ORIGINAL RESEARCH ARTICLE

Fertility after Endoscopic Surgery for Ectopic Pregnancy Management in Point "G" Teaching Hospital, Bamako-Mali

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Abstract

Endoscopic surgery of ectopic pregnancy is actually the gold standard for the management of fallopian tubal diseases. A survey was conducted to evaluate fertility in patients who underwent endoscopic management for ectopic pregnancy. A retrospective study was conducted at the department of general and endoscopic surgery of the Point "G" teaching hospital, in Bamako, Mali, from January 1st 2007 to December 31, 2016. Forty-eight (48) patients who underwent endoscopic management of tubal ectopic pregnancy and who have been followed up for fertility were included in this study. Statistical tests used were X^2 or Fisher test and their confident interval, p<1 % has been considered as statistically significant. The therapeutic score of Pouly was less than 4 in 25.0% (n = 12). The return to fertility was observed among 48.0% of patients (n = 23). The chance of conception was less than 80.0% after the fourth postoperative year (p=0.001). The outcome of pregnancies has been seventeen full-term pregnancies, three ectopic pregnancies and three miscarriages. The occurrence of pregnancy after endoscopic management indicated for ectopic pregnancy is possible. However, many factors can influence the future conception. *(Afr J Reprod Health 2020; 24[1]: 115-120).*

Keywords: Extra-uterine pregnancy, tubal abnormality, endoscopic management, Mali

Résumé

La chirurgie endoscopique de la grossesse extra-utérine est en fait l'étalon-or pour la gestion des maladies des trompes de Fallope. Une enquête a été menée pour évaluer la fécondité auprès des patientes qui ont subi une prise en charge endoscopique pour une grossesse extra-utérine. Une étude rétrospective a été menée au service de chirurgie générale et endoscopique du Centre Hospitalier Universitaire du Point "G", à Bamako, Mali, du 1er janvier 2007 au 31 décembre 2016. Quarante-huit (48) patientes ayant subi une prise en charge endoscopique des trompes de la grossesse extra-utérine et qui ont été suivies pour la fécondité ont fait partie de cette étude. Les tests statistiques utilisés étaient le test X2 ou Fisher et leur intervalle de confiance, p <1%, a été considéré comme statistiquement significatif. Le score thérapeutique de Pouly était inférieur à 4 sur 25,0% (n = 12). Le retour à la fécondité a été remarqué chez 48,0% des patients (n = 23). Le risque de conception était inférieur à 80,0% après la quatrième année postopératoire (p = 0,001). Le résultat des grossesses a été de dix-sept grossesses à terme, trois grossesses extra-utérines et trois fausses couches. La survenue d'une grossesse après une prise en charge endoscopique indiquée pour une grossesse extra-utérine est possible. Cependant, de nombreux facteurs peuvent influencer la conception future. *(Afr J Reprod Health 2020; 24[1]: 115-120).*

Mots-clés: Grossesse extra-utérine, anomalie tubaire, prise en charge endoscopique, Mali

Introduction

The incidence of ectopic pregnancy has been estimated to range from 2.7 to 12.9 per 1000 diagnosed conceptions, pregnancies, or live births for women in the normal reproductive range[1-4]. It appears to be increasing over the last few decades and this has been attributed to increased use of intrauterine contraceptive devices, pelvic inflammatory diseases, sterilization and reversal of sterilization[5-7]. The Centre for Diseases Control of the United States of America reported an increased incidence of ectopic pregnancy from 1.9% to 2.2% of live births between 1981 to

1991[6]. In Mali, ectopic pregnancy ranks second among gynecological and obstetric emergencies after caesarean section[8].

It is associated with high mortality that increased from 6% - 10% if diagnosis and management is delayed[9]. Early intervention carries significant better prognosis[10]. Furthermore, surgery can be avoided if management starts before tubal rupture and cardiovascular compromise[11]. Ectopic pregnancy is a serious condition that can be life-threatening during the first trimester of pregnancy and compromises subsequent fertility. Hence, it cannot be over emphasized that early diagnosis is of paramount importance[9].

For two decades, the progressive increase in the frequency of extra-uterine pregnancy in developed countries has been accompanied by a revolution in its diagnosis and treatment. Ectopic pregnancy is more and more treated by conservative endoscopic and medical methods[12]. When laparoscopic surgery is indicated, either salpingotomy (i.e. conserving the fallopian tube and removing only the trophoblast) or salpingectomy (i.e. complete removal of the fallopian tube) can be used[13]. In developed countries, medical treatment and conservative laparoscopic surgery are the best methods of management of ectopic pregnancies[11,14,15]. Over the course of the last decade, the laparoscopic approach has emerged as the technique of choice for direct visualization of ectopic gestation, offering a convenient modality for both diagnosing the condition and managing it in a timely fashion[7]. In addition to acute morbidity, ectopic pregnancy may decrease future fertility[16]. Endoscopic management of ectopic pregnancy helps to preserve fertility, limit the risk of recurrence and therapeutic morbidity[17]. Theoretically, the preservation of the Fallopian tube via salpingotomy should partially increase the probability of intra uterine pregnancy (IUP)[17].

Several studies have reported burden of ectopic pregnancy in gynecological admission and its prognosis[12,18]. However, there are few data that have assessed the fertility among women who have benefited endoscopic management for ectopic pregnancy. Although endoscopic management of ectopic pregnancy can theoretically improve fertility, controversies exist on the data existing in the literature.

This survey aims to assess the return to fertility and to describe the factors influencing it in laparoscopic surgery for extra uterine pregnancy. The therapeutic scoring system (TSS) for ectopic pregnancy described by Pouly[19] has been used to undertake the type of surgery (conservative treatment, salpingectomy or salpingectomy associated to sterilization of the contralateral salpinx).

Methods

Study setting

Our study was conducted in the endoscopic department of Point "G" teaching hospital. It is an endoscopic training and care center. The management of infertile patients has been done in collaboration with the obstetrics and gynecology department of the same hospital.

Type and period of survey

It was an analytical cross-sectional retrospective study that took place from January 1st 2007 to December 31, 2016.

Inclusion criteria

Was included in this study any patient operated for tubal ectopic pregnancy by endoscopic route at the Point G teaching hospital. Each patient had to be followed up for a minimum of 7 years since leaving the hospital.

Non-inclusion criteria

Were excluded in this study any patient operated for other infertility factors and whose partners had semen abnormalities.

Sample and sampling

Clinical records of forty-eight patients have been included in the study.

Data collection and analysis

Data have been collected from surgical reports, admission records, follow-up files of patients and

Figure1: Unruptured ectopic pregnancy

Figure2: Cross-coagulation of the fallopian tube

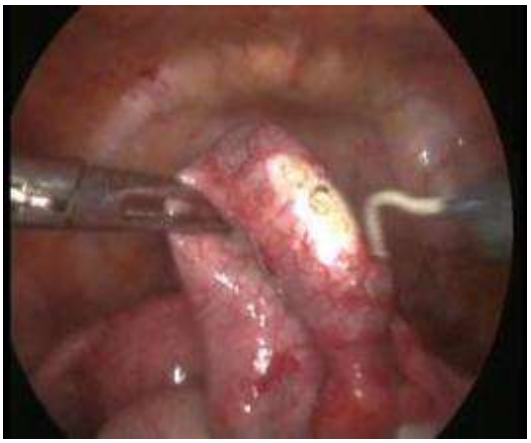

Figure 3: Extraction of the trophoblast after salpingotomy

prenatal care documents. Patients have been followed-up from operative date up to a minimum of 7 years. The parameters that have been studied were age of patients, the therapeutic score for ectopic pregnancy, site of pregnancy, macroscopic aspect of the contralateral fallopian tube, therapeutic measures, conception times after surgery, outcome of the pregnancies and the factors influencing conception.

SPSS version 23.0 has been used to compute the data, then they were analyzed with Epi info 7.0 version. Pearson Chi square has been used for qualitative variables and when the number of observations was ≥ 5); Fisher's exact test was used when the number of observations obtained for analyze is inferior to 5 (n<5) , Odd ratio (OR) and its confidence interval at 95% ($IC_{95\%}$); P value < 1% has been considered statistically significant.

Results

Frequency

During the study period, one thousand two hundred and sixty three (1263) surgical procedures have been performed, including forty eight endoscopic managements that have been indicated for ectopic tubal pregnancy (3.8%).

Characteristics of the patients and data related to the ectopic pregnancy

The mean age of the patients was 29.6 ± 7 years (Range 16 to 41 years) with a median age of 30 years. The sites of the pregnancy were the right tube (85.4%), the fimbrial tube (56.2%) (n = 27), the ampulla (27.1%) (n = 13), the isthmus (6.3%) (n = 3). In 10.4% of the cases the site was not specified. Twenty-eight cases of hematosalpinx (58.3%n = 28), 8.4 % (n = 4) of tubo-abdominal abortion and 33.3% (n = 16) cases of intra peritoneum bleeding, were noticed. The therapeutic score of Pouly was under 4 in 25.0% (n = 12).

Fertility after endoscopic surgery

The return to fertility was observed in 48.0% of patients (n = 23). The peak of onset of pregnancy was 13 months (range 3 to 96 months). The chance of conception was less than 80.0% after the fourth postoperative year.

Table 1: Relation between intervention types and fecundity of patients (n = 48)

	Birth n (%)	EP n (%)	Miscarriage n (%)	No pregnancy n (%)	Total n (%)	P
Salpingectomy	0 (0.0)	0 (0.0)	0 (0.0)	2 (4.2)	2 (4.2)	-
Salpingostomy	12 (25.0)	2 (4.2)	1 (2.5)	17 (35.4)	32 (66.7)	0.000
TAA	1 (2.5)	0 (0.0)	0 (0.0)	3 (6.3)	4 (8.3)	0.051
Fimbrial compression	2 (4.2)	1 (2.5)	0 (0.0)	3 (6.3)	6 (12.5)	0.035
IABA	2 (4.2)	0 (0.0)	2 (4.2)	0 (0.0)	4 (8.3)	0.007
Total	17 35.4)	3 (6.3)	3 (6.3)	25 (52.1)	48 100.0)	

TAA: Tubo-abdominal abortion; IABA: Intra-abdominal blood aspiration

Table 2: Relation between contralateral tubal aspect and fecundity among patients (n=48)

	Birth n (%)	EP n (%)	Miscarriage n (%)	No pregnancy n (%)	Total n (%)	P
Normal aspect	10 (20.8)	1 (2.5)	3 (6.3)	2 (4.2)	2 (4.2)	0.005
Abnormal aspect	3 (6.3)	2 (4.2)	0 (0.0)	17 (35.4)	32 (66.7)	0.009
Absence of oviduct	2 (4.2)	0 (0.0)	0 (0.0)	3 (6.3)	4 (8.3)	0.002
No description	2 (4.2)	0 (0.0)	0 (0.0)	3 (6.3)	6 (12.5)	-
Total	17 (35.4)	3 (6.3)	3 (6.3)	25 (52.1)	48 (100.0)	

The outcome of pregnancies was seventeen full-term pregnancies, three ectopic pregnancies and three miscarriages. In the Table 1 is shown the fertility rates according to the treatment performed. Table 2 describes contralateral fallopian tubal aspect and fecundity of patients who have undergone endoscopic management for ectopic pregnancy.

Discussion

Laparoscopic management of tubal ectopic pregnancy accounted for 3.8% of laparoscopic surgery activities. It is the golden standard for the management of ectopic pregnancy[20]. The main characteristics of patients with ectopic pregnancy found in our study are the same elsewhere[21]. The right tubal location accounted for 85.4%; no bilateral extra-uterine has been noted. However, all the parts of oviduct tubal were concerned by ectopic pregnancy in our survey.

The return to fertility determined by the occurrence of conception regardless of the outcome of pregnancy has been noted in less than half of the patients. This can be explained by the persistence of the causes of infertility in twenty five patients of our study and the high number of them who had Pouly's score more than 3. Conception was null in cases of radical treatment regardless of the tube morphological aspect. That should be related to the severity of tubal disease. Most of the patients with term pregnancies had normal contralateral fallopian tube. The absence of fecundity has been noted when contralateral fallopian tube was seemingly normal. Thus, the macroscopic appearance of the contralateral fallopian tube did not seem to affect fertility (P> 0.05) but seemed to influence the outcome of the pregnancy as well as the nature of the laparoscopic procedure (P = 0.001). A review of the literature by Tulandi[22], concerning the results of fertility after laparoscopic treatment of ectopic pregnancy, concluded that the risks of this pathology, all patients combined, seem comparable, that the treatment was conservative or radical and that the risk of recurrence remains high after salpingectomy. Fernandez[23] and Dubuisson[24] reported recurrence rates of 11% and 15%, respectively, after laparoscopic salpingectomy.

Many factors can affect the occurrence of pregnancy after endoscopic surgery indicated for ectopic pregnancy. They are the presence or persistence of infertility causes such as hydrosalpinx, adhesions, uterine myoma[23,25], contralateral fallopian tube anatomic abnormalities, non-conservative surgery of the oviduct and age of the patients.

Even though this study reported the improvement of pregnancy outcome after fertility

endoscopic management, some controversies still exist[17,26-29]. Actually, fertility is better after conservative surgery when contralateral tube is altered[26]. In other situations, the results of the treatments seem to be similar[26]. So, further research is needed to determine whether endoscopic surgery for ectopic pregnancy can improve fertility of patients.

Ethical Considerations

The written informed consent has been obtained before the endoscopic surgery of all the patients.

Conclusion

The laparoscopic approach is currently the golden standard for the treatment of ectopic pregnancy. Our study clearly demonstrates that occurrence of pregnancy after endoscopic management indicated for ectopic pregnancy is possible. However, many factors can influence the future conception. We suggest that a randomized study in African context be done to appreciate fertility after endoscopic treatment.

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Contribution of Authors:

We declare that all the authors mentioned in this manuscript have contributed in the conception, collection and analysis of the data as well as the preparation of the manuscript. So, all of them approved it.

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