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Original Article

Clinical presentation of endometriosis identified at interval laparoscopic tubal sterilization: Prospective series of 465 cases

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ABSTRACT

Objectives. – Women seeking sterilization are usually parous and have no major complains, such as pelvic pain. This could be a good model to indirectly assess the prevalence of endometriosis in the general population. Prevalence of endometriosis in women undergoing tubal sterilization by laparoscopy has been assessed in 17 published reports. Results indicate a surprising wide variation of prevalence of endometriosis, ranging from 1.4% to 43.3%. This clinical study describes the prevalence and clinical presentations of endometriosis identified at interval laparoscopic tubal sterilization, as a close representation of endometriosis in general population.

Material and methods. – From July 1989 to February 2009, 465 women undergone interval laparoscopic tubal sterilization and were included in this series. Surgery was realised in a non universitary centre of gynecologic surgery. All patients were operated on by the same surgeon. A complete assessement of pelvic organs was achieved with a particular attention paid for endometriotic lesions. Endometriosis when present was staged according to r-AFS classification. Biopsies were sent for pathological examination to assess endometriosis.

Results. – Mean age of women was 40.7 years (range 15–49 years). 20 women were nulliparous and 12 others had a past history of endometriosis. Endometriosis was visually identified in 55 patients (11.82%), and confirmed by histologic examination in most of cases (50/55: 90.9%). The mean age of women presenting endometriosis at the onset of tubal ligation was 41.27 years. Cases with endometriosis were classified according to the r-AFS. 39,7,8 and 1 cases corresponded to stages I, II, III and IV respectively. In the 20 nulliparous women, the prevalence of endometriosis was 20% (4/20). At the time of laparoscopic sterilization, 91 women presented a painfull condition (dysmenorrhea mainly or dyspareunia). Endometriosis was identified in 16 of them (17.58%). In the group of 360 asymptomatic parous women, the prevalence of endometriosis was 10% (36/360). Nulliparity, associated pelvic pain and retroverted uterus were associated with increased prevalence of endometriosis, without being significant.

Conclusion. – In our study, the prevalence of endometriosis identified at interval laparoscopic tubal sterilization was 11.82%. In parous asymptomatic women, the prevalence of endometriosis was 10%. The prevalence of endometriosis was slightly increased in nulliparous women, when pain was associated and in women with a retroverted uterus.

Introduction

Endometriosis is defined by the presence of endometrial glandular epithelium and stroma implants in extra-uterine location. Its prevalence in the general population is estimated at 8–10% of women at reproductive age group [1]. Symptoms associated with endometriosis include severe menstrual pain, chronic and severe pelvic pain, dyspareunia and subfertility. The prevalence of endometriosis among patients presenting subfertility and pelvic pain can reach according to some published results 50% [2]. These two symptoms might be considered as risk factors. A retrospective study examined the age distribution of women admitted for surgical treatment of histologically confirmed endometriosis, and showed a peak prevalence of this disease between 35 and 45 years old [3]. In France, tubal sterilization is

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usually performed in patients aged more than 35 years old, a recent series reported a median age of 40 years old [4]. Thus, tubal sterilization appears as an interesting model to determine the prevalence of endometriosis in fertile and potentially asymptomatic women. So far, 17 studies did assess endometriosis in this population [5], but an astonishing wide range of prevalence was reported, varying from 1.4% (296 cases) [6] to 43.3% (30 cases) [7]. Female sterilization technics has changed with advances of new hysteroscopic methods. In our center, laparoscopic tubal sterilization was abandonned in 2004 when hysteroscopic placement of micro-inserts (Essure®) was available, becoming rapidely the standard method for tubal occlusion. These reasons lead us to report an additional series evaluating the prevalence of endometriosis at interval laparoscopic tubal sterilization. This cohort study describes the prevalence and clinical presentations of endometriosis identified at interval laparoscopic tubal sterilization, as a close representation of endometriosis in general population.

Materials and methods

Study population

This study is a retrospective cohort study with a prospective collection of clinical data during pre-operative and per-operative evaluation by the surgeon. Surgery was realised in a centre of gynecologic surgery specialized in minimally invasive surgery but realizing general gynecologic procedure without any pathologic specificity. From July 1989 to February 2009, 465 women undergone interval laparoscopic tubal sterilization and were included in this series. All relevant informations have being prospectively carefully recorded in a computerized database. Essure micro-inserts were available in our Center in 2004, thus the laparoscopic approach for tubal occlusion became very rare with only 3 cases performed posteriorly.

Procedure

All patients were operated on by the same surgeon (A. Audebert) under general anesthesia and tracheal intubation. A cannula was routinely introduced in the uterine cavity in order to better expose fallopian tube when necessary. Mechanical tubal occlusion was the primarly method used with Yoon band application in 407 cases and Filshie clip in 45. In 13 cases, both methods or a bipolar coagulation were used because of tubal pathology. A complete assessement of pelvic organs was achieved with a particular attention paid for endometriotic lesions either typical or subtle [8,9]. Endometriosis when present was staged according to r-AFS classification [10]. All findings were carefully recorded. Biopsies were sent for pathological examination to assess endometriosis.

Statistical analysis

For univariate analysis, we used Chi^2 test, Fisher's exact test or Student's *t* test to compare groups. Odds ratios (OR) and 95% confidence intervals (CI) were calculated. Bilateral analysis was computed, and the threshold for statistical significance was set at 0.05.

We used to perform statistical analysis the graphpad soft ware: GraphPad Software, Inc.CA 92037 USA.

Results

The age of the patients ranged from 15 to 49 years old (mean: 40.7 years). Three adolescents or young women undergone tubal occlusion because of severe mental disability and the procedure was approved by an ethical committee. In fact, most of the operated women were aged more than 36 years old, reflecting the usual age of sterilization in France during this period, when so called « medical indication » is not present [4]. Some characteristics of the enrolled patients are listed in Table 1. Many women have earlier undergone an appendicectomy, with a high rate of almost 50%. Twelve cases of prior endometriosis were recorded, affecting 2.58% of enrolled women. Some relevant factors, with a potential impact on endometriosis prevalence [1] are also listed in Table 1, as well as contraceptive methods used before proceding to tubal sterilization. Only 5.8% of the patients never used oral contraception or Intra-Uterine Contraceptive Device (IUCD) for at least one year. Half of the women have used both methods. 39 women experienced difficulties (contraindication, failure or side effects) with oral contraception use and 50 with IUCD use.

Appropriate tubal occlusion was achieved in all cases. No major per- or post-operative complications occured in this series.

Endometriosis was visually identified in 55 patients (11.82%), and confirmed by histologic examination in most of cases (50/55: 90.9%). The mean age was 41.27 years old. Thirty-nine women did not have associated pelvic pain (70.91%). Twelve women of the whole group had a past history of endometriosis, only 4 residual or recurrent endometriotic lesions were identified. Cases with endometriosis were classified according to the r-AFS. In all, 39, 7, 8 and 1 cases corresponded to stages I, II, III and IV respectively. The majority of lesions were classified as stage I or II (Table 2). There was no difference in the age of menarche between women with and without endometriosis.

The prevalence of endometriosis was higher in nulliparous women in comparison with parous women, respectively 20% and 11.46% ($P = 0.12$) (Table 3). In the group of 360 asymptomatic parous women, the prevalence of endometriosis was 10% (36/360). Prevalence of endometriosis was increased in patients with associated pain, 17.58% vs 10.43% in women without pain ($P = 0.06$). A high prevalence of endometriosis was identified in women with a retroverted uterus (15.94%), with or without pain (Table 3). In a small selected group of women with a retroverted uterus and associated pelvic pain, the prevalence of endometriosis was 17.64% (3/17). These results were not statistically significant, possibly because of low number of patients.

In order to measure the impact of the method of contraception used prior sterilization, we selected arbitrarily women who used

Table 1
Some characteristics of the 465 enrolled patients.

General characteristics	Mean		Range
Age	40.7		15–49
Height (cm)	160.86		149–175
Weight (kg)	57.46		40–102
BMI	22.3		18–38.4
Age at menarche	12.25		9–17
		n	Rate, %
Previous events			
Appendicectomy		232	49.80
Ectopic pregnancy		25	5.38
Endometriosis		12	2.58
Factors potentially influencing the prevalence of endometriosis			
Nulliparous		20	4.32
Tobacco use		106	22.89
Pelvic pain		91	19.43
Retroverted uterus		69	14.68
Previous contraceptive method used for one year or more			
Oral contraceptive (OC) only		149	32.05
Intra-Uterine-Contraceptive Device (IUCD) only		57	12.25
Both Methods (OC and IUCD)		232	49.89
None		27	5.80

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