

## GYNAECOLOGY

# Prevalence of Pelvic Lesions in Thai Women Undergoing Laparoscopic Tubal Sterilization at Siriraj Hospital

Tharaporn Tapaneeyakul MD,  
Orawan Kiriwat MD,  
Manee Rattanachaiyanont MD,  
Somthawil Chandanabodhi BN,  
Gessuda Chiravacharadej BSc. (Statistics).

*Department of Obstetrics and Gynecology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand*

### ABSTRACT

**Objective** To determine the prevalence and associated risk factors of pelvic lesions in apparently normal Thai women undergoing laparoscopic tubal sterilization at Siriraj Hospital.

**Study design** Retrospective descriptive study.

**Setting** Siriraj Reproductive Health Research Center, WHO collaborating center for research in human reproduction, Faculty of Medicine Siriraj Hospital, Mahidol University.

**Materials and Methods** Case recorded forms of 1,700 women who had normal pelvic examination and underwent laparoscopic tubal sterilization at the center during 1984-2002 were reviewed.

**Result** Of 1,700 women, 276 (16.24%) had at least one pelvic lesion. The most common abnormality was tubal lesions (9.94%), followed by ovarian lesions (3.94%), uterine myoma (2.82%), and endometriosis and/or pelvic adhesion (2.24%). Factors associated with an increased risk for pelvic lesions included age, obesity, abortion, dysmenorrhea, and duration of menstruation.

**Conclusion** It is not uncommon to discover various pelvic lesions during laparoscopic tubal sterilization in Thai women with normal pelvic examination. Although all of the lesions were benign and seemed to have no clinical significance, the information from this study would be useful for counseling, which is one important step of patient care.

**Key words:** Pelvic lesions, Laparoscopic tubal sterilization

Laparoscopic tubal sterilization is an alternative procedure for interval tubal sterilization. During the operation, abdomino-pelvic organs, including various lesions in pelvic cavity can be observed. Prevalence rate of the pelvic pathology in asymptomatic women undergoing laparoscopic tubal sterilization varies from 10 to 20%; the most common lesion is pelvic adhesion (14%) followed by uterine fibroma (5%), endometriosis

(3%), and ovarian or parovarian cyst (2%).<sup>(1)</sup> However, such prevalence in Thai population is unaware. Accurate information on the prevalence and associated risk factors are essential for education and counseling. In addition, the information provides baseline data that is useful for eliciting more complex researches, and for health economic analysis.

Laparoscopic tubal sterilization was introduced



in Thailand for more than 3 decades. In Siriraj hospital, laparoscopic tubal sterilization has been performed since 1972. More than 3,000 women were registered for laparoscopic tubal sterilization in our center. Database of these women would be valuable for studying the prevalence of pelvic lesions in normal pelvic examination Thai women.

The objectives of this study are (1) to determine the prevalence of pelvic lesions in normal pelvic examination Thai women, and (2) to identify risk factors associated with the conditions.

## Materials and Methods

Case recorded forms of women undergoing laparoscopy for tubal sterilization in Siriraj Family Health Research Center, Department of Obstetrics and Gynecology, Faculty of Medicine Siriraj Hospital were reviewed. Only 1,700 women with normal pelvic examination and had no history of abdomino-pelvic surgery, who had the operation during 1984-2002, were included in this study.

The case recorded form composes of 2 major parts. Part 1 contains sociodemographic data, medical history, reproductive history, and physical and pelvic examination. This part is completed by well-trained nurses. Part 2 contains laparoscopic procedures and operative findings. This part is completed by experienced gynecologists who performed the operation. Various pelvic lesions including uterine fibroids, endometriosis, tubal lesions and ovarian lesions were recorded immediately after the operation.

Data were analyzed using SPSS 10.0 (Chicago, IL), and presented in frequency and percentage, or in median, mean and standard deviation as appropriated. The association between pelvic lesions and risk factors, such as sociodemographic data and reproductive histories was analyzed using logistic regression and presented in odds ratio and 95% confidence interval.

## Results

Table 1 described sociodemographic data of all

1,700 women. They were in mid reproductive life with mean age of  $33 \pm 6.04$  years. Almost all of them were Thai and Buddhist. The majority of them were in low socioeconomic level, i.e. had lower than average income and low education.

Table 2 demonstrated reproductive data. The mean age of first marriage was  $21.28 \pm 4.14$  years. More than 80% of the women used temporary contraception for some times before deciding to have tubal sterilization. The average time from last delivery to tubal sterilization was  $6.31 \pm 4.66$  years. The main reason to receive tubal sterilization was the requirement of permanent contraception (48.36%). Only 8.82% stop previous contraception due to side effects.

Table 3 revealed prevalence of pelvic lesions. Among 1,700 women, 276 (16.24%) had at least one pelvic pathology. When each lesion was analyzed at a time, it was found that tubal lesions had the highest prevalence ( $n=169$ , 9.94%), followed by ovarian lesions ( $n=67$ , 3.94%), uterine fibroids ( $n=245$ , 2.82%), endometriosis and/or pelvic adhesions ( $n=38$ , 2.24%), respectively.

Table 4 presented the result of logistic regression analysis. The factors that were entered into the analysis included age, body mass index, presence of abortion, use of hormonal contraception, use of IUD, severity of dysmenorrhea and duration of menstruation. Among these factors, the significant risk factors for myoma uteri were age over 30 years old (OR 3.75; 95% CI 1.31-10.72), and obesity (OR 3.41; 95% CI 1.19-9.70). Those for endometriosis were age over 30 years old (OR 5.16; 95% CI 1.20-22.18), obesity (OR 4.32; 95% CI 1.43-13.01) and dysmenorrhea (OR 4.74; 95% CI 1.63-13.76). Those for tubal lesions were age over 30 years old (OR 1.65; 95% CI 1.04-2.62), presence of at least one abortion (OR 1.69; 95% CI 1.14-2.49) and duration of menstruation of more than 7 days (OR 2.05; 95% CI 1.27-3.32). Those for ovarian lesions were presence of at least one abortion (OR 2.75; 95% CI 1.53-4.94) and duration of menstruation of more than 7 days (OR 2.60; 95% CI 1.15-5.89).

**Table 1.** Sociodemographic data of 1,700 patients

Characteristics	Total	n (% of Total)	Mean(SD) or Median[range]
Age of patient (yr)	1,698		33.00(6.04)
Age of husband (yr)	1,660		37.06(7.36)
Income (baht / mo)	1,640		5,000[100-120,000]
Thai (race)	1,697		
Thai		1,688 (99.5)	
Others		9 (0.5)	
Religious	1,697		
Buddhism		1,669 (98.4)	
Others		18 (1.6)	
Education level	1,693		
No education		88 (5.20)	
Primary school		1,092 (64.50)	
Secondary school		249 (14.71)	
College or higher		264 (15.59)	

**Table 2.** Reproductive data of 1,700 patients

Data	Total	n (% of Total)	Mean(SD) or Median [range]
Age of first marriage (yr)	1,663		21.28(4.14)
Time from marriage to first pregnancy (mo)	1,690		5[0-96]
Gravidity	1,680		2[0-11]
Parity	1,680		2.73(1.31)
Abortion	1,680		0.37(0.70)
Time from last delivery to tubal sterilization (yr)	1,628		5[0-32]
Contraceptive methods ever used <sup>(a)</sup>	1,700		
Hormone		1,441 (84.76)	
Intrauterine device		380 (22.35)	
Condom		291(17.12)	
Reasons for tubal sterilization	1,553		
Prefer permanent method		751 (48.36)	
Personal reason		521 (33.55)	
Side effects of previous contraceptions		137 (8.82)	
Others		144 (9.27)	

Note <sup>(a)</sup>Each patient may ever use more than 1 method



**Table 3.** Pelvic lesions identified during laparoscopic tubal sterilization in 1,700 patients with normal pelvic examination

Pelvic pathology <sup>(a)</sup>	n	% of 1,700 patients
Myoma	48	2.82
Endometriosis and/or Pelvic adhesion	38	2.24
Ovarian pathology <sup>(b)</sup>	67	3.94
Tubal pathology <sup>(c)</sup>	169	9.94
Presence of at least one pelvic pathology	276	16.24

Note <sup>(a)</sup> Each patient may have more than 1 pelvic pathology.

<sup>(b)</sup> Ovarian pathology included cyst and parovarian cyst.

<sup>(c)</sup> Tubal pathology included inflammation, peritubal adhesion, hydrosalpinx.

**Table 4.** Risk of the unsuspected pelvic lesions according to selected sociodemographics and reproductive characteristics 1,700 women undergoing tubal sterilization during 1984-2002

Risk factors	Myoma uteri		Endometriosis and / or pelvic adhesion		Tubal lesions		Ovarian lesions	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age of patient								
up to 30 y/o	1.00		1.00		1.00		1.00	
> 30 y/o	3.75	1.31, 10.72	5.16	1.20, 22.18	1.65	1.04, 2.62	1.65	0.78, 3.47
Body mass index								
<=25 Kg / M2	1.00		1.00		1.00		1.00	
>25 to 30 Kg / M2	1.25	0.59, 2.65	0.55	0.18, 1.66	1.12	0.72, 1.73	0.77	0.37, 1.58
>30 Kg / M2	3.41	1.19, 9.70	4.32	1.43, 13.01	1.56	0.72, 3.40	0.00	0.00, >10
At least one abortion								
no	1.00		1.00		1.00		1.00	
yes	1.17	0.59, 2.34	1.12	0.48, 2.60	1.69	1.14, 2.49	2.75	1.53, 4.94
Ever use of hormonal contraception								
no	1.00		1.00		1.00		1.00	
yes	0.48	0.23, 1.00	6.37	0.82, 49.34	0.84	0.52, 1.37	0.64	0.32, 1.29
Ever use IUD								
no	1.00		1.00		1.00		1.00	
yes	1.62	0.82, 3.19	1.30	0.55, 3.10	1.49	0.99, 2.23	1.53	0.81, 2.87
Dysmenorrhoea								
no to mild	1.00		1.00		1.00		1.00	
moderate to severe	1.36	0.39, 4.70	4.74	1.63, 13.76	1.52	0.74, 3.13	0.70	0.16, 3.01
Duration of menstruation								
< = 7 days	1.00		1.00		1.00		1.00	
> 7 days	1.14	0.55, 2.37	2.99	0.88, 10.14	2.05	1.27, 3.32	2.60	1.15, 5.89

Note OR: odds ratio; CI: confidence interval.



## Discussion

In the present study the overall prevalence rate of pelvic lesions in apparently normal reproductive aged Thai women was 16.24 %. Such observed prevalence in Thai women was comparable to the prevalence rate of 10-20% in Caucasian women.<sup>(1)</sup>

In the present study, the most common pelvic pathology was tubal lesion. The lesion included inflammation, hydrosalpinx, and peritubal adhesion. Women who were at risk were older than 30 years old, had at least one abortion, and had duration of menstruation more than 7 days. Risk factors of tubal infertility in previous report include pelvic infection, (either following sexually transmitted disease, or following termination of pregnancy, miscarriage or difficult child birth), the use of intra-uterine contraceptive devices, appendicitis, endometriosis, and previous abdominal surgery.<sup>(2)</sup> Nevertheless approximately 50% of patients with documented tubal damage have no identifiable risk factors for tubal disease.<sup>(3,4)</sup> The effect of these tubal lesions on fertility function in the present study was unknown, since all women were previously fertile, and then required tubal sterilization.

Other pelvic lesions, i.e. myoma uteri, endometriosis, and ovarian lesions were less common. Each group of lesion had the prevalence rate of only 3-4%, which was similar to previous report.<sup>(1)</sup> All of the lesions were benign and seemed to have no clinical significance because they did not require immediate treatment. However, follow up data were not available for the study of natural history of these clinically undetectable benign lesions. Therefore, it was unknown whether these lesions would progress and eventually caused clinical problems.

Ovarian or parovarian cyst was found in 3.94% of all 1,700 women. It is known that the exposure to hormonal contraceptives reduces risk of ovarian cyst<sup>(5)</sup>, however, the authors could not find such association in the present study. Since some women in the present study stop using hormonal contraceptives for some times before tubal sterilization, the protective effect of hormones would

fade out with time; therefore such association could not be detected. Interestingly, the author found that history of abortion, and duration of menstruation of more than 7 days increased risk of these benign ovarian lesions. However more studies are needed to confirm such association.

Uterine fibroid, which is the most common benign gynecologic tumor in premenopausal women, was found in only 2.82% of women with normal pelvic examination. The accurate prevalence figure of this lesion is lacking, primarily because of limited population-based case research, varying symptomatology and most research has focused on symptomatic women. The role of laparoscopy in the diagnosis of uterine fibroid is limited because only pedunculated or subserosal lesions can be diagnosed via this mean.<sup>(6)</sup> Even in asymptomatic clinically normal pelvis, the prevalence found in the present study was certainly underestimated because infertile patients were not included. Infertile women may have higher risk for uterine fibroid.<sup>(7)</sup> The strongest risk factor in the present study was the age older than 30 years old, which was the same as in earlier reports.<sup>(6)</sup> Another significant risk was obesity, which may be associated with high estrogen levels.<sup>(8)</sup> Unexpectedly, the author could not find protective effect of hormonal contraceptives.

The prevalence of endometriosis is estimated to be 3-10 % of reproductive age women and 25-35% of infertile women.<sup>(9,10)</sup> Definitive diagnosis can be determined by direct visualization of typical or atypical lesions during laparoscopic evaluation of pelvic organs and peritoneum.<sup>(11)</sup> In the present study, the authors found a similar prevalence (2.24%) in fertile women. Women who were at risk were older than 30 years old, obese, and had moderate to severe dysmenorrhea. These findings were consistent with those found by Mahmood TA, et al.<sup>(12)</sup> Although IUD was reported to increase risk for endometriosis in some studies,<sup>(13,14)</sup> the author could not find such significant association in the present study.

There are some limitations in the present study, such as (i) some lesions may be overlooked due to human error, (ii) the numbers of women in the present



study may not be adequate for analyzing risk or protective factors in some lesions, especially in the lesions with very low prevalence rate, and (iii) very long study period, i.e. almost 20 years, may have influence on characteristics of the study population. These limitations may contribute to some discrepancy between the result of the present study and those of others.

In summary, it was not uncommon to discover pelvic lesions during laparoscopic tubal sterilization in apparently normal Thai women. Age, obesity, history of IUD utilization, symptom of moderate to severe dysmenorrhea and long duration of menstruation were risk factors for many pelvic lesions.

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