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CLINICAL ARTICLE

Fertility after ectopic pregnancy in a district hospital in Cameroon

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ABSTRACT

Objective: To assess spontaneous conception after an ectopic pregnancy (EP) in a rural area of a low-resource country. **Methods:** The present prospective cohort study enrolled patients aged 15–45 years who were treated for EP at Sangmelima District Hospital, Cameroon, between January 2006 and December 2008. All patients who wished to become pregnant in the future were included and followed up from treatment for EP either until termination of a subsequent pregnancy or for 3 years if they did not become pregnant, whichever came first. Patients who were followed up for less than 18 months without a pregnancy were excluded from analysis. **Results:** The final analysis included 56 women, of whom 23 (41%) became pregnant (21 [38%] had intrauterine pregnancies, 2 [4%] EPs). The mean interval between treatment for EP and first conception was 11.82 ± 7.46 months. In multivariate analysis, absence of contralateral adnexal pathology was significantly associated with higher fertility (hazard ratio 9.00, 95% confidence interval 1.48–54.67; $P = 0.017$). **Conclusion:** Fertility after EP in a rural area of Cameroon was found to be low, but recurrence of EP was rare.

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1. Introduction

Ectopic pregnancy (EP) represents a major health problem for women of childbearing age. Its incidence is increasing worldwide, which is associated with an increase in the prevalence of risk factors for EP (e.g. pelvic infections) [1]. A frequency of EP of 3.45 per 100 live births has been reported in the South Region of Cameroon [2].

In addition to the mortality and immediate morbidity caused by EP, a woman's future ability to reproduce can be adversely affected. In high-income countries, different therapeutic options are used and, in most cases, the affected tube is preserved, with reported fertility rates of 60%–80% [3–6]. Fertility after EP has been evaluated in some big cities in low-resource countries—e.g. Ville et al. [7] reported a fertility rate of 17% in Gabon. In rural areas, patients present to the hospital late, usually after tubal rupture. The treatment is often laparotomy, and in most cases, salpingectomy is the only option [1].

The aim of the present study was to evaluate spontaneous conception after treatment for EP in rural areas of a low-resource country and to identify its determinants.

2. Materials and methods

The present uncontrolled prospective cohort study enrolled women aged 15–45 years who were diagnosed and treated for EP between January 1, 2006, and December 31, 2008, at Sangmelima District Hospital, a facility in a rural area of southern Cameroon with a mean of 50 deliveries each month. Patients who wished to become pregnant in the future and agreed to a follow-up period of 3 years were included. Patients who had undergone sterilization as part of their treatment or expressed a desire for contraception were excluded. At the time of study initiation, the ethics committee was not yet functioning at the hospital, but all participants gave verbal consent.

Information was collected about age, parity, history of infertility, pelvic inflammatory disease, and contraceptive use. The type of surgery performed and the state of the adnexae were recorded. The contralateral tube was considered “abnormal” if one or more of the following conditions were found: hydrosalpinx, fimbriae covered with adhesions, or hardening or nodule perception at the proximal portion of the tube.

To obtain information on future fertility, participants were followed from treatment for EP until termination of a subsequent pregnancy, or until a period of 3 years had elapsed if they did not become pregnant, whichever came first. Patients who were followed up for less than 18 months without a pregnancy were excluded from analyses. Follow-up appointments were made every 6 months, but participants were instructed to come earlier in the case of a gynecologic problem or in the first week of a missed menstrual period. Women who did not return

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within a week after the appointment date were phoned or contacted through the community health worker. Ultrasonography was done as soon as possible for women who had missed a period, free of charge, to confirm and locate the implantation site of the pregnancy.

Data were entered into Epi Info version 3.5.3 (Centers for Disease Control and Prevention, Atlanta, GA, USA) and analyzed with SPSS version 19 (IBM, Armonk, NY, USA). The cumulative probabilities of spontaneous intrauterine pregnancy (IUP) over time were calculated using the Kaplan–Meier estimator. The starting point for the calculation was the date of operation; the endpoint was the date of the accomplished spontaneous IUP. For women who did not become pregnant, the endpoint was the last day of contact or the end of the third year of follow-up. Cumulative pregnancy curves were generated to compare the fertility of women with a clinically normal contralateral tube with that of those who had contralateral tubal pathology.

Cox hazard regression univariate analysis was used to compare the effect of baseline characteristics on fertility outcomes. Multivariate analysis was used to take into account potential confounding factors (age, past history of infertility, parity, and type of treatment). $P < 0.05$ was deemed significant.

3. Results

During the study period, 74 women were treated for EP. The final analysis included 56 women (Fig. 1). Table 1 shows the baseline characteristics of these women. The six women lost to follow-up did not differ significantly from the study population with regard to age, parity, contralateral adnexal pathology, and past history of infertility or sexually transmitted infection (STI) (data not shown).

The mean age of the study patients at the time of recruitment was 25.79 ± 5.33 years (range 15–37). The mean parity was 1.02 ± 0.94 (range 0–3). The follow-up period from treatment to either conception or withdrawal from the study ranged from 2 to 36 months (mean 27.77 ± 7.63 months).

Table 1
Baseline characteristics.^a

Characteristics	Participants (n = 56)
Age, y	
15–19	9 (16)
20–24	12 (21)
25–29	19 (34)
30–34	14 (25)
≥35	2 (4)
Unmarried	35 (64)
Parity	
0	19 (34)
1	21 (38)
≥2	16 (29)
History of STI	30 (54)
History of infertility	33 (59)
History of pelvic surgery	2 (4)
Contralateral adnexal pathology	26 (47)
Radical treatment (salpingectomy)	50 (89)

Abbreviation: STI, sexually transmitted infection.

^a Values are given as number (percentage).

Of the 56 patients who had attempted to become pregnant, 23 (41%) achieved conception. For women who became pregnant within the follow-up period, the interval period between the treatment for EP and the subsequent pregnancy ranged from 2 to 30 months (mean 11.82 ± 7.46). Overall, 21 (38%) women had IUPs and 2 (4%) had an EP. Among the 21 IUPs, 2 (10%) resulted in spontaneous abortion and 19 (90%) in live term delivery.

The 1-year cumulative IUP rate (i.e. probability of obtaining IUP within 1 year) was 67%. An additional 29% of the women became pregnant during their second year, and only 5% became pregnant in the third year of follow-up. The cumulative rate of IUP over the follow-up duration according to the operative findings of the contralateral adnexa is shown in Fig. 2.

In univariate analysis, the factors associated with higher fertility were normal contralateral adnexa ($P < 0.001$), age younger than

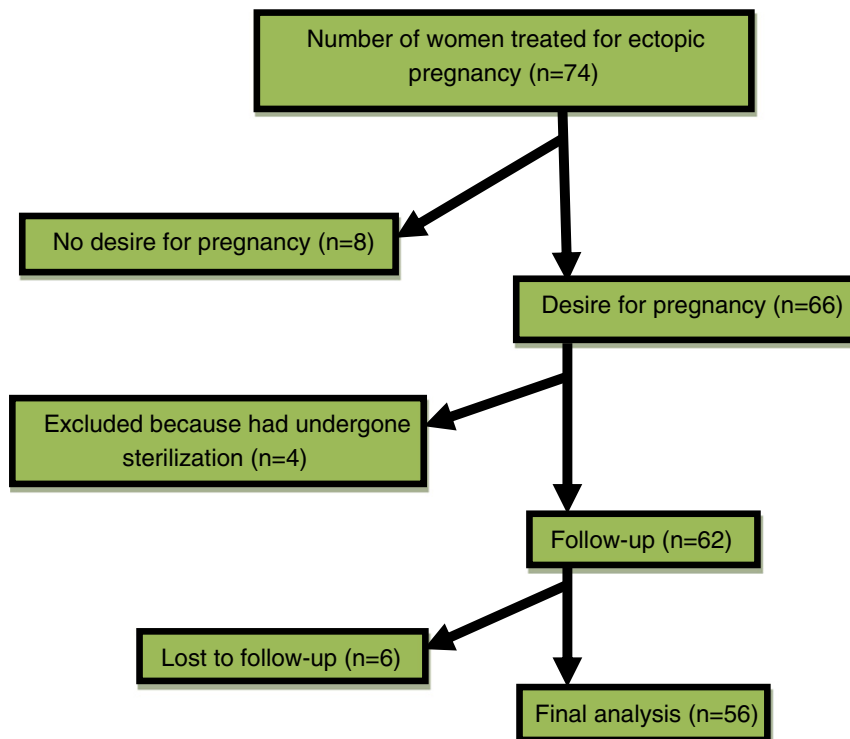


Fig. 1. Flow of patients through the study.

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