



# Laparoscopic Management of Ectopic Pregnancy: Study of 128 Cases Collected from 2013 to 2023 at the Biasa Clinic, Togo

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**How to cite this paper:** Kambote, Y., Bantigre, T., Kolani, K., Koffi, N.M.K., Logbo-Akey, K.E., Ajavon, D.R., Tongou, P., Amewouho, K.M., Lare, S., Douaguibe, B., Moïse, K. and Aboubakari, A.-S. (2025) Laparoscopic Management of Ectopic Pregnancy: Study of 128 Cases Collected from 2013 to 2023 at the Biasa Clinic, Togo. *Open Access Library Journal*, 12: e14491.

<https://doi.org/10.4236/oalib.1114491>

**Received:** October 23, 2025

**Accepted:** November 23, 2025

**Published:** November 26, 2025

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## Abstract

**Objective:** To describe the diagnostic, therapeutic, and prognostic aspects of the laparoscopic management of ectopic pregnancy (EP) at the BIASA clinic.

**Methodology:** Descriptive retrospective study on the coelioscopic management of ectopic pregnancy carried out from January 1, 2013, to December 31, 2023, at the BIASA Clinic, a period of 11 years. **Result:** Over a period of 11 years, 4015 pregnancies were recorded, and 130 cases of EP were treated, among which 128 were treated by laparoscopy, *i.e.*, 98.5% of EPs. The incidence of EP was 3.24% of pregnancies and 3.2% for those treated by laparoscopy. The average age of the patients was 31 years. The most common risk factors were a history of abdominopelvic surgery (31.3%), a history of recurrent upper genital infection (28.2%), contraception with IUD TCu380A (16.4%), and a history of EP (14.1%). Clinically, pelvic pain (67.2%), metrorrhagia (82.8%), and the clinical triad (45.3%) were the main signs of EP. There was a correlation between the site of the ectopic pregnancy and the procedure ( $p = 0.000$ ), the site of the ectopic pregnancy and the duration of the procedure ( $p = 0.005$ ), and the duration of hospitalization and the site of the ectopic pregnancy ( $p = 0.000$ ). Ultrasound was performed in all patients. Salpingectomy was the most commonly used procedure (78.9%), followed by salpingotomy (19.5%). Maternal morbidity was not negligible, with 40% of patients receiving a transfusion. **Conclusion:** The study identified key risk factors, including prior abdominopelvic surgery, STIs, use of intrauterine devices, and prior ectopic pregnancy. Salpingectomy was the preferred treatment option. The study provides sufficient evidence that laparoscopy can mitigate maternal complications and reduce

mortality rates.

## Subject Areas

Coelioscopy, Ectopic Pregnancy, BIASA Clinic

## Keywords

Gynecology & Obstetrics

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## 1. Introduction

Ectopic pregnancy (EP) is the implantation and development of the egg outside the uterine cavity [1]. It is a common medical-gynecological emergency and the main cause of maternal mortality in the first trimester, with an incidence of 5% to 10% of maternal deaths [2]. According to the World Health Organization (WHO), the incidence of EP varies between 2% and 2.5% of pregnancies. EP is observed in 2.46% of pregnancies in India and 2.99% of pregnancies in Germany [3] [4]. In South Africa, a study reported an incidence of 2.2% of EP [5]. In Chad in 2015, a study found an incidence of 2.41% of EP [6]. It is a multifactorial pathology. Its frequency has increased in recent years due to the increase in risk factors, including tubal lesions, intrauterine device (IUD) use, smoking, assisted reproductive technologies (ART), pelvic inflammatory diseases, pelvic surgery, and a history of ectopic pregnancy [3] [7]-[9]. In some cases, no factors are found [10] [11]. The diagnosis of ectopic pregnancy is suspected on clinical examination and confirmed by the combination of plasma levels of human chorionic gonadotropin ( $\beta$ -hCG) and pelvic ultrasound. In Togo, a study conducted in a rural setting noted that 100% of patients treated for ectopic pregnancy in an emergency situation had a tubal rupture [12].

The functional prognosis, particularly fertility, is often compromised. It is associated with high maternal morbidity and mortality, representing 12.5% of maternal deaths [13]. Of variable anatomical location, the ampullary tubal location is the most frequent, with an incidence of 91.5% [14]. Treatment is medical with the use of methotrexate and/or surgical, particularly by laparotomy, laparoscopy, or coelioscopy; but the expectant method can be used [1] [15]. The invention of coelioscopy in 1944 by Raoul Palmer revolutionized the approach to diagnosis and treatment, reducing the morbidity and mortality of the pathology [16]. Nowadays, coelioscopy remains the reference for the diagnosis and treatment of ectopic pregnancies without hemodynamic instability, but also in case of failure of medical treatment. It has become the safest means in the management of EPs [17]-[19].

The adoption rate of laparoscopy in developed countries has been rapid, while it has been slow in developing countries. In Togo, the implementation of laparoscopy was late [20]. The BIASA clinic was the first to have implemented a laparoscopy unit since its inception in 1984. Despite these twenty years of laparoscopy

practice in Togo, few data are available. We undertook this study to document the management of ectopic pregnancy in private health facilities in Togo, particularly at the BIASA clinic. This study aimed to:

General objective: to describe the laparoscopic management of ectopic pregnancy at the BIASA clinic.

Specific objectives

- Determine the socio-demographic characteristics of patients.
- Determine the epidemiological profile of ectopic pregnancy.
- Describe the diagnostic aspects of ectopic pregnancy.
- Describe the laparoscopic management of ectopic pregnancy.
- Determining the prognosis of ectopic pregnancy treated by laparoscopy

## 2. Framework and Method of Study

Our study took place in the gynecology-obstetrics department of the clinic.

BIASA, the first diagnostic/operative endoscopy and fertility center in Togo since 1984.

### 1) Type and period of study

This was a case series study of ectopic pregnancy conducted at the BIASA clinic from January 1, 2013 to December 31, 2023, *i.e.*, over a period of eleven (11) years.

### 2) Inclusion criteria

All patients diagnosed with ectopic pregnancy and who were treated at the clinic during the study period were included in this study

### 3) Exclusion criteria

All patients in whom the diagnosis of ectopic pregnancy was made and not confirmed by the hCG-ultrasound combination or by laparoscopy

### 4) Data extraction

A survey form (Appendix 1) was created for data collection. This was carried out through a document review, including: the patients' medical records, the operating room registers and the maternity records.

Data entry, processing, and analysis were performed using Microsoft Word on Windows 11 and the Statistical Package for the Social Sciences (SPSS) version 25. Figures and tables were created with Microsoft Office Excel 2016. The statistical test used was the Chi-squared test to examine associations between qualitative variables. The significance level was set at 5%.

### 5) Ethical considerations

Before conducting this study, we first obtained research authorization from the management of the BIASA clinic. The data collected were kept confidential and anonymous for all patient records.

## 3. Results

### 3.1. Frequency of Ectopic Pregnancy

During the study period, 4015 cases of pregnancy were recorded, including 130 cases of confirmed ectopic pregnancy, representing 3.24% of pregnancies. Among

the 130 cases of ectopic pregnancy, 128 cases were managed by laparoscopy, representing 3.2% of pregnancies and 98.5% of ectopic pregnancies. **Table 1** below shows the annual frequency of ectopic pregnancy managed by laparoscopy.

**Table 1.** Distribution of patients according to the annual frequency of ectopic pregnancies.

	Effective	Percentage
2013	08	6.3
2014	12	9.4
2015	11	8.6
2016	09	7.0
2017	15	11.7
2018	09	7.0
2019	12	9.4
2020	15	11.7
2021	09	7.0
2022	13	10.2
2023	15	11.7
Total	128	100.0

## 3.2. Socio-Demographic Data

### 3.2.1. Age of Patients

The mean age of the patients was  $31.0 \pm 5.6$  years, with extremes of 18 and 45 years.

Seventy-one patients, or 54.6% of the patients, were in the 26-35 age group.

### 3.2.2. Education Level and Occupation

Most of the patients were educated: secondary level (27.3%) and university level (27.3%).

They were civil servants (40.6%) or self-employed (39.1%). Housewives represented 15.6%.

## 3.3. Background

### 3.3.1. Obstetric History

Pauci-gestures and pauci pares were found in 64.8% and 39.8% of cases, respectively. Abortions were found in 27.3% of patients, including 14.8% for miscarriages and 12.5% for induced abortions (**Table 2**).

### 3.3.2. Risk Factors

Previous pelvic surgery (salpingectomy, cesarean section, and appendectomy) and high genital infection (infection of the uterus and their appendages) were the most common risk factors encountered in 31.3% and 28.2% of patients, respectively (**Table 3**). The concept of marital infertility (inability of a couple to conceive

**Table 2.** Distribution of patients according to obstetric history.

	Effective	Percentage
Induced abortion	16	12.5
History of ectopic pregnancy	18	14.1
Miscarriage	19	14.8
<b>Gesture</b>		
Large multi-gesture	2	1.6
Multi-gesture	19	14.8
Primigravida	26	20.3
Paucigest	83	64.8
<b>Parity</b>		
Primiparous	36	28.2
Nulliparous	43	33.6
Pauciparous	51	39.8

**Table 3.** Distribution of patients according to risk factors.

	Effective	Percentage
Tobacco	3	2.3
Clomiphene ovulation induction	3	2.3
Concept of marital infertility	17	13.3
History of ectopic pregnancy	18	14.1
<b>History of pelvic surgery</b>	<b>40</b>	<b>31.3</b>
Concept of high genital infection	36	28.2
<b>Contraceptive method</b>		
<b>Intrauterine device (IUD)</b>	<b>21</b>	<b>16.4</b>
Pill	7	5.5
Implant	3	2.3

after 12 months of regular sexual intercourse without contraception) represented 13.3%.

### 3.4. Diagnostic Aspects

#### 3.4.1. Gestational Age

The date of the last menstruation was known in 76.6% of patients.

The mean gestational age was 6 weeks + 6 days  $\pm$  2 weeks + 4 days, with extremes of 2 weeks + 2 days and 22 weeks.

The triad of amenorrhea-metrorrhagia-pelvic pain was found in 45.3% of patients. Furthermore, the main symptom was first-trimester hemorrhage (82.8%),

followed by pelvic pain (67.2%).

### 3.4.2. Paraclinical Data

Biologically, the dosage of  $\beta$  hCG was qualitative (urine pregnancy test) in 98.4% and quantitative in 60.2% of patients.

On ultrasound, the uterus was empty in 87.5% of patients, with visualization of a gestational sac containing a pulsatile embryo in 24.2% of patients. In addition, intra-abdominal fluid effusion was found in 66.4% of patients.

## 3.5. Therapeutic Aspects

### 3.5.1. Preoperative Assessment

All patients had preoperative biological assessments, including complete blood count (CBC), blood urea, blood creatinine, blood glucose, prothrombin time (PT), and activated partial thromboplastin time (APTT).

### 3.5.2. Surgical Treatment

Of the 128 patients, laparoscopy was performed in 126, or 98.4%. Laparoscopy was converted to laparotomy in 2 cases, or 1.54%. The criterion for conversion to laparotomy was: abundant hemoperitoneum with a state of hemodynamic shock.

### 3.5.3. Location of the EP

The location of the ectopic pregnancy was tubal in 98.4%, of which 77.4% were ampullary (**Table 4**).

The tube was swollen in 82.0% of patients and tense in 63.3% of cases. One hundred and six (106), or 82.8%, had a fissure; 11.7% had a rupture, and 3.9% had a tubo-abdominal abortion.

**Table 4.** Distribution of patients according to the location of the ectopic pregnancy.

	Effective	Percentage
Abdominal	2	1.6
Infundibular	4	3.1
Interstitial	4	3.1
Isthmian	19	14.8
<b>Ampullary</b>	<b>99</b>	<b>77.4</b>
Total	128	100

### 3.5.4. Pelvic Condition

The pelvis was normal in 105 patients (82.0%) and adherent in 21 patients (16.4%).

The uterus was soft in 45.6% and globular in 38.3% of patients, as shown in **Table 5**.

### 3.5.5. Blood Loss in Milliliters

The mean blood loss volume of the patients was  $699.7 \pm 813.7$  ml, with extremes of 30 and 3500 ml.

**Table 5.** Distribution of patients according to the state of the uterus.

	Effective	Percentage
<b>Shape</b>		
Unicornuate uterus	1	0.8
<b>Globular uterus</b>	<b>49</b>	<b>38.3</b>
Normal uterus	35	27.3
<b>Appearance</b>		
Myomatous uterus	21	16.4
Adenomyotic uterus	19	14.8
Adhesive uterus	6	4.7
Pelvic endometriotic lesions	3	2.3
<b>Soft uterus</b>	<b>57</b>	<b>44.5</b>
<b>Content</b>		
<b>Pseudo intrauterine sac</b>	15	11.7
Intrauterine pregnancy	1	0.8

### 3.5.6. Surgical Procedures

Salpingectomy was performed in 78.9% of patients, and 19.5% of patients underwent antimesial salpingotomy (Table 6).

**Table 6.** Distribution of patients according to the intraoperative procedure.

	Staff	Percentage
<b>Salpingectomy</b>	<b>101</b>	<b>78.9</b>
<b>Salpingotomy</b>	<b>25</b>	<b>19.5</b>
Excision	2	1.6
Total	128	100

### 3.5.7. Duration of the Intervention

The mean duration of the interventions was  $64.3 \pm 26.0$  minutes, with extremes of 20 and 146 minutes.

## 3.6. Prognostic Aspects

Twenty-seven (27) or 21.1% of patients presented with hemorrhagic shock. All patients received a blood transfusion. The mean initial hemoglobin level was  $10.10 \pm 1.6$  g/dl, with extremes of 5.6 and 13.6 g/dl.

The average length of hospitalization of the patients was  $1.9 \pm 1.2$  days, with extremes of 12 hours and 7 days.

## 3.7. Analytical Data

### 3.7.1. Relationship between the Location of the Ectopic Pregnancy and the Length of Hospitalization

The location of the ectopic pregnancy was a factor associated with the duration of

hospitalization ( $p = 0.000$ ).

All patients who had an abdominal ectopic pregnancy in our series stayed in the hospital for more than 5 days (**Table 7**).

**Table 7.** Relationship between the *location* of the ectopic pregnancy and the length of hospitalization.

	Length of hospitalization				Total
	]1 - 2 days]	[3 - 4 days]	[5-6 days]	]6 - 7 days]	
<b>Ampullary</b>	51 (51.5)	43 (43.4)	1 (1,0)	4 (4.0)	99 (100.0)
<b>Isthmian</b>	10 (52.6)	9 (47.4)	0 (0,0)	0 (0,0)	19 (100.0)
<b>Infundibular</b>	1 (25.0)	3 (75.0)	0 (0,0)	0 (0,0)	4 (100.0)
<b>Abdominal</b>	0 (0,0)	0 (0,0)	0 (0,0)	2 (100.0)	2 (100.0)
<b>Interstitial</b>	3 (75.0)	1 (25.0)	0 (0,0)	0 (0,0)	4 (100.0)
<b>Total</b>	65 (50.8)	56 (43.8)	1 (0.8)	6 (4.7)	128 (100.0)

$\text{Chi}^2 = 48.174$  at  $p = 0.000$ .

### 3.7.2. Relationship between the Location of the Ectopic Pregnancy and the Surgical Procedure

There is a significant correlation between the location of the ectopic pregnancy and the surgical procedure ( $p = 0.000$ ) (**Table 8**).

**Table 8.** Relationship between the location of the ectopic pregnancy and surgical procedure.

	Salpingectomy	Salpingotomy	Excision	Total
Ampullary	81 (81.8)	18 (18.2)	0 (0.0)	99 (100.0)
Isthmian	15 (78.9)	4 (21.1)	0 (0.0)	19 (100.0)
Infundibular	1 (25.0)	3 (75.0)	0 (0.0)	4 (100.0)
Abdominal	0 (0.0)	0 (0.0)	2 (100.0)	2 (100.0)
Interstitial	4 (100.0)	0 (0.0)	0 (0.0)	4 (100.0)
Total	101 (78.9)	25 (19.5)	2 (1.6)	128 (100.0)

$\text{Chi}^2 = 128.250$  at  $p = 0.000$ .

### 3.7.3. Relationship between the Location of the EP and the Duration of the Intervention

Patients with abdominal ectopic pregnancy in our series had a longer operating time ( $p = 0.005$ ), with a time greater than 75 minutes as illustrated in **Table 9**.

**Table 9.** Relationship between the location of the EP and the duration of the intervention

	Intervention duration (minutes)					Total
	≤30	30 - 45	45 - 60	60 - 75	>75	
Ampullary	1 (1.0%)	24 (24.2)	38 (38.4)	10 (10.1)	26 (26.2)	99 (100.0)

**Continued**

Isthmian	2 (10.5)	6 (31.6)	6 (31.6)	1 (5.3)	4 (21.0)	19 (100.0)
Infundibular	0 (0.0)	2 (50.0)	2 (50.0)	0 (0.0)	0 (0.0)	4 (100.0)
Abdominal	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)	2 (100.0)
Interstitial	1 (25.0)	2 (50.0)	1 (25.0)	0 (0.0)	0 (0.0)	4 (100.0)
<b>Total</b>	<b>4 (3.1)</b>	<b>34 (26.6)</b>	<b>47 (36.7)</b>	<b>11 (8.6)</b>	<b>32 (25.0)</b>	<b>128 (100.0)</b>

Chi<sup>2</sup> = 43.277 at p = 0.005.

**3.7.4. Relationship between Surgical Procedure and Blood Loss**

Blood loss was not dependent on the surgical procedure (p = 0.100) (**Table 10**).

**Table 10.** Relationship between surgical procedure and blood loss.

	<1000	1000 - 2000	2000 - 3000	≥3000	Total
Salpingectomy	78 (77.2)	18 (17.8)	5 (5.0)	0 (0.0)	101 (100.0)
Salpingotomy	23 (92.0)	1 (4.0)	1 (4.0)	0 (0.0)	25 (100.0)
Excision	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)	2 (100.0)
<b>Total</b>	<b>101 (78.9)</b>	<b>19 (14.8)</b>	<b>6 (4.7)</b>	<b>2 (1.6)</b>	<b>128 (100.0)</b>

Chi<sup>2</sup> = 23.534 at p = 0.100.

**3.7.5. Relationship between Seat and Blood Loss**

The location of the ectopic pregnancy was not a factor associated with blood loss (p = 0.168) (**Table 11**).

**Table 11.** Relationship between the location of the ectopic pregnancy and blood loss.

	<1000	1000 - 2000	2000 - 3000	≥3000	Total
Ampullary	78 (78.8)	17 (17.2)	3 (3.0)	1 (1.0)	99 (100.0)
Isthmian	17 (89.5)	1 (5.3)	1 (5.3)	0 (0.0)	19 (100.0)
Infundibular	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (100.0)
Abdominal	0 (0.0)	0 (0.0)	1 (50.0)	1 (50.0)	2 (100.0)
Interstitial	2 (50.0)	1 (25.0)	1 (25.0)	0 (0.0)	4 (100.0)
<b>Total</b>	<b>101 (78.9)</b>	<b>19 (14.8)</b>	<b>6 (4.7)</b>	<b>2 (1.6)</b>	<b>128 (100.0)</b>

Chi<sup>2</sup> = 20.113 at p = 0.168.

**3.7.6. Relationship between Procedure Time and Blood Loss**

There was no correlation between the duration of the intervention and blood loss (p = 0.258) (**Table 12**).

**Table 12.** Relationship between duration of intervention and blood loss.

	< 1000	1000 - 2000	2000 - 3000	≥3000	Total
≤30	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (100.0)

**Continued**

30 - 45	29 (87.9)	4 (12.1)	0 (0.0)	0 (0.0)	33 (100.0)
45 - 60	34 (73.9)	10 (21.3)	2 (4.3)	0 (0.0)	46 (100.0)
60 - 75	7 (58.3)	1 (8.3)	3 (25.0)	1 (8.3)	12 (100.0)
>75	27 (81.8)	4 (27.6)	1 (10.30)	1 (6.9)	33 (100.0)
Total	101 (71.6)	19 (12.1)	6 (18.2)	2 (6.1)	128 (100.0)

Chi<sup>2</sup> = 10.871 at p = 0.258.

## 4. Discussion

### 4.1. Frequency

During the study period, the frequency of ectopic pregnancies was 3.24% of pregnancies. This result is similar to those of Jacob *et al.* in a retrospective study in Germany, and Archana *et al.* in India, who each found 3% [3] [20]. On the other hand, Gueye *et al.* and Alsadi *et al.* found 7.2% and 18% respectively [21] [22]. The result of our study is higher than those of Al Naimi *et al.* and Bangambe *et al.*, who found 1.05% and 1.56% respectively [23] [24]. Our result is explained by the fact that the Biosa clinic is a private center sometimes limited to low-income patients. These are generally women with liberal functions in our circles (resellers, hairdressers, and seamstresses). The reputation and prices of the center can influence attendance due to the absence of health insurance covering care for all as Mutiso reported in his study in Kenya in Eastern Africa [25].

### 4.2. Socio-Demographic Characteristics

The average age was 31 years, with extreme ages of 18 years and 45 years in our study. Our results are similar to those in the literature, notably Jacob *et al.* (31.4 years), Houda, Huttler *et al.* (30 years) [3] [22] [26].

The age group 25-35 years was predominant in our study. Eke *et al.*, Assouni *et al.*, Devi *et al.*, Zohasinanahary, Sefogah *et al.* reported the same results [27] [28] This is the period of genital activity and thus provides risk factors for ectopic pregnancy.

### 4.3. Gyneco-Obstetric History and Risk Factors

In our study, 27.3% had had at least one abortion, including 12.5% induced abortions. Since abortion is not authorized in Togo under the new penal code and the public health code, it is therefore carried out clandestinely and in septic conditions with no respect for hygiene. This could promote the occurrence of infections (salpingitis) which cause tubal abnormalities.

In our series, 76.6% of patients knew the date of their last period. The average age of pregnancy was 6 weeks and 6 days  $\pm$  2 weeks and 4 days, with extremes of 2 weeks and 2 days and 22 weeks. The same observation was made by Leporaka, who found that 87.80% of patients knew their last period (LPR), with the majority of patients having a gestational age between 6 weeks and 10 weeks [29]. Similarly,

Meriyam found that 65% of patients knew their LPR, with 95% of patients having a LPR between 5 weeks and 10 weeks [30]. Also, Archana *et al.* found 72.5% of patients having a LPR between 6 weeks and 8 weeks [20]. We find that the more educated the patients are, the more they are able to give their LPR. Also, from these different results, we can affirm that approximately 5% to 25% of patients are able to present an ectopic pregnancy without reporting amenorrhea.

The notion of contraception was found in 24.3% of patients, with IUD predominance (16.4%) in our series. The use of IUDs not coordinated with dual protection can be a source of genital infection, which is a risk factor for ectopic pregnancy. Essiene *et al.*, Leporaka, and Patel *et al.* found results close to ours, respectively, 18.2%; 12.19%, and 12.2% of IUD [29] [31] [32].

In our series, the notion of genital infection was present in 28.2% of patients. All were positive for chlamydia. This result is similar to that of Zohasinanahary, Houda, and Suliman *et al.*, who found, respectively, 22.23%, 30%, and 29.3% [22] [33] [34].

On the other hand, Essiene, Mousa and Traoré and al found significantly high rates of genital infection in their series. They noted, respectively, 63.6%; 70.97%; and 75.9% [31] [35] [36].

Our results are consistent with those reported in the literature. Since upper genital tract infections are strongly linked to the occurrence of ectopic pregnancies, avoidance or adequate treatment of STIs is essential to reduce the occurrence of ectopic pregnancies. Chlamydia is an infection with high tubal affinity and causes major lesions there.

History of abdominopelvic surgery as reported by several authors [20] [37] [38] in this case, tubal surgery and cesarean section are determining factors in the occurrence of EP.

#### 4.4. Clinical and Paraclinical Data

In our study series, pelvic pain and metrorrhagia were at the forefront, with the triad of pelvic pain-amenorrhea-metrorrhagia being present in 45.3% of patients. Several reviews report the same data [27] [30] [36] [39] [40].

The various results show that the more complete the clinical picture, the more complications set in. It is wise to seek paraclinical help to make a decision in the event of a suspected ectopic pregnancy in the presence of one of the signs of the clinical triad: urinary beta hCG levels and pelvic ultrasound.

Tubal pregnancy is generally the most frequent [30] [41], especially in its ampullary form.

#### 4.5. Therapeutic Aspects

Rupture of the ectopic pregnancy was found in 11.7% of patients during our study. Bamba reported 87% of ruptures of the ectopic pregnancy [38].

In our series, treatment was surgical, with 7.8% receiving additional treatment with methotrexate. Laparoscopy was the initial method in 100% of cases. Radical

treatment was the most common, at 78.9% versus 19.5% with conservative treatment.

Our results corroborate those of Leporaka, Meriyam *et al.*, who reported, respectively, 81%, 98.5% of radical treatment [29] [30].

Houda *et al.*, Song *et al.* reported 80% and 86% of conservative treatment [22]. This gives a better chance of subsequent fertility, but the per-coelioscopic procedure depends on the condition of the injured tube.

Surgical treatment is prioritized due to the delay in diagnosis in our countries, but also because few are able to adhere to medical treatment protocols.

There was a significant correlation between the location of the ectopic pregnancy and the surgical procedure, as in Mouhamadou *et al.* in peripheric hospital in Senegal [42]. There was also a correlation between the location of the ectopic pregnancy and the duration of the procedure. The differences in methods and means of access are due to the unavailability of laparoscopic columns in Africa, and particularly in Togo, which only has them in the capital on the one hand, and also to the lack of training of specialists in this field. The difference in the choice of surgical procedure is linked to the lesion on the one hand, but also to the desire for subsequent fertility of the patients.

#### 4.6. Prognostic Aspects

In our series, the postoperative course was straightforward and we did not note any postoperative complications. The hospital stay was short, but also depended on the location of the ectopic pregnancy. Mutiso S *et al.* and Suliman *et al.* [25] [35] reported the same data.

Laparoscopy offers a reduced stay with a minimization of complications compared to laparotomy. Monitoring patients' subsequent fertility is often difficult in our settings, thus hindering long-term care.

### 5. Conclusion

The study identified key risk factors, including prior abdominopelvic surgery, STIs, use of intrauterine devices, and prior ectopic pregnancy. Salpingectomy was the preferred treatment option. The study provides sufficient evidence that laparoscopy can mitigate maternal complications and reduce mortality rates.

### Conflicts of Interest

The authors declare no conflicts of interest.

### References

- [1] Courbière, B. and Carcopino, X. (2023) Obstetrics and Gynecology IKB. Vernazobres-Gregg, 770.
- [2] Mullany, K., Minneci, M., Monjazeb, R. and C. Coiado, O. (2023) Overview of Ectopic Pregnancy Diagnosis, Management, and Innovation. *Women's Health*, **19**. <https://doi.org/10.1177/17455057231160349>

- [3] Jacob, L., Kalder, M. and Kostev, K. (2017) Risk Factors for Ectopic Pregnancy in Germany: A Retrospective Study of 100,197 Patients. *GMS German Medical Science*, **15**, 000260.
- [4] Kathpalia, S.K., Arora, D., Sandhu, N. and Sinha, P. (2018) Ectopic Pregnancy: Review of 80 Cases. *Medical Journal Armed Forces India*, **74**, 172-176. <https://doi.org/10.1016/j.mjafi.2016.11.004>
- [5] Nzaumvila, D.K., Govender, I. and Ogunbanjo, G.A. (2018) An Audit of the Management of Ectopic Pregnancies in a District Hospital, Gauteng, South Africa. *African Journal of Primary Health Care & Family Medicine*, **10**, a1757. <https://doi.org/10.4102/phcfm.v10i1.1757>
- [6] Madoue, G.B., Kolomso, D., Saleh, A., Tchari, A. and Wilfried, I.S.R. (2015) Ectopic pregnancy: Epidemiological Aspects and Maternal Prognosis at the District Hospital of N'djamena South (Chad). *Kisangani Médical*, **6**, 111-116.
- [7] Capmas, P.G. (2015) Comparison of Different Strategies for Managing Ectopic Pregnancy. Ph.D. Thesis, Université Paris Sud—Paris XI. <https://theses.hal.science/tel-01174683>
- [8] Taran, F., Kagan, K., Hübner, M., Hoopmann, M., Wallwiener, D. and Brucker, S. (2015) The Diagnosis and Treatment of Ectopic Pregnancy. *Deutsches Ärzteblatt international*, **112**, 693-704. <https://doi.org/10.3238/arztebl.2015.0693>
- [9] Fan, Y., Liu, Y., Mao, X. and Fu, Y. (2021) The Prevalence of Ectopic Gestation: A Five-Year Study of 1273 Cases. *International Journal of General Medicine*, **14**, 9657-9661. <https://doi.org/10.2147/ijgm.s344648>
- [10] Din, M., Andleeb, A., Nazir, S., Basit, S. and Iqbal, J. (2019) Role of Laparoscopy in the Management of Ectopic Pregnancy. *British Journal of Pharmaceutical and Medical Research*, **4**, 1794-1800.
- [11] Koutora, B., Sakiye, K.A., Guinhouya, D.Y., Agbogawo, M. and Kanassoua, K.K. (2021) Prise en Charge de la Grossesse Extra-Utérine en Situation d'Urgence : Expérience d'un Hôpital Confessionnel en Zone Rurale au Togo. *European Scientific Journal*, *ESJ*, **17**, 237-245. <https://doi.org/10.19044/esj.2021.v17n14p237>
- [12] Tebeu, P.M., Halle-Ekane, G., Itambi, M.D., Mbu, R.E., Mawamba, Y. and Fomulu, J.N. (2015) Maternal Mortality in Cameroon: Has University Teaching Hospital Report. *Pan African Medical Journal* **21**, Article 16.
- [13] Xu, H., Lin, G., Xue, L., Wu, W., Ding, J. and Liu, C. (2022) Ectopic Pregnancy in China during 2011-2020: A Single-Centre Retrospective Study of 9499 Cases. *BMC Pregnancy and Childbirth*, **22**, Article No. 928. <https://doi.org/10.1186/s12884-022-05269-8>
- [14] Capmas, P., *et al.* (2014) Treatment of Ectopic Pregnancies in 2014: New Answers to Some Old Questions. <https://www.fertstert.org/action/showPdf?pii=S0015-0282%2814%2900076-4>
- [15] Frey, C. and Poncelet, C. (2011) Traitement endoscopique de la grossesse extra-utérine. *Gynécologie Obstétrique & Fertilité*, **39**, 640-643. <https://doi.org/10.1016/j.gyobfe.2011.09.006>
- [16] Abd El-Hameed, K.E., Abd El-Reheim, A. and Ahmed, A. (2020) Medical Treatment of Undisturbed Ectopic Pregnancy in Minia Maternity University Hospital a Randomized Controlled Study. *Minia Journal of Medical Research*, **31**, 140-149. <https://doi.org/10.21608/mjmr.2022.221489>
- [17] Shiravani, Z., Atbaei, S., Namavar Jahromi, B., Hajisafari Tafti, M., Moradi Alamdarloo, S., Poordast, T., *et al.* (2022) Comparing Four Different Methods for the

- Management of Ectopic Pregnancy: A Cross-Sectional Study. *International Journal of Reproductive BioMedicine (IJRM)*, **20**, 177-184.  
<https://doi.org/10.18502/ijrm.v20i3.10709>
- [18] Jannat, F., *et al.* (2023) Laparoscopic Approach for the Management of Ectopic Pregnancy in a District Level Hospital, Cox's Bazar.  
[https://saudijournals.com/media/articles/SIJOG\\_61\\_9-14.pdf](https://saudijournals.com/media/articles/SIJOG_61_9-14.pdf)
- [19] Geraldo, R.F., Tchangai, B., Alassani, F., Adabra, K., Amouzou, E.G.O., Koutora, B., *et al.* (2020) Status of Laparoscopy in Togo: Technical Platform and Indications. *Journal Africain de Chirurgie Digestive*, **20**, 3002-3007.
- [20] Mehta, A., Jamal, S., Goel, N. and Ahuja, M. (2017) A Retrospective Study of Ectopic Pregnancy at a Tertiary Care Centre. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, **6**, 5241-5246.  
<https://doi.org/10.18203/2320-1770.ijrcog20175117>
- [21] Gueye, L., *et al.* (2017) Ectopic Pregnancy at the Thiès (sénégal) Regional Hospital: A Study of Diagnostic, Therapeutic and Prognostics. *Austin Journal of Obstetrics and Gynecology*, **4**, Article 1073.  
<https://doi.org/10.26420/austinjobstetgynecol.2017.1073>
- [22] Alsadi, B. (2018) Ectopic Pregnancy: Laparoscopic Conservative Treatment and Laparoscopic Salpingotomy. *World Journal of Laparoscopic Surgery with DVD*, **11**, 138-146. <https://doi.org/10.5005/jp-journals-10033-1347>
- [23] Al Naimi, A., Moore, P., Brüggmann, D., Krysa, L., Louwen, F. and Bahlmann, F. (2021) Ectopic Pregnancy: A Single-Center Experience over Ten Years. *Reproductive Biology and Endocrinology*, **19**, Article No. 79.  
<https://doi.org/10.1186/s12958-021-00761-w>
- [24] Bangambe, B.J., Kangudia, M.J., Mbanzulu, P.N., Yanga, J.J., Juakali, S.K.V. and Mboyo, G. (2016) Epidemiological Profile and Management of Ectopic Pregnancy at the Sino-Congolese Friendship Hospital of N'djili, Kinshasa-DRC. *KisMed*, **7**, 255-258.
- [25] Mutiso, S. (2025) Cost of Surgical Management of Laparoscopically Treated Ectopic Pregnancies at a Tertiary Referral Hospital: A 10-Year Review of Admission Costs and Contributing Factors. *Journal of Obstetrics and Gynaecology of Eastern and Central Africa*, **37**, 74-80. <https://doi.org/10.59692/jogeca.v37i2.326>
- [26] Huttler, A., Hong, C. and Shah, D.K. (2022) Racial and Ethnic Disparities in the Surgical Management of Tubal Ectopic Pregnancy. *F&S Reports*, **3**, 311-316.  
<https://doi.org/10.1016/j.xfre.2022.08.009>
- [27] Eke, E.O., Ekeleme, N.C., Ezirim, E.O., Onwuka, C.J. and Eke, K.O. (2022) Ectopic Pregnancy: A 10-Year Review of Cases in a Tertiary Health Institution in Umuahia, South East, Nigeria. *European Journal of Medical and Health Sciences*, **4**, 54-59.  
<https://doi.org/10.24018/ejmed.2022.4.4.1395>
- [28] Randriambololona, D.M.A., Anjharisoaniaina, N.T., Rekoronirina, E.B., Harioly, M.O.J., Randriambelomanana, J.A. and Andrianampanalinarivo, R.H. (2012) Ectopic pregnancy in Madagascar: 107 Cases. *Médecine et Santé Tropicales*, **22**, 394-397.  
<https://doi.org/10.1684/mst.2012.0108>
- [29] Randriamahavonjy, R., *et al.* (2018) Ectopic Pregnancy at Soavinandriana Hospital Center, Antananarivo, Madagascar. *International Journal of Research in Medical Sciences*, **6**, 2596-2600. <https://doi.org/10.18203/2320-6012.ijrms20183238>
- [30] Meriyam, E. (2017) Ectopic Pregnancy. *Maroc Medical*, **33**, 105-109.
- [31] Essiene, O.A.M., Anki, Y., Niama, A.C., Mbou, E.D., Voumbo, Y., Ndinga, H., *et al.*

- (2023) Risk Factors for Ectopic Pregnancy at Talangaï Referral Hospital, Brazzaville 2018 to 2019. *Health Sciences and Disease*, **25**, 15-24.  
<https://www.hsd-fmsb.org/index.php/hsd/article/view/3629>
- [32] Patel, T.L. and Chouhan, G. (2023) Clinical Study on Ectopic Pregnancy. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, **12**, 382-386. <https://doi.org/10.18203/2320-1770.ijrcog20230120>
- [33] Zohasinanahary, S. (2016) Determining Factors of Ectopic Pregnancy (ECP) [Case-Control]. *Journal of Research in Medical Sciences*, **19**, 844-849.
- [34] Awadalla Abdelwahid, S., Hajar Suliman Ibrahim, A., Kabbashi Mohammed Adam, H., Ibtehal Jaffer Youssef, A., Mohamed Abdalla Elamin, A., Abdallah Omer Elzein, E., *et al.* (2023) Ectopic Pregnancy Risk Factors Presentation and Management Outcomes. *Clinical Journal of Obstetrics and Gynecology*, **6**, 143-149.  
<https://doi.org/10.29328/journal.cjog.1001143>
- [35] Moussa, M. (2023) Laparoscopic Management of Ectopic Pregnancies in the Surgery Department at the G-Spot University Hospital.  
<https://www.bibliosante.ml/handle/123456789/12686>
- [36] Traoré, T., Dao, S.Z., Traoré, S., Diarra, R., Sidibé, A., Sidibé, K., *et al.* (2023) Epidemiological, Clinical, and Anatomopathological Aspects of Ectopic Pregnancy in Segou (Mali). *Health Sciences and Disease*, **24**, 71-76.  
<https://www.hsd-fmsb.org/index.php/hsd/article/view/4648>
- [37] Gerema, U., Alemayehu, T., Chane, G., Desta, D. and Diriba, A. (2021) Determinants of Ectopic Pregnancy among Pregnant Women Attending Referral Hospitals in Southwestern Part of Oromia Regional State, Southwest Ethiopia: A Multi-Center Case Control Study. *BMC Pregnancy and Childbirth*, **21**, Article No. 130.  
<https://doi.org/10.1186/s12884-021-03618-7>
- [38] Bamba, K. (2019) Ectopic Pregnancy: Epidemio-Clinical, Therapeutic, and Prognostic Aspects at the Bougouni Reference Health Center. Master's Thesis, University of Science, Techniques and Technologies of Bamako (USTT-B).  
<https://www.bibliosante.ml/handle/123456789/2069>
- [39] Gomathi, M. (2015) A Descriptive Study on Ectopic Pregnancy in a Tertiary Care Center. Tirunelveli Medical College.
- [40] Njingu, A.E., Cumber, S.N., Geh, M.M., Edgar, M.M.L., Nkfusai, C.N., Ngunde, J.P., *et al.* (2020) Incidence, Risk Factors, Clinical Presentation and Treatment of Ectopic Pregnancy in the Limbe and Buea Regional Hospitals in Cameroon. *PAMJ Clinical Medicine*, **2**, Article 95. <https://doi.org/10.11604/pamj-cm.2020.2.95.21279>
- [41] Papageorgiou, D., Sapantzoglou, I., Prokopakis, I. and Zachariou, E. (2025) Tubal Ectopic Pregnancy: From Diagnosis to Treatment. *Biomedicines*, **13**, 1465.  
<https://doi.org/10.3390/biomedicines13061465>
- [42] Wade, M., Sene, M., Gueye, M., Faye, A.B., Ghais, H., Faye, K., *et al.* (2024) Laparoscopic Surgery for Ectopic Pregnancies in Peripheral Hospital: About 7 Cases at Amath Dansokho Regional Hospital in Kedougou, Senegal. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, **13**, 413-416.  
<https://doi.org/10.18203/2320-1770.ijrcog20240143>