality<sup>15</sup>.

The importance of ectopic pregnancy in developing country like Nigeria it was challenging because of its late presentations with rupture in more than 80% in most cases It was also challenging due to poor diagnostic tools, limited capacity to handle emergencies and consequent burden of increased maternal morbidity and mortality and consequent reproductive failure<sup>12</sup>.

Complications of early pregnancy are common clinical conditions that often require emergency care. The patient may or may not be aware that she is pregnant at the time of evaluation at the emergency department. 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<sup>12</sup>.

Across sectional survey Umtala general hospital Transkei, south Africa showed that 11 per 100 reported pregnancy and the mortality rate was 2 % Of 148 consecutive cases of ectopic pregnancy 62.2 were in shock and two third were in severely anemic on arrival.

About 71% of the cases had tubal rupture and 25% of were chronic leaking ectopic .Only 4 intact ruptured ectopic were found out<sup>16</sup>.

Health professionals and public health officials in developing countries, especially those in Africa, should consider Ectopic pregnancy as a major obstetric problem for maternal morbidity. Early detection and more public education as well as advocacy programs targeted at women are needed to solve the problem<sup>16</sup>.

Ethiopia is Located in the horn of Africa, it is a nation of more than 70 ethnic groups who speak more than 80 languages and has a total population of 80 million according to EDHS 2009. Fifty two percent of the population is believed to be children below the age of 18 years<sup>4</sup>.

Ethiopia is one of the developing countries where maternal and perinatal mortality rates are still very high. The maternal

mortality ratio in Ethiopia is one of the highest in sub-Saharan African, 676/100,000 live births according to Ethiopian 2011 EDHS data and the perinatal mortality is also high<sup>5</sup>.

A review of 176 patients between 1981\_1987 at Tikus Anbessa specialized hospital AA, Ethiopia revealed that 57.9% were in the age group of 20-29, and proportion of 0.8 the history revealed lower abdominal pain in 98.8%, amenorrhea in 82.9% and vaginal bleeding in 73%. On clinical examination, 92% had lower abdominal tenderness, 80.6% cervical excitation tenderness<sup>14</sup>.

Even though there is no research done in Tigray region about ectopic pregnancy so. In my study area, according to the hospital annual report even though there were no formal studies is not done, there is high prevalence of ectopic pregnancy. So to compare may study with previous studies done locally and at national level. This study is, therefore, aimed at assessing the magnitude and associated factors with ectopic pregnancy treated in Adigrat hospital.

### SIGNIFICANCE OF THE STUDY

Ectopic Pregnancy still remain the most lethal and morbid gynecological emergency. It is more prevalent and it is the second leading cause of maternal mortality and mortality related to hemorrhage nevertheless; only in some African county like Nigeria Guinea and South Africa scientific paper had been done. In our country only one research report from Tikur Anbessa hospitals was done.

And therefore I Will proident to have such studies to describe the magnitude and factors associated with Ectopic pregnancy among women treated in Adigrat hospital and so as to generate tangible input for the hospital and concerned body. Even it can also be used as baseline reference to conduct further Ectopic pregnancy analysis. This study will address the magnitude and associated factors of ectopic pregnancy among pregnant women.

### OBJECTIVES

#### GENERAL OBJECTIVE:

- ❖ To assess the magnitude and factors associated with Ectopic pregnancy among pregnant women treated in Adigrat hospital from September1,2003 to pagume6,2007 E.C.

#### SPECIFIC OBJECTIVES:

- ❖ To assess the magnitude of Ectopic pregnancy treated in Adigrat hospital from September 1, 2003 to pagume 6, 2007 E.C.
- ❖ To determine factors associated with Ectopic pregnancy treated in Adigrat hospital from September 1, 2003 to pagume 6, 2007 E.C.
- ❖ To identify factors affecting management outcomes of ectopic pregnancy in Adigrat hospital from September 1, 2003to pagume 6, 2007 E.C.

## METHODS AND MATERIALS

### STUDY AREA AND PERIOD

The study was conducted in the eastern Zone of the Tigray Regional State, in Adigrat town, Adigrat Zonal hospital, Adigrat town is Eastern Zone of Tigray & is located 898 kilometers to the north of Addis Ababa, the capital City of Ethiopia, and 120 kilometers away from the regional capital City, Mekelle. In the town there were six kebeles with a total of 14000 households (HH). The total population of the town according to the 2007 census report is 57,588, of whom 26,010 are men and 31,578 women.

Climatic Condition of Adigrat city is often generally characterized by its being suitable and pleasant for living where in the town there are two public health centers , one public hospital, and nine private clinics (3 higher, 2 middle and 2 lower clinics), 5 drug shops and 4 rural drug vendors.

Adigrat Hospital is a zonal Hospital which was established in 1984 E.C. It provides both in-patient & outpatient services at different departments. It has three specialists (one gynecologist /obstetrician, one surgeon & one internist), 6 GPs with other professionals (MSc on pediatrics, MSc on IESO, BSc & diploma nurses, midwives, anesthetists, x-ray technicians, & physiotherapist) & supportive staffs. The Hospital has 110 beds & 37 of them are found at Gynecology & Obstetrics ward. ANC, family planning, delivery service& treatment obstetric complications are some of the services provided in Gyn/Obs department.

This study was conducted from sept1, 2003 to pagume 6, 2007 E.C.



**Fig. 2. Map showing Eastern Zone of Tigray National Regional State where Adigrat town is located.**

**STUDY DESIGN**

Facility based retrospective study was conducted from document review

**SAMPLE SIZE**

The number clients who treated for ectopic pregnancies during the study period

**SAMPLING TECHNIQUE**

Non probability purposive sampling techniques were used to identify study units. The charts of all pregnant mothers who are diagnosed as ectopic pregnancy during the study period are reviewed and were included in the study.

The medical records of the patients managed for ectopic pregnancy as well as the total birth record and gynecological surgery records during the period under review was retrieved and data was collected with the aid of data-entry forms designed for this purpose. The medical records of all the patients admitted and managed for ectopic pregnancy during the study period was retrieved and relevant data on age, parity, clinical presentation, risk factors, findings at laparotomy and the outcome of treatment was collected. The gynecology and total birth records during the study period were collected from the gynecology and labor ward record books. In this review, some of the variables included to identify factors associated with unfavorable outcomes of Ectopic pregnancy was previous genital tract infection, age, previous abortion, parity intraoperative findings and postoperative complication.

**SOURCE POPULATION**

All Pregnant mothers who gave birth in Adigrat hospital during study period.

**STUDY POPULATION**

All pregnant mothers those admitted for ectopic pregnancy in Adigrat hospital during the study.

**Inclusion Criteria:**

All pregnant mothers admitted for diagnosis of ectopic pregnancy and treated.

**Exclusion criteria:**

Cases with incomplete and lost documents are not included.

**DATA COLLECTION PROCEDURE**

Data was collected using prepared checklist from patient admission log books and charts. Variables to be collected are socio demographic characteristics, associated factors of ectopic pregnancy. The data was collected by three Midwives.

**DATA QUALITY CONTROL**

Prior to data collection, training of data collector by the principal investigator was given. The session of the training was regarding on internalization of the objective of the study, technique and how to review the document. Besides; the role

and responsibility of the data collectors was addressed. Data were collected from 5 May -15 May 2015 G.C by two diploma midwives using structured questionnaire under supervision of one BSc midwives. Relevant data on age, parity, clinical presentation, risk factors, findings at laparotomy, and the outcome of treatment was collected using data-entry forms designed for this purpose Supervision was given in each day regarding for questioner completeness, clarity and proper identification of required document.

**DATA PROCESSING & ANALYSIS**

Data was first checked manually for completeness then coded and entered in to SPSS 20.0 software for analysis. The process involved descriptive statistics of Tables and graphs were used for data summarizing .Bi Variables with P- value of up to 0.2 in bivariate analysis were entered into the multivariate model and multi-variable logistic regression analyses was used to identify independent effect of the predictor variable over the outcome variable. Backward logistic regression (LR) method was employed and variables with p value of < 0.05 were considered as significantly associated with Ectopic pregnancy. Unfavorable outcomes of Ectopic pregnancy is considered if there is one of the variable: maternal death, blood transfusion, anemia previous history of abortion, previous history of Ectopic pregnancy, previous history pelvic infection Hormonal contraceptive use and prolonged hospital stay.

**VARIABLES OF THE STUDY****Independent variables:**

- ✓ Age
- ✓ Address
- ✓ Parity
- ✓ Abortion
- ✓ Sexually transmitted infection
- ✓ Contraceptive use
- ✓ Intra operative finding
- ✓ Previous ectopic pregnancy

**Dependent variables:**

- ✚ Outcome of Ectopic pregnancy

**OPERATIONAL DEFINITIONS**

1. abortion:-Termination of pregnancy before it reaches viability (<28 week)
2. Anemia:-Hemoglobin value of <10.5mg/dl
3. Ectopic pregnancy: - implantation of a fertilized egg in a location outside of the uterine cavities.
4. Ruptured ectopic pregnancy:-when implanted blastocyst in the tube ends up in rupture with bleeding in to abdominal cavity.
5. 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.
6. Heterotopic pregnancy—an ectopic pregnancy occurs in combination with an intrauterine pregnancy.

7. Sexually transmitted disease: - infections established by means of sexual contact.
8. Amenorrhea:-cessation of menstruation
9. Appendectomy: - Surgical removal of the appendix
10. Tubal anastomosis: - Reconstructive surgery of fallopian tubs
11. Salpingectomy:-Surgical removal of fallopian the tubs
12. Oophorectomy: - Surgical removal of the ovary
13. Hysterectomy:-Surgical removal of the uterus
14. Gravidity: - Number of pregnancy including the present one, irrespective of the out comes
15. Shock: -A state of deranged vital sign with systolic B/P<90mmhg systolic and diastolic <60mm hg.

### ETHICAL CONSIDERATION

Data collection was started after the study is approved by the Institutional Ethics Review Committee of the College of Health Sciences of Mekelle University Research Clearance Certificate No. ERC/0617/2015 was given and secured a permission letter to Adigrat Hospital. Confidentiality of the records was maintained throughout the study period. Reports shall no include names and identifiers of patients.

## RESULT

### MAGNITUDE OF ECTOPIC PREGNANCY

Over the 5-year study period, there were 2,506 gynecological surgeries and 9387 deliveries were recorded; Among 80 suspected ectopic pregnancies, of which 77 cases were suitable for analysis. The overall prevalence of ectopic pregnancy in this study was 0.82% (77 of 9387) deliveries; which Constituted 3.74% (77 of 2,506) of all gynecological surgery during the study period. Highest incidence recorded in 2004 E.C 1 (16 of 1524) and lowest in 2007 E.C 0.73% (18 of 2450) (Table 1).

**Table 1. Yearly distribution of EP per number of registered deliveries in Adigrat hospital between 1, September, 2003 to 6, Pagume, 2007 E.C.**

Period	Registered delivery	Ectopic pregnancies	% total
2003	1505	12	0.79
2004	1524	16	1.04
2005	1839	15	0.81
2006	2069	16	0.77
2007	2450	18	0.73
<b>Total</b>	<b>9387</b>	<b>77</b>	<b>0.82</b>

### FACTORS ASSOCIATED WITH ECTOPIC PREGNANCY

Majority of cases 46 (59.7%) were in urban and 31 (40.3%) in rural. The majority of patients 40 (51.9%) were within the age group 25–29 years and 34 (44.2%) of them had amenorrhea history for < 6 week. A total of 47 (61%) had ruptured ectopic pregnancies, while 8 (10.4%) were unruptured, 6 (7.8%) were tubal abortion and 16 (20.8%) were chronic ectopic pregnancy.

A significant proportion 26% (20 of 77) were primigravida, while 74% (57 of 77) were multiparous, 16 (20.8%) of them were grand multipara and 1 (1.3%) was great grand multipara (Table 2).

**Table 2. Demographic characteristics of patients with ectopic gestations in Adigrat Hospital between 1, September (2003 to 6, Pagume 2007) E.C.**

Age (years)	Number (n=77)	Percentage
15-19	5	6.5
20-24	18	23.4
25-29	40	51.9
30-34	10	12.9
35-39	2	2.6
40 and above	2	2.6
<b>Parity</b>		
Primigravida	20	26
2-4	40	51.9
5-9	16	20.8
>10	1	1.3
<b>Address</b>		
Urban	46	59.7
Rural	31	40.3
<b>Gestational age N=77</b>		
<7 weeks	34	44.2
7-9 weeks	30	39
>9 weeks	9	11.7
Unknown	4	5.1

Most of the ectopic pregnancies were diagnosed by both clinical and ultra-sound findings 51 (66.2%), and ultra-sound alone was the least diagnostic finding 1 (1.3%) Table 3.

**Table 3. Diagnosis of ectopic pregnancy in Adigrat hospital between 1, September, 2003 to 6, Pagume 2007 E.C.**

Diagnosis	Number (n=77)	Percentage
Clinical only	5	6.5
U/S only	1	1.3
Intra-operative	3	3.9
Clinical and U/S	51	66.2
Clinical and culdocentesis	2	2.6
Clinical, culdocentesis and U/S	15	19.5

Regarding clinical presentation of ectopic pregnancy treated in Adigrat Hospital showed that 77 (100%) were presented with abdominal pain. 76 of 77 (98.7%) had amenorrhea, 9 of 77 (11.7%) presented with dizziness/fainting attack and 61 of 77 (79.2%) presented with vaginal bleeding, 34 of 77 (44.2%) had adnexal mass, 18 of 77 (23.4%) had cervical motion tenderness. 21 of 77 (27.3%) had a past history of genital tract infection of these 1 of 21 (4.8%) were genital ulcer, 10 of 21 (47.6%) were vaginal discharge, 8 of 21 (38.1%) were PID and 2 of 21 (9.5%) were known RVI patients. While 24 of 77 (31.2%) had previous history of abortion. Most of them had one history of abortion which is 18 (23.4%), 5 (6.5%) had history of 2 abortions and 1 (1.3%) had 3 and above history of abortion. A total of 49 out of

77 (63.6%) were used contraceptive. Among contraceptive users 25 (32.5%) were used injectable contraceptive, 16 (20.8%) were used oral pills, 4 (5.2%) were barrier method, 3 (3.9%) were used IUCD and 1 (1.3%) was used implant. Only 5 (6.5%) patients had history of previous surgery; of which 3 (3.9%) were C/S, 1 (1.3%) was appendectomy and 1 (1.3%) was previous ectopic (Table 4).

**Table 4. Clinical presentations and risk factors of ectopic pregnancy in Adigrat Hospital between 1, September (2003 to 6, Pagume 2007) E.C.**

Presentations	Numbers (n=77)	Percentage
Abdominal pain	77	100
Amenorrhea	76	98.7
Syncope	9	11.7
Vaginal bleeding	61	79.2
<b>Risk factors</b>	Numbers (n=77)	
Genital tract infection	21	27.3
Previous abortion	24	31.2
Contraceptive use	49	63.6
Previous surgery	5	6.5
Previous ectopic	1	1.3

Most of the patients 68 (88.3%) had tubal ectopic pregnancies; of them 44 (57.1%) were ampulla, 7 (9.1%) isthmic, 13 (16.9%) were fimbria and 5 (6.5%) were corneal. 6 (7.8%) had ovarian ectopic pregnancies and 2 (2.6%) had abdominal ectopic pregnancies. In 57 (83.8%) of the patients, the tubal ectopic pregnancy was on the right while the remaining 11 (16.2%) had left sided ectopic pregnancy.

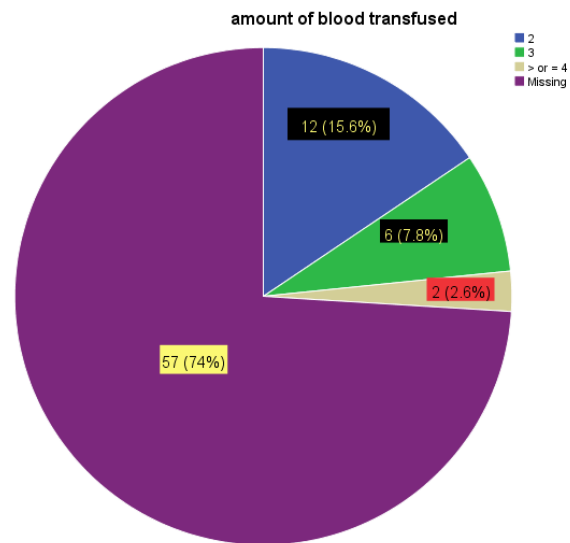
There was no mortality and 35 (45.5%) of the patients were discharged within 6 days of admission, 38 (49.4%) of them within 7-14 days and the remaining 3 (3.9%) discharged within 15-30 days. Post-operative wound infection and anemia 5 (6.5%) and 14 (18.2%) respectively (Table 5).

**Table 5. Operative findings and associated factors of EP in Adigrat Hospital between 1, September 2003 to 6, Pagume 2007 E.C.**

Findings	Number	Percentage
Ruptured	47	61
Chronic ectopic	16	20.8
Un ruptured	8	10.4
Tubal abortion	6	7.8
Ampullary	44	57.1
Isthmic	7	9.1
Fimbrial	13	16.9
Cornal	5	6.5
Ovarian	6	7.8
Right sided	57	77.1
Left sided	17	22.9
Hospital stay	(N=77)	Percent
<7 days	35	45.5
7-14 days	38	49.4
2-week-1month	3	3.9
Post-operative complication	(N=19)	
Wound infection	5	26.3

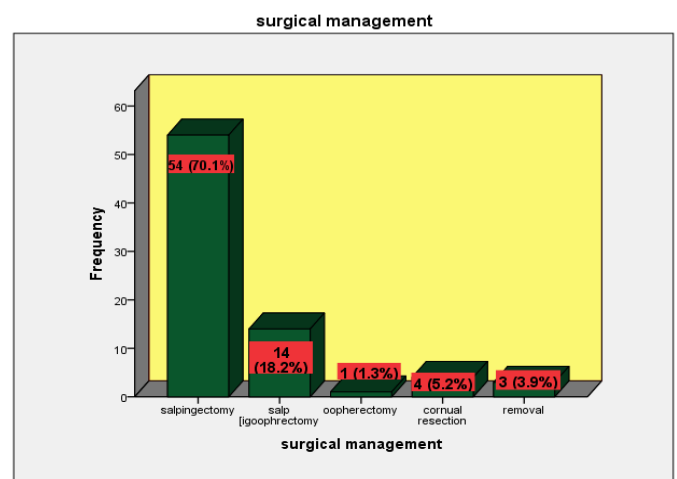
**Anemia** 14 73.7

The hemoglobin level was >10g/dl in 46 (59.7%), 5-10g/dl in 24 (31.2%) and < 5g/dl in 7 (9.1%) and the intra-operative blood loss was <500ml in 32 (41.6%), 500-1000ml in 18 (23.4%), 1000-1500ml in 15 (19.5%) and > 1500ml in 11 (14.3%) cases of ectopic pregnancies treated in Adigrat hospital. Blood transfusion was necessary in 20 (26%) of the patients and transfusions related complication was not reported (Figure 3).



**Figure 3. Patterns of blood transfusion for EP in Adigrat Hospital between 1, September 2003 to 6, Pagume 2007 E.C**

Among the interventions, Salpingectomy 54 (70.1%) was the commonest life-saving surgical procedure performed in the studied subjects, since most of the cases were ruptured ectopic pregnancies with massive heamo-peritoneum; while oophorectomy was the least performed surgical intervention 1 (1.3%) (Fig. 4).



**Figure 4. Surgical management of EP in Adigrat Hospital between 1, September 2003 to 6, Pagume 2007 E.C.**

## BINARY LOGISTIC REGRESSION

Those mothers who had previous history of abortion and genital tract infection showed a statistical association with unfavorable maternal outcomes. (COR 4.58, 95%CI=1.35-15.52) and (COR 7.07, 95%CI=2.14-23.38) respectively. Among the obstetric variables, parity, parity one and above mother were seven times

more likely get unfavorable maternal outcomes than parity one (COR 6.91, 95%CI = 1.83-26.18).

Women who had history of ectopic and encountered dizziness/fainting attack during presentation were seven and five times more likely to develop unfavorable outcomes (COR 7.18, 95%CI= 0.61-84) and (COR 5.26, 95%CI=1.39-19.91) respectively.

**Table 6. Association of socio demographic and obstetrics variables with unfavorable outcomes of EP in Adigrat Hospital between 1, September 2003 to pagume 6, 2007 E.C.**

Variables	Maternal outcomes		Total	COR 95% CI
	Favorable n (%)	unfavorable n (%)		
<b>Residence</b>				
Urban	14 (30.4)	32 (69.6)	46	1.35 (4.43-0.41)
Rural	26 (83.9)	5 (16.1)	31	1
<b>Abortion history</b>				
No	8(15)	45 (85)	53	4.58 (1.35-15.52)
Yes	12 (50)	12 (50)	24	1
<b>Surgery history</b>				
No	18 (25)	54 (75)	72	1.09 (0.11-11.12)
Yes	2 (40)	3 (60)	5	1
<b>contraceptive use</b>				
No	7 (14.3)	42 (85.7)	49	1.64 (0.33-8.21)
Yes	8 (28.6)	20 (71.4)	28	1
<b>Previous EP</b>				
No	14 (18.4)	62 (81.6)	76	7.18 (0.61-84)
Yes		1 (100)	1	1
<b>Parity</b>				
Nulliparous	15 (37.5)	25 (62.5)	40	6.91 (1.83-26.18)
≥one	3 (8.1)	34 (91.9)	37	1
<b>GIT</b>				
No	8 (14.3)	48 (85.7)	56	7.07 (2.14-23.38)
Yes	15 (71.4)	6 (28.6)	21	1
<b>Syncope</b>				
No	13 (19.1)	55 (80.9)	68	5.26 (1.39-19.91)
Yes	5 (55.6)	4 (44.4)	9	1

## MULTIVARIATE LOGISTIC REGRESSION

Variables (p-value <0.25) were found to be significant in the bivariate analysis. Therefore, multivariate approach was applied to determine which variables best explained and predict unfavorable outcomes of EP. Consequently two of independent variables like, parity and PID were found to have significant association on multivariate analysis. Mothers who had one and above delivery had six times more likely to have unfavorable maternal outcome than those null parity AOR= 6.53 CI (1.52-28.32). Those mothers with GIT had five times more likely to have unfavorable outcome than with no GIT AOR=5.54 CI (1.34-23.01).

## DISCUSSION

This institution –based retrospective study has tried to know magnitude and associated factors with ectopic pregnancy treated in Adigrat hospitals.

Accordingly, among the total number of deliveries during the study period, proportions of ectopic pregnancies and associated factors were identified in the hospitals. Given the high risk of recurrence rate 15% and 30% after having 1<sup>st</sup> and 2<sup>nd</sup> 5 and the finding that 3.7% of our subjects had a history of previous ectopic pregnancy, women with a history of previous ectopic pregnancy should be followed up carefully even in the absence of symptoms<sup>3</sup>.

Ectopic pregnancy, especially when ruptured, is a common life-threatening emergency in the developing world and presents a major health problem for women of childbearing age. It is the commonest cause of maternal morbidity and mortality in the first trimester of pregnancy. Unless treated vigorously and early enough, it has significant association with maternal morbidity and mortality. The future reproductive potential of the woman after an ectopic pregnancy is compromised. Ectopic pregnancy accounts for 73% of early pregnancy mortalities<sup>12</sup>.

The peak age incidence was amongst women in the age group of 21-30 years which corroborates with findings in Nepal and in

Tikur Anbessa, Ethiopia this corresponds to the age of reproduction and peak sexual activity<sup>13-14</sup>.

**Table 7. Association of socio demographic and obstetrics variables with unfavorable outcomes of EP in Adigrat Hospital between 1, September 2003 to pagume 6, 2007 E.C.**

Variables	Maternal outcomes		COR 95% CI	AOR 95% CI
	Favorable(n=92)	unfavorable(n=99)		
Previous abortion				
No	8	45	4.59(1.36-15.51)*	0.25(0.06-1.10)
Yes	12	12	1	1
Previous EP				
No	14	62	7.18(0.61-84)*	4.73(0.33-68.18)
Yes		1	1	1
Parity				
Nulliparous	15	25	6.91(1.83-26.18)*	6.53(1.52-28.32)**
≥one	3	34	1	1
GIT				
No	8	48	7.07(2.14-23.38)*	5.54(1.34-23.01)**
Yes	15	6	1	1
Syncope				
No	13	45	5.26(1.39-19.91)*	5.10(0.94-27.31)
Yes	4	9	1	1

\*\* = for variables showing significant association during multivariate analysis

\* =for variables showing significant association during bivariate analysis at P< 0.05.

The magnitude of ectopic pregnancy found in Adigrat hospital during the study period was 0.82%; this was consistent with the 0.8% reported in Tikur Anbessa, Ethiopia and 0.66% in Thika, Kenya. However, proportion of 0.6% or 6 per 1,000 in our present study is lower than most reported cases in the country; reported an incidence of 4.26% in Amin Kano, Nigeria, reported an incidence of 1.3% in Nnewi, Niger and higher than findings of 0.11% in Transkei, South Africa<sup>16,18,25</sup>.

This lower reporting proportion in our setting could be explained by low case detection rate due to inaccessibility of materials like trans-vaginal U/S and trained manpower. The study design being retrospective can be the discrepancy reason for low prevalence rate as mother with EP may get intervention in private institution and study done in Tikur Anbessa and that was done in our study were the same.

The highest incidence of ectopic pregnancy 53.1% was noted amongst nulliparous women, which was in conformity with findings in Nnewi, Niger. This is because most young unmarried people with unintended pregnancies often procure unsafe abortions, which subsequently predispose them to having an ectopic gestation in future, pregnancies<sup>29</sup>.

A previous history of abortion and pelvic inflammatory disease were major risk factors in our subjects which is consistent with findings in Nigeria. The increased risk of ectopic pregnancy in developed countries, just as recorded in this study, has been attributed to the following factors: pelvic inflammatory disease, smoking in women of reproductive age, increased use of assisted reproductive technology and increased awareness of ectopic pregnancy and its clinical presentation, facilitated by the

development of specialized early pregnancy units<sup>30,38</sup>. Salpingectomy was the commonest life-saving surgical procedure performed in the studied subjects, since most of the cases were ruptured ectopic pregnancies with massive Hemoperitonium. This management option was in line with the recommendations of the National Institute of Clinical Excellence that women with such presentation of ectopic gestation should have a salpingectomy (<http://guidance.nice.org.uk/cg154>).

In developing countries like Ethiopia, where the majority of patients present after rupture, emergency surgical interventions remain the mainstay of treatment<sup>33-34</sup>.

Incidentally, this procedure which leads to tubal loss and reduced reproductive potentials is the commonest management option in low resource settings. Intrauterine pregnancy rate after salpingectomy is about 45%<sup>40</sup>.

About 80.2 % of case had evidence of previous pelvic infection, thus making PID the most important risk factor for ectopic pregnancy. This is consistent with findings in South Africa<sup>16</sup>. Like previous history of abortion and history of previous ectopic gestation were also predisposing factors for ectopic pregnancy<sup>41</sup>.

There was a significant degree of morbidity associated with ectopic pregnancy in this study, as shown by the results. This may be attributed to the delay in diagnosis and seeking treatment, and may have contributed to the slightly longer duration of hospitalization recorded. Anemia, which was the commonest complication in this study, was due to excessive blood loss from the rupture site, necessitating blood transfusion.



20(26%) of patients were transfused with blood from the hospital blood bank services. Blood transfusions, especially those from donors, could increase the risk of acquiring blood-borne pathogens, such as HIV, hepatitis B and C, and cytomegalovirus infections. These blood transfusions also placed an additional burden on the already-limited health resources in our center and the country, but were life-saving, with no reported case of any transfusion-related blood-borne infections. Patients with interstitial/cornual ectopic pregnancy may have a sevenfold-higher mortality due to the fact that they rupture later and bleed more. There was no death reported in this study but, the case-fatality rates published by numerous hospitals in Nigeria and other African countries, which ranged between 1% and 3%<sup>30,42</sup>.

### LIMITATION OF THE STUDY

The study was involved retrospective document review as all other retrospective document reviews this study faced with incomplete information, lost worn out cards and unreadable patient cards, gynecology registration book and operation room records. Details of socio demographic variables not addressed due to lack of documentation. Since the study is institution based, findings couldn't generalize the general population unlike prospective population based study.

### CONCLUSION

Since ectopic pregnancy remains a gynecological catastrophe in sub-Saharan African countries and a major challenge to the reproductive performance of women worldwide, it should be considered a relevant public health issue in Ethiopia.

Majority of patients attending Adigrat Hospital for ectopic pregnancy were between 25-29 years, from urban. Magnitude of Ectopic pregnancy is increasing with unfavorable maternal outcomes and mothers with history of genital tract infection, abortions and low parity were more affected. Ruptured EP is a true medical emergency which warrants Open abdominal surgery of (salpingectomy) with blood transfusion.

### RECOMMENDATION

Making motherhood safer time in women's live requires commitments at all levels, in home, in the community, in the health facility, in the country and at the international level.

#### ❖ Policy maker

Providing adequate materials, manpower and equipment of health facilities, as well as a prompt and efficient referral system, good access roads, and efficient transportation, important for early presentation in hospitals and prompt management of cases

#### ❖ Organization level

Mothers with history abortion PID and high parity warrants earlier careful ANC follow-up and advices to see health

institution for unspecified lower abdominal pain. Integrated screening and management of STI, health education for rational use contraceptives and clinicians high index of suspicion are the key tools to tackle the magnitude of EP before it causes catastrophe. There is the need to create and adapt a protocol for the diagnosis and management of ectopic pregnancy in the hospital. Tracing and integrated management sexually transmitted infection so as to reduce the incidence of pelvic infection and EP There is also the need to develop/improve the laboratory capacity for rapid serum HCG assay in evaluating any acute pelvic pain, suspected ectopic pregnancy especially during call hours.

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