

Clinical Profile of Ectopic Pregnancy in Karnali Province Hospital, Surkhet Nepal

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ABSTRACT

Background: Ectopic pregnancy (EP) is one of the major causes of preventable maternal death in the first trimester of pregnancy. The incidence of EP varies between 1 – 2 % worldwide. The main objective of this study is to explore the incidence, predisposing factors, clinical presentations, and approaches for the management of EP in Karnali Province Hospital (KPH), Nepal.

Methods: This is a retrospective study carried out in KPH between 14 April 2013 to 13 April 2018. Data were extracted from patients' admission files, discharge registers, and operation theatre (OT) notes. Data were then analyzed by SPSS version 26. Percentage, frequency, and interquartile range (IQR) were calculated and displayed in the tables and figures. Ethical approval was granted from hospital authority prior to the study.

Results: The incidence of ectopic pregnancy is found to be 0.33% in our study. The median age of the patient was 28 years and the median gestational age for ectopic was 8 weeks. The majority of patients were from Surkhet (70%) and Brahmin/Chhetri ethnicity (52.6%). Most cases were multigravida (80.7%). In this study, most the patients presented with abdominal pain (96.4%), amenorrhoea (96.4%), and vaginal bleeding (87.7%). The main predisposing factors of EP were a history of previous abortion (35.10%) and pelvic inflammatory diseases (PID) (21.10%). Most of the patients (87.7%) had undergone surgery for the treatment of EP.

Conclusion: In our study, the incidence of ectopic pregnancy is comparatively very low (0.33%). EP is found most common in multigravida and up to 10 weeks gestation of pregnancy. Previous abortion and PID were the most common predisposing factors. The main clinical presentations of EP were abdominal pain, amenorrhoea, and vaginal bleeding. Laparotomy was the main mode of treatment for EP in KPH.

Keywords: Ectopic pregnancy, Clinical presentations, Incidence, Predisposing factors.

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INTRODUCTION

Ectopic pregnancy (EP) is a life-threatening condition, where the fertilised ovum is implanted outside uterine cavity.¹ It can occur at any age in the reproductive period irrespective of parity. The most common site of embedding of fertilized ovum is the fallopian tubes: interstitial (2.4%), isthmic (12.0%), ampullary (70.0%), fimbrial (11.1%), but it may also rarely occur in the cervix, ovary or the abdominal cavity.² Globally, EP is a significant cause of maternal morbidity and one of the important causes of direct maternal mortality in early stage of pregnancy.³ Early diagnosis and prompt treatment can prevent maternal death. Although, there is significant decline in EP mortality since 1980s in United States, the age and race inequalities still exist.⁴ The incidence of EP is variable. A study conducted in Iran showed that the overall estimated incidence of EP was 2.6 per 1000 pregnancies.⁵ Up to 6% of total maternal mortality occurs due to the ruptured EPs.⁶ Many hospital-based studies in African countries have reported EP case fatality rates of around 1–3%, which is 10 times more than that reported in developed countries.⁷ Although tubal EP is diagnosed easily by ultrasound but diagnosis of non-tubal EPs is greatly challenging.⁸ Diagnosis of EP involves a combination of clinical symptoms, serology, and ultrasound.⁹

The real causes of EP are still not known, however, there are several predisposing factors such as pelvic inflammatory disease (PID), sexually transmitted diseases (STDs) and previous abortions,^{6,7,10-12} which contribute to poor reproductive performance amongst women of childbearing age.¹⁻⁴ A study revealed that in-vitro fertilization and embryo transfer (IVF-ET) was main risk factor of tubal EP along with traditional risk factors such as previous EP

and previous infertility.⁹ There is wide variation in clinical presentation of EP, depending upon the type (ruptured/ unruptured), site, gestational age and associated risk factors. Vaginal bleeding and abdominal pain are classic symptoms of ectopic pregnancy, which may cause maternal morbidity and accidental mortality in early pregnancy.^{6,7,10}

The management approach of EP, either surgical or medical is often guided by the site (tubal or non-tubal), type (ruptured / unruptured), severity and the condition of the patient. KPH is the main referral hospital in Karnali province where most of the complicated cases related to obstetrics and gynaecology are referred from all other districts. The aim of this study was to assess the incidence, risk factors, socio-demographic characteristics and management of EP in KPH Surkhet Nepal.

MATERIALS AND METHODS

A retrospective study was conducted at Karnali Province Hospital (formerly Mid-Western Regional Hospital) Surkhet, from 14 April 2013 to 13 April 2018. All women diagnosed EP during this period were included in the study. Data were extracted from the patient admission file, discharge register and from the operation theatre (OT) notes. All case files of the concerning patients were collected from medical record section and studied to obtain the required information. Data were then analyzed using a statistical package for social sciences (SPSS) version 26. Frequency, percentage and inter-quartile range (IQR) was calculated as appropriate and displayed in tables and figures. Data were collected by first author. Ethical approval of the study was received from the hospital authority prior to data collection.

RESULTS

Out of total 16865 deliveries, 57 were diagnosed EP admitted in KPH during the study period. The incidence of EP was 0.33%. Mean duration of hospital stay was four days (IQR: Three days – five days). Similarly, mean age of the patient was 28 years (IQR: 23 – 32 years). The majority patients were from Brahmin/Chhetri caste (52.6%) followed by Janajati (29.8%) and rest of other Dalit/minority caste (17.5%). Among the EP cases in KPH, most of them were from Surkhet district (70%) followed by Dailekh (17%), Jumla/Kalikot (7%) and Jajarkot/Salyan (2%). More details are given in figure 1.

The main predisposing factors of EP were previous abortion (35.10%) and pelvic inflammatory diseases (PID) (21.10%). The predisposing factors were not recorded in more than one-third cases (35%). The predisposing factors are shown in figure 2 below. The main clinical presentations were amenorrhoea (96.4%), abdominal pain (96.4%) and vaginal bleeding (87.7%). Clinical presentations were not seen in 3.50% cases. The clinical presentations are displayed in figure 3.

Table 1 displays the characteristics of women having EP such as gravida, gestational age, diagnostic investigations, haemoglobin level, blood loss, blood transfusion, risk factors and management including types of surgery provided. Mostly, women with multigravida (80.7%) and gestational age up to 10 weeks (96.4%) were diagnosed with EP. The mean age, mean gestational weeks and mean days of

hospital stay were 28 years, 8 weeks and four days respectively.

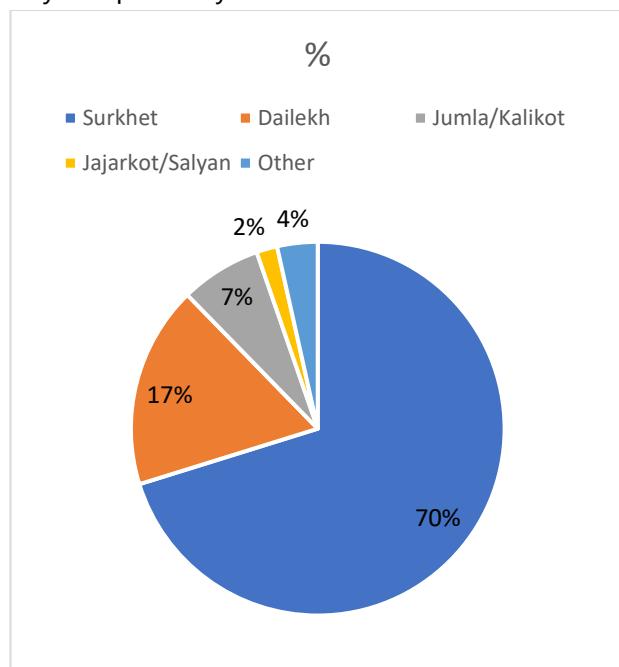


Figure 1: District-wise distribution of the EP cases in KPH

Urine beta-human chorionic gonadotropin (β -hCG)/(UPT) and ultrasound (USG) was used to diagnose EP along with clinical presentations. More than one-third of patients had lost half to 1 litre of blood and 27.3% had lost more than 1 litre. Most of the EP cases had laparotomy/surgery (87.7%), 28.1% had severe anaemia and 45.4% had blood transfusion. There were no mortality and major postoperative complications observed during this study. Specific information was missing in one case that had undergone surgery.

Abdominal pain, amenorrhoea and vaginal bleeding were the major clinical presentations of EP in our study. The clinical presentations of EP in our study were compared with other studies as shown below (Table 2).

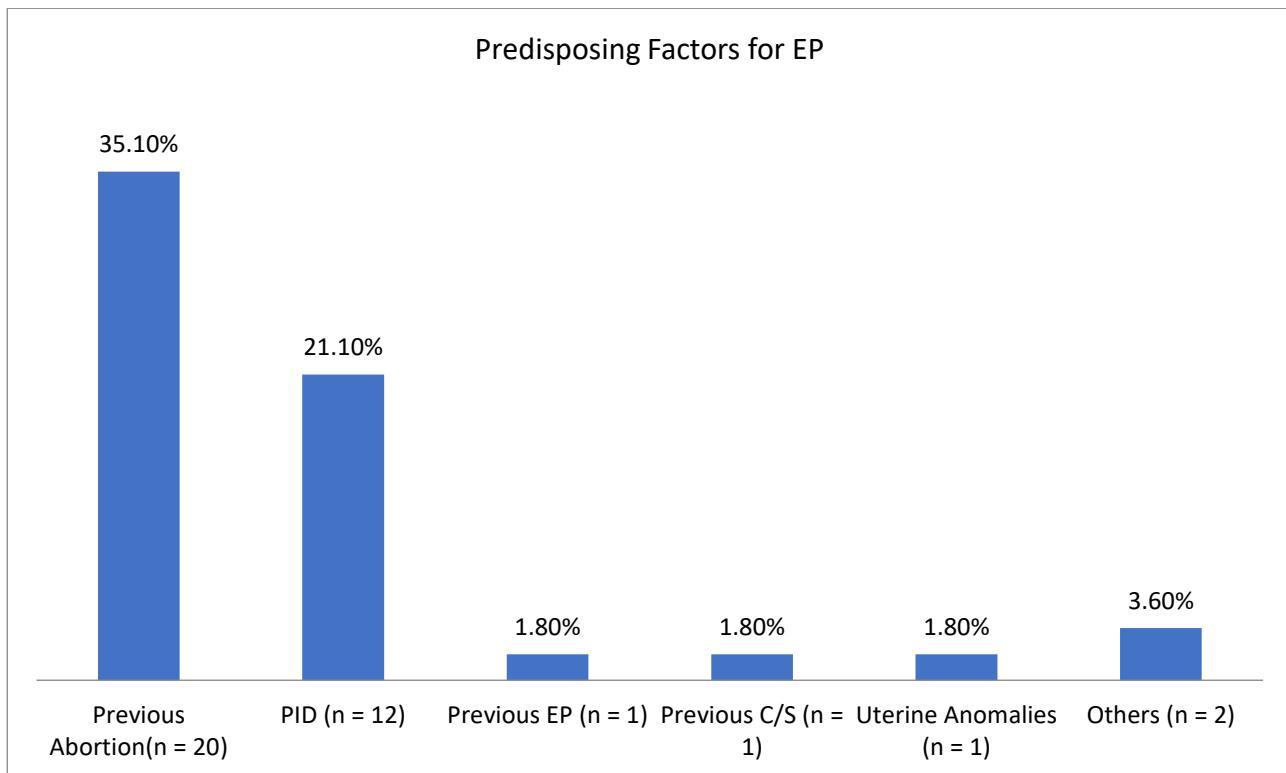
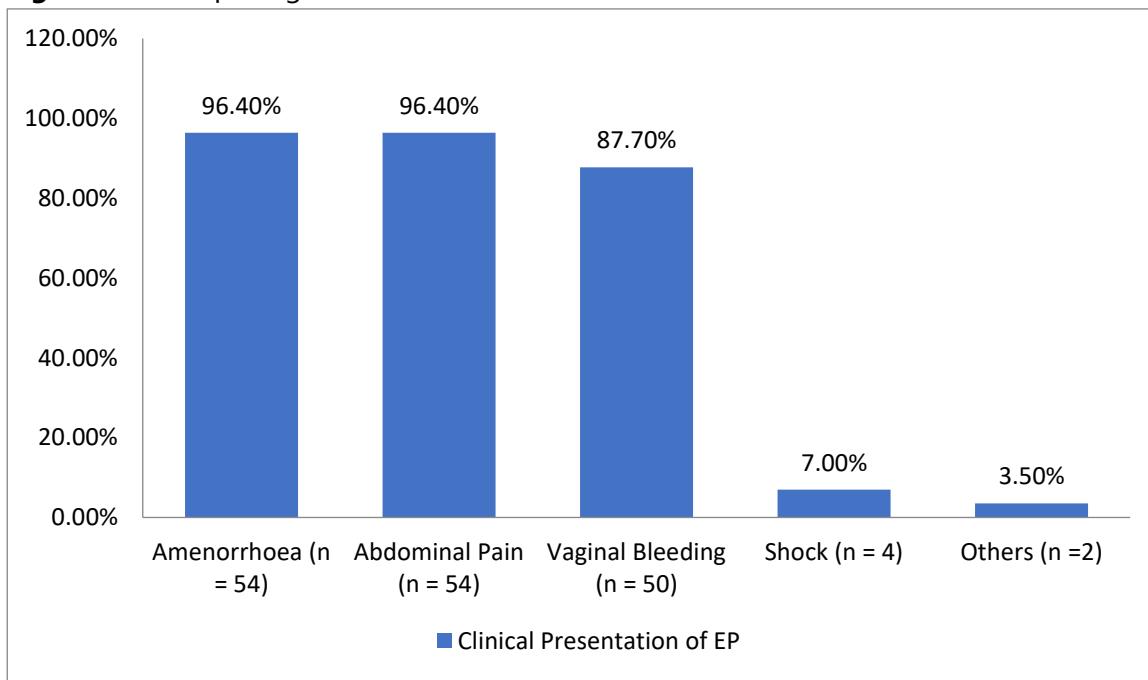
**Figure 2:** Predisposing factors of EP in KPH**Figure 3:** Clinical presentations of EP

Table 1: Distribution of maternal characteristics

Characteristics	Frequency	Percentage
Gravida		
Primi	11	19.3
Multi (2 or more)	46	80.7
Gestational age (in weeks)		
Up to 10 weeks	54	96.4
More than 10 weeks	2	3.6
	Mean - 8.00 wks (IQR : 6.25 wks – 8.75 wks) Minimum: 4 wks; Maximum: 12 wks	
Diagnostic Investigations (MRQ)		
Ultrasound	52	91.2
Urine β -hCG (UPT)	54	94.7
Haemoglobin level in gram%		
Severe anaemia (Hb \leq 7 gm%)	16	28.1
Normal/mild- mod anaemia (Hb > 7 gm%)	41	71.9
Blood loss (in ml) (n = 55)		
No blood loss	6	10.9
Up to 500 ml	14	25.5
500 ml to 1000 ml	20	36.4
More than 1000 ml	15	27.3
Blood transfusion (n = 55)		
Yes	25	45.5
No	30	54.5
Management		
Surgery/Laparotomy	50	87.7
Conservative/Observation	4	7.0
Refer	3	5.3
Type of surgery (n = 49)		
Right salpingectomy	28	57.1
Left salpingectomy	21	42.9

Table 2: Comparison of clinical presentations of EP with other studies

Study	Clinical Presentations			
	Abdominal pain	Amenorrhoea	Bleeding per vagina	Shock
Present study	96.4%	96.4%	87.7%	7%
Prasanna et al. ¹⁹	90%	96%	68%	18%
Spandana et al. ¹⁷	95.2%	90.5%	90.5%	-
Pradhan et al ¹³	100%	68.8%	78.6%	27.8%
Pradhan et al. ²⁰	94.4%	72%	58.3%	-
Poonam et al. ¹¹	69.3%	58.6%	45.3%	12%
Gurung et al. ¹⁴	98.9%	70.7%	58%	-

DISCUSSION

The incidence of EP is only 0.33% in our study which is very close to the incidence found in the study carried out by Gurung and Sharma¹⁰ in Manipal Teaching Hospital Pokhara (0.35%). Compared to other similar studies, it was found to be significantly low as in the studies conducted in BPKIHS by Poonam et al.¹¹ (0.93%) and in Western Regional Hospital by Regmi et al¹². (0.59%). The incidence of EP was observed around 1.5% in most of the studies. In a study conducted by Pradhan et al.¹³ in Kathmandu Model Hospital, the incidence of EP was 1.46%, whereas it was 1.50% and 1.60% in the studies carried out by Gurung et al.¹⁴ in IOM (Institute of Medicine) and by Bhuria et al.¹⁵ respectively. In studies conducted by Geovani et al.¹⁶ and Prasanna et al.¹⁷ reported the incidence of EP was 1.8%. There could be various reasons behind low incidence of EP in the present study. A poor recording and documentation of cases might be one of the possible reasons. Occasionally, similarities in clinical presentations of patients with other clinical conditions could miss the diagnosis of EP, especially in cases of PID, abortion complications, urinary tract infection (UTI), appendicitis, etc. in circumstances when specific investigations were not available.

The majority of patients were from the Surkhet district (70%). This difference in patient distribution between Surkhet district and other districts could be due to higher population density and easier accessibility to KPH. Additionally, a poor transportation system could be a major obstacle for people from other districts to access KPH. The majority of patients belonged to the *Brahmin/Chhetri* caste (52.6%) in our study. This correlates to the demographic composition of the province, as Brahmin/Chhetri has the occupancy of just over

50% of the provincial population. The mean age was 28 years (IQR: 23 – 32 years). It was comparable to the mean age of 28.79 years and 30.1 years in the studies conducted by Geovani et al.¹⁶ and Regmi R et al.¹² respectively. Some other studies also revealed similar findings, such as the study by Spandana et al.¹⁷ (26 – 30 years, 61.9%) and Ganitha et al.¹⁸ (20 – 30 years, 82%). Shoberini et al. also reported that >50% of women were aged 25 to 34 years.⁵

It was revealed that EP is more frequently observed in multigravida patients compared to nulliparous. The majority of patients who were multigravida experienced two or more pregnancies (80.7%). Only 19.3% of patients were nulliparous. It is comparable to the study carried out by Bhuria et al.¹⁵ in which nulliparous patients occupied 19.5% of total cases. Findings related to gravida/parity in our study were comparable to those of the studies conducted by Ganitha et al.¹⁸ (70% - multiparous), Spandana et al.¹⁷ (80.95% - multigravida), and by Prasanna et al.¹⁹ (84% - multigravida).

In this study, 96.4% EP cases were presented up to 10 weeks gestational age. The median gestational age was 8 weeks. It was comparable to the mean gestational age of 6.9 weeks in a study by Pradhan et al.²⁰ Duration of hospital stay in EP depends upon the severity, presence of complications, treatment approach, and co-existence of risk factors. In our study, the mean hospital stay was 4 days. This was similar to the studies conducted by Pradhan et al.²⁰ (5 days) and Regmi et al.¹² (6.1 days). Laparoscopic surgery was not available in KPH during the study period which could significantly influence the hospital stay.

Apart from the history and clinical evaluation, a USG and UPT were performed to conclude the diagnosis of EP. UPT was positive

in 96.4% cases, whereas 92.8% cases had an USG with findings supportive for EP. Blood grouping and haemoglobin (Hb) level of the patients were also analysed during admission in the hospital. About one third cases (28.1%) had severe anaemia (Hb level of 7 gm% or less). In the present study, previous abortion (35.1%) was the major predisposing factor followed by PID (21.1%). Previous abortion was one of the major risk factors occurring in 38.6%, 18.7% and 18.5% cases in the studies carried out by Poonam et al.¹¹ Spandana et al.¹⁷ and Gurung et al.¹⁴ respectively. PID, infertility/subfertility, previous tubal surgery, previous ectopic, previous caesarean section were other risk factors frequently observed in many studies.^{18,19}

Although various amounts of blood loss was observed in majority of cases during laparotomy, there was no blood loss in few cases of unruptured EP. In our study, 25.5% patients had blood loss of 500 ml or less and 36.4% of patients lost more than 500 ml to 1000 ml. A significant number of patients (27.3%) had greater amount of blood loss, more than 1000 ml. In a study conducted in WRH, by Regmi et al.¹² 39.5% patients had blood loss of 500ml to 1000 ml and 55.8% patients had more than 1000 ml of blood loss. Similarly, in another study conducted in Kathmandu Model Hospital by Pradhan et al.¹³ 34.4% patient had less than 500 ml, 18% had a loss between 500 – 1000 ml whereas majority (47.5%) had a loss of more than 1000 ml of blood. In the study by Gurung et al.¹⁴ 34.6% patients had blood loss of less than 500 ml and same number (34.6%) of patients had a loss between 500 ml to 1000 ml while only 30.7% patients had blood loss more than 1000 ml. The need of blood transfusion depends on the patient's condition, level of Hb and amount of

blood loss. In our study, 45.5% patients received blood transfusion. The study conducted by Poonam et al.¹¹ in BPKIHS, majority (70.6%) of patients required transfusion. Similarly, in studies conducted by Pradhan et al. and Spandana et al.¹⁷ 54.0% and 61.9% of patients received blood respectively.

The three main approaches of management of EP – laparotomy, laparoscopy and medical management with methotrexate – are currently in practice. The majority of patients require surgical interventions (laparotomy) as a lifesaving procedure. In our study, 87.7% of patients had laparotomy and among them, 98% had salpingectomy. All (100%) patients underwent laparotomy in studies conducted by Regmi et al.¹² in WRH, Kaur et al.²¹ in Lumbini Medical College, and Gharoro et al.²² in Benin Teaching Hospital Nigeria. Many studies reported that salpingectomy was performed following laparotomy such as in the studies by Regmi et al.¹² (100%), Poonam et al.¹¹ (69.3%), Kaur et al.²¹ (82.3%), Pradhan et al.¹³ (70.49%) and the study by Gharoro et al.²² However, specific information was missing in one case who undergone surgery due to poor recording.

The laparoscopic approach of surgery and the medical management with Methotrexate were not available in KPH during the study period. Very few patients were managed conservatively who were suspected of chronic organized ectopic with no deterioration during admission and not willing for surgical exploration.

CONCLUSION

The incidence of EP in this study is found to be low (0.33%). In this study, EP is found to be most common in women with multigravida (80.7%), up to 10 weeks gestation (96.4%).

Similarly, majority of EP cases were found to be from Brahmin/Chhetri (52.6%) ethnicity and women residing in Surkhet district (70%). The mean age of patients for EP was 28 years. Among various predisposing factors, most common were previous abortion (35.1%) and PID (21.1%). Main clinical presentations of EP were abdominal pain (96.4%), amenorrhoea (96.4%) and vaginal bleeding (87.7%). Diagnosis of EP was carried out mainly by clinical evaluation, USG and UPT. The management for EP in KPH was done mainly by laparotomy (87.7%) followed by salpingectomy. Although, EP is a fatal condition, however, no maternal death due to EP was reported during this study. Hospital

recording system needs to be improved and more studies have to be conducted to better understand the trend and consequences of EP in KPH.

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