



## DETERMINANTS OF THE OCCURRENCE OF ECTOPIC PREGNANCY AT THE BRAZZAVILLE HOSPITAL AND UNIVERSITY CENTRE.

### Gynaecology

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### ABSTRACT

**Objective:** To analyze the determinants of the occurrence of ectopic pregnancy (EP) in Brazzaville.

**Patients and Methods:** This was a retrospective cross-sectional analytical study of women admitted to gynecological emergencies. Included were records of women whose diagnosis was an EPG in Group 1 and records of immediate postpartum women in Group 2; records of women operated for EP or delivered in other health facilities and referred to the UHC for complication management; and records that were unusable.

**Results:** The risk factors for the occurrence of EP were as follows: sexually transmitted infections (97.4% OR 3.93), EP history (20.5% OR 4.14); multiple sexual partners (89.7% OR 1.97), ages at first intercourse greater than or equal to 18 years (41% OR 2.76), and menarche age between 16 and 18 years (64.1% OR 2.02).

**Conclusion:** The determinants in the occurrence of EP are not always superimposed on each other. Those in the West in Africa.

### KEYWORDS

EP, determinants that occurred, Brazzaville.

Ectopic pregnancy (EP) refers to the nidation of the egg outside the uterus, i.e. in an abnormal position in the uterine cavity[1].

The incidence of EP in developed countries is in the order of 100 to 175 EP per year per 100,000 women aged 15 to 44 years or about 2 EP per 100 births. The explanation for this outbreak is the increase in sexually transmitted diseases and the resulting tubal sequelae, the postponement of the age of first pregnancy, and the improvement of diagnostic methods that allow the recognition of EP that is not very symptomatic and is likely to regress spontaneously[2].

While in the West people no longer die from EPs, in Africa it still kills because of the fragility of health systems. With incidences higher than in Western countries ranging from 1.4% in Guinea, 2.3% in Gabon and up to 14.9% in Congo[3, 4, 5], EP remains a serious and fatal disease for all women of childbearing age[6].

To reduce the morbidity and lethality of the EP in Africa, some authors recommend that the female population of reproductive age be made aware of the need to combat risk factors, that they consult early, that hospital training facilities be equipped with paraclinical investigation facilities, and that staff be educated and motivated to recognize the first symptoms of EP (7, 8, 9, 5).

In Congo, according to previous studies conducted in the same department, the problem is the same as everywhere in Africa[5].

Knowledge of the risk factors will allow primary prevention of EP, by eliminating the risk factor, secondary prevention by detecting EP in the population at risk and trying to avoid recurrences.

Thus we wanted to analyze the determinants of the occurrence of the ectopic pregnancy at the University Hospital Centre of Brazzaville.

### PATIENTS AND METHODS

This was an analytical cross-sectional study, retrospective over a 6-month period from July 30, 2015, to January 30, 2016. It was conducted in the Department of Gynecology and Obstetrics at the University Hospital of Brazzaville. It concerned women admitted to gynecological emergencies, we included women who had had an EP representing group 1 or target group. Women in immediate postpartum in the period following the management of the EP constituted group 2.

Women referred for EP or postpartum were excluded. Anonymity was maintained in both groups.

We conducted a consecutive and nonprobability sampling. Risk factors were investigated through interviews with women or women who had given birth.

The variables studied were epidemiological, clinical and paraclinical examination data, the location of the EP, and the type of treatment adopted.

### Statistical Analysis

The statistical analysis of the data was done using Stata software, version 14. To confirm our hypotheses, two statistical tests were carried out. This is the test of comparing the proportions between the two groups, as well as the odds ratio.

### RESULTS

Regarding epidemiological data, there is a significant difference between the proportions of cases (occurrence of EP) and controls with regard to the secondary school level. The other variables observed are not significant (Table I).

Table II shows that the risk factors for the occurrence of EP are sexually transmitted infections (STIs), EP history (ATCD), multiple sexual partners, age at first sexual intercourse greater than or equal to 16 years and menarche from age 12. Indeed, the significant p-value values prove that there is a link between these factors and the occurrence of the EP.

After having an STI, the risk of occurrence of EP is multiplied by 3.93 (p less than 1%).

Pelvic adhesions were found in 4 patients (10.3% of cases). The location of the EP was tubal in 92.3% of cases with 76.9% ampullary EP, 10.3% isthmus EP and 2.6% interstitial and Infundibular EP. The locations other than the fallopian tube are the ovarian EP (2 cases or 5.1%) and the abdominal EP (1 case or 2.6%). The left fallopian tube was involved in 56.4% of cases.

Clinical signs of EP were often evident with the presence of a lateral-uterine mass in 59% of cases. Pelvic ultrasound was performed in 35.9% of cases.

Plasma dosage of beta-hCG in 5.1% of cases. Diagnostic laparoscopy was performed in 9 patients or 23.1%.

During the operation, the contro-lateral tube was of good quality in

34.3% of cases, adherent in one case and absent in one case.

## DISCUSSION

The EP occurred with predilection in the patient with a secondary level of education, this is a reflection of Congolese society where the population at the secondary level is 84.7% educated in urban areas, with a school dropout rate in the 12 to 18 age group, corresponding to the secondary level at 4.9%[10]. This period corresponds to adolescence, conducive to sexual activity.

Knowledge of risk factors such as: sexually transmitted infections (STIs), EP history, menarche, age at first intercourse and multiple partners will allow us to take preventive measures[11]. This can be primary prevention, by addressing risk factors: promoting condom use and effectively treating sexually transmitted infections.

Secondary prevention will be achieved by screening at-risk patients, i.e. women with a history of EP, tubal injury or a history of pelvic infection.

Tertiary prevention by informing patients who need to know the predictive signs of tubal rupture.

Our control group consisted of women in the immediate postpartum period, which may be a bias in the search for certain risk factors such as contraceptive use (micro-progestin, IUD), as the search for risk factors by case-control surveys poses the difficult problem of choosing the control group[2].

Some risk factors that are criticized in the West, such as contraception, tobacco, and medically assisted reproduction, are rare in our environment. Indeed, contraceptive prevalence is low in Congo[12,13]; Bouyer differentiates between EPs occurring in women who do not have contraception, which he describes as a reproductive failure, and those occurring in women taking a contraceptive method, which he calls contraceptive failure [14]. Medically assisted reproduction is accessible to only a very small part of the population and tobacco has few female followers. For some authors, the association between tobacco and EP is very strong, with a causal dose-response relationship[14], the mechanism of action may be hormonal[15], and/or direct toxicity of nicotine to tubal motility[16]. All of the risk factors together would explain 76% of the EPs[2].

In Madagascar, the constancy of the presence of risk factors is at the root of the stability of the frequency of the EP[17].

The location of the EP was preferably tubal, this is in accordance with the data in the literature[18]. In our study, we reported two cases of

ovarian EPs. For some authors, the reality of ovarian pregnancy is highly debated; to affirm it, the tube must be intact, the ovary connected to the uterus by the utero-ovarian ligament and the ovarian sac implanted on at least part of the surface of the ovarian tissue[19]. Some authors believe that primary ovarian pregnancy corresponds to intrafollicular and therefore intra-ovarian fertilization, this is an erroneous hypothesis since we know that the oocyte, to be fertilizable, must undergo nuclear and cytoplasmic maturation that must take place outside the follicle[20]. We have not had any cases of IUGs associated with the IUD, however, cases of ovarian pregnancies frequently associated with the presence of the IUD have been reported[21]. Abdominal pregnancy was secondary to tubo-abdominal abortion. According to Robert[22], primary or secondary abdominal pregnancy after insertion on the peritoneum and mesosalpinx has a larger surface area of implantation that tends to compensate for insufficient fetal-maternal circulatory exchanges.

## CONCLUSION

Our study finds the presence of the classic factors of the EP, namely genital infections, history of EP and multiple sexual partners. However, the epidemiological profile is slightly different from that of Western women. It would be necessary to double-check this assertion with a larger sample.

**Table I: Epidemiological data**

Variables	Cases		Witnesses		p-value
	n=39	%	n=101	%	
Profession					
Student	4	10,2	20	19,8	0,64
Housewife	9	23,1	35	34,6	0,51
Paid employment	10	25,7	22	21,8	0,8
Unemployed	16	41	24	23,8	0,24
Level of study					
Primary school	4	10,2	18	17,8	0,7
Secondary school	27	69,3	50	49,5	0,04
Superior	8	20,5	33	32,7	0,5
Marital status					
Single	24	61,5	58	57,4	0,7
Married	15	38,5	43	42,6	0,7
Managed					
Primigravida	21	53,8	38	37,6	0,22
Pauci-geste (2 to 3)	9	23,1	43	42,6	0,27
Multigeste (≥4)	13	33,3	20	19,8	0,38
Parity					
Nullipare	15	38,5	38	37,6	0,9
Poverty (1 to 3)	20	51,3	45	44,6	0,6
Multipare	4	10,2	18	17,8	0,7

**Table II: Personal history and risk factors for EP**

Factors to consider	Cases		Witnesses		OR	IC	p-value
	n=39	%	n=101	%			
STI	38,0	97,4	25,0	24,8	3,93	[2 ; 7,7]	0
Tubal surgery	2	5,1	11,0	10,9	0,048	[0,048 ; 2,31]	0,5
ATCD GEU	8	20,5	5,0	5,0	4,14	[1,1 ; 16,9]	0,02
ATCD IVG	20	51,3	30,0	29,7	1,72	[0,82 ; 3,56]	0,15
Tobacco use	1	2,6	3,0	3,0	0,86	[0,016 ; 11,13]	1
Alcoholism	2	5,1	8,0	7,9	0,64	[0,064 ; 3,45]	0,72
<b>HIV infection</b>	12	30,8	20,0	19,8	1,55	[0,62 ; 3,7]	0,29
Multiple sexual partners	10	25	9,0	8,9	2,87	[0,96 ; 8,6]	0,03
Multiple cumulative sexual partners	35	89,7	46	46,5	1,97	[1,06 ; 3,63]	0,02
<b>Infertility</b>	4	10,3	9,0	8,9	1,15	[0,24 ; 4,4]	0,75
<b>Contraception</b> Estro-progestogenic	7	17,9	12,0	11,9	1,51	[0,46 ; 4,52]	0,42
<b>Ménarche</b>							
9 to 11 years old	3	7,7	4,0	4,0	1,94	[0,27 ; 11,9]	0,4
12 to 14 years old	11	28,2	65,0	64,4	0,43	[0,19 ; 0,95]	0,02
16 to 18 years old	25	64,1	32,0	31,7	2,02	[1,01 ; 4,02]	0,04
<b>Age 1st coitus</b>							
13-15 years old	9	23,1	16,0	15,8	1,45	[0,52 ; 3,84]	0,47
16-17 years old	14	35,9	70,0	69,3	0,51	[0,24 ; 1,06]	0,03
≥ 18 years old	16	41,0	15,0	14,9	2,76	[1,14 ; 6,6]	0,02

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