

# Evaluation of Female Sterilization and Tubal Tissue Confirmation at Srinagarind Hospital

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**Objective:** To determine the prevalence of unconfirmed uterine tube tissue and to compare the prevalence between medical staff and residents.

**Material and Method:** The authors recruited 693 women who underwent tubal resection at Srinagarind Hospital between January 1 and December 31, 2010. The authors recorded (a) the types of tubal resection, (b) the position of the surgeon, and (c) the result of the tubal tissue confirmation examination if conducted.

**Results:** There were 329 cases of postpartum tubal resection, six of interval tubal resection, and 358 of cesarean with tubal resection. Staff performed a respective 133, 2, and 195 and residents 196, 4, and 163 of these three surgeries, respectively. Most cases (79%; 548 of 693) underwent a tubal pathology examination. The primary pathology report revealed three cases of unconfirmed uterine tube, two of which were postpartum tubal resections and one was a cesarean section with a tubal resection. Staff operated one case of postpartum tubal resection while residents performed the balance. After an additional review of the specimens, only one case of cesarean section with tubal resection was an unconfirmed uterine tube.

**Conclusion:** The prevalence of unconfirmed uterine tube for lack of a tissue confirmation was 0.18%, with no statistically significant difference between staff and residents. Notwithstanding, most of the staff clinicians considered this clinically significant.

**Keywords:** Evaluation, Female sterilization, Tubal pathology examination, Teaching hospital, Tubal resection

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Around the world and in Thailand, female sterilization is the most popular permanent contraception. The Pomeroy's technique is the most frequently used technique for uterine tubal occlusion: it uses absorbable sutures to tie two loops of the uterine tube and the tube is cut above this ligation. The proximal and distal part of the uterine tube is separated from each other with fibrotic tissue after the suture is absorbed<sup>(1)</sup>. In Srinagarind hospital, usually none of the 1- to 2-cm resected uterine tubes segments undergoes tissue pathology confirmation because of: 1) the sheer number of specimens and the resulting impracticable workload; 2) the surgeon's being able to see and visually assess the uterine tube before the resection; 3) the cost of doing the pathology examination and the limited number of pathologists; and 4) pregnancy after tubal resection possibly being due to fistula tract or recanalization of the uterine tubes.

Some physicians, however, send the resected tubal specimens for histological confirmation; following the principle that all removed tissue from a patient should undergo a pathology examination.

There have been many changes in Thailand's healthcare delivery system in this last decade. One of which is the high expectation of treatment since the introduction of the national universal healthcare policy in 2002. Some cases of pregnancy post-tubal resection have had unacceptable outcomes. Therefore, many family planning service providers have improved their services by providing information on tubal resection, failure rates, surgical risks, and securing informed consent.

The utility of a tissue confirmation (pathology examination) of resected tubal tissue is debated. Srinagarind Hospital is a tertiary, university, and teaching institution. As with any teaching hospital, there are differences in approach among the various types of qualified service providers. The present study was undertaken to determine what would be the evidence basis for a policy requiring a pathology examination of resected tubal tissue. The present study

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objectives were 1) to determine the prevalence of unconfirmed uterine tube evidenced by a lack of tissue confirmation pathology reports, and 2) to compare the prevalence of unconfirmed uterine tube tissue pathology by different operators.

### Material and Method

The authors conducted an observational, prospective monitoring study of female sterilization performed at Srinagarind Hospital between January 2010 and December 2010. Analyses were done of the different types of operations and different groups of service providers, which were then cross-referenced with the presence or absence of a tissue confirmation report. An additional review was done for any cases of unconfirmed uterine tube. Data analysis was performed using Stata version 10 in term of frequency and percentage (%) with 95% confidence interval (95% CI). Comparing the different types of operations and service providers using the Fisher's exact test. A p-value < 0.05 was considered statistically significant.

### Results

#### General situation of female sterilization at Srinagarind Hospital

There were 693 cases of female sterilization in 2010, 688 felt they had had enough children (complete family) while five had medical indications

**Table 1.** General situation of female sterilization in 2010 at Srinagarind Hospital

	Complete family	Other
	Yes	No
Surgical indication	688	5
Pregnancy after tubal resection	1	692
	Staff	Resident
Service provider	330	363

**Table 2.** Tubal pathology examination in different types of tubal resection by different operators

Tubal pathology examination	Postpartum TR		Interval TR		Cesarean with TR			Total	
	Service	Staff	Service	Staff	Service	Staff	Service	Staff	Grand total
Yes	190	133	4	2	97	122	291	257	548
No	6	-	-	-	66	73	72	73	145
Total	196	133	4	2	163	195	363	330	693
Grand total	329		6		358			693	

TR = tubal resection

(Table 1). There was a single case of pregnancy after cesarean section with tubal resection operated by a resident: this case had had the tissue of both uterine tubes confirmed. Of the total, staff operated 330 of the cases while residents performed the balance (Table 1). Most of the cases (79%; 548 from 693) had tissue samples sent for a pathology examination (Table 2).

#### Types encountered

There were 329 cases of postpartum tubal resection, six interval tubal resections, and 358 cesareans with a tubal resection (Table 2). Staff and residents performed a respective 133, 2, and 195 and 196, 4, and 163 of these three types of surgery (Table 2). During this period, six cases of postpartum tubal resection had previous unilateral salpingectomy or salpingo-oophorectomy. All of the unilateral TR had had the tubes confirmed.

#### Pathology reports

The primary pathology report revealed three cases of unconfirmed one-sided abnormality of the uterine tube, (Table 3) two of which were operated by residents (*i.e.*, 1 postpartum tubal resection and 1 cesarean + tubal resection) and one by staff (postpartum TR) (Table 3). After an additional review of the specimens, only one case of cesarean with tubal resection had an unconfirmed uterine tube pathology on one side. The overall prevalence of unconfirmed uterine tube pathology was 0.55% (3/548) based on the primary report and 0.18% (1/548) after an additional review (Table 4). The difference in the prevalence of unconfirmed uterine tube between staff and residents was not statistically significant, neither on the primary report nor after an additional review.

#### Tubal pathology examination in different types of tubal resection

(Table 2).

**Postpartum unilateral TR**

Six cases of postpartum TR (4 cases by residents, 2 cases by staff) had previous unilateral salpingectomy or salpingo-oophorectomy. All of these unilateral TR had had the tubal pathology confirmed.

**Results of the pathology report**

(Table 3).

**Unconfirmed**

Three cases of unconfirmed one side:

**Primary report**

1) Postpartum TR (staff)

Left fallopian tube, resection: histological confirm

Right tube, resection:

- Fibromuscular tissue with arteries and veins
- No epithelial part and lumen seen

2) Postpartum TR (service)

Fallopian tube, bilateral, resection:  
 - Only normal left fallopian tube is seen  
 - The specimen from right adnexa shows smooth muscle and fibrous tissue

3) Cesarean with TR (service)

Uterine tube, right, resection: normal tubal structures

Uterine tube, resection: endometriosis with decidual change at serosa

**Additional review**

1) Postpartum TR (staff)

Section show isthmic part of fallopian tube of deeper cut.

2) Postpartum TR (service)

After recut deeper section A display mucosa of fallopian tube at isthmic part.

The diagnosis of right fallopian tube is confirmed.

3) Cesarean with TR (service)

Recut of slide show bundle of smooth muscle with paratubal cyst and decidual like stroma.

No significant tubal lumen is detected.

However, tubal lumen cannot clearly be identified.

**Prevalence of unconfirmed uterine tube from pathology report**

(Table 4).

**Discussion**

Tubal sterilization is the most popular permanent contraception and the Pomeroy technique is the most frequently used. In the first year after the procedure, there are 0.5 pregnancies per 100 women. Within 10 years after the procedure, there are 1.8 pregnancies per 100 women<sup>(2-4)</sup>. Pregnancy post-tubal resection at Srinagarind Hospital was 0.21%<sup>(5)</sup>.

**Table 3.** Results of the pathology report in different types of tubal resection by different operators

Pathological report	Postpartum TR		Interval TR		Cesarean with TR		Total	
	Service	Staff	Service	Staff	Service	Staff	Service	Staff
Confirmed both sides	189	132	4	2	96	122	289	256
Unconfirmed 1 side	1	1	-	-	1	-	2	1
Unconfirmed 2 sides	-	-	-	-	-	-	-	-
Total	190	133	4	2	97	122	291	257
	323		6		219		548	

**Table 4.** Prevalence of unconfirmed uterine tube from pathology report

	Primary report (95% CI)	Additional review (95% CI)
Operators		
Staff	1:257 (0.3891%) (0.0000985-0.0214877)	0:257 (0%)
Service	2:291 (0.6873%) (0.0008334-0.0246052)	1:291 (0.3436%) (0.000087-0.0189968)
Total	3:548 (0.5474%) (0.0011304-0.0159147)	1:548 (0.1825%) (0.0000462-0.0101249)
Type of operation		
Postpartum TR	2:323 (0.619%) (0.0007508-0.0221873)	0:323 (0%)
Cesarean with TR	1:219 (0.456%) (0.0001156-0.0251773)	1:219 (0.456%) (0.0001156-0.0251773)

A mandatory examination of the resected tubal tissue to confirm the tissue type is debated. At Srinagarind Hospital, as with many other university-teaching-hospitals, there are different professional opinions among the various types of service providers (externs, interns, residents, and staff). This was an observational study to determine the real situation in our service intervention program. The results of the present study will serve as the evidence base for practice guidelines in the authors' department<sup>(6)</sup>.

The National Health Security Board announced that pregnancy after female sterilization is a potential event, for which primary support (25,000 baht) could be given<sup>(7)</sup>. Tubal pathology examination may also be an important supportive procedure done when appropriate.

During the current study, if the primary report indicated an unconfirmed tissue type (pathology report) of the uterine tube, the operator and risk management groups were to be notified by the family planning nurses before the scheduled postpartum check-up. All three cases of unconfirmed tissue pathology of the uterine tube received temporary contraception. In one case, operated by a resident, there was dissatisfaction expressed by the patient with the hospital service. The counselor for this case expressed sympathy and encouraged the patient to begin temporary contraception. An additional review revealed only one case of cesarean with tubal resection having an unconfirmed tissue type of the uterine tube (Table 4). When the patient who had expressed dissatisfaction was informed of the result of the additional review, she remained dissatisfied because of the uncertain result. This sort of problem might be resolved with a more rapid additional review prior to the postpartum check-up.

Werawatakul et al reviewed the history of female sterilization at Srinagarind Hospital between 1987 and 2002<sup>(5)</sup> and found a 0.21% pregnancy rate. In the current study, the prevalence of unconfirmed tissue type after an additional review was similar (*i.e.*, 0.18%). In 2010, there was one case of pregnancy post cesarean with tubal resection operated by a resident. This case did indeed have a confirmed uterine tube pathology, so the failure in this case may have been due to fistula tract or reanastomosis<sup>(1,8)</sup>. This case had to undergo termination of the pregnancy at eight-week of gestation. In 2010, the prevalence of pregnancy post tubal resection at Srinagarind Hospital was 0.14%.

In the current study, confirmation of the tubal tissue type (and intervention when necessary) could reduce pregnancies by 0.18% (1 from 548 specimens).

The respective prevalence of unconfirmed uterine tube pathology in the primary report and additional review between staff and residents was 0.38:0.68 and 0:0.34. This is not statistically significant ( $p > 0.99$ ), albeit most of the staff in the authors' department considered the result clinically significant<sup>(9)</sup>. The prevalence of unconfirmed uterine tube pathology in postpartum tubal resection and cesarean with tubal resection in primary report and additional report was 0.61:0.45 and 0:0.45, respectively (not statistically significant) (Table 4).

Nowadays, most of the cases of pregnancy post tubal resection have claimed the allowable primary support (25,000 baht) from the National Health Security Office (NHSO), Thailand. To date, there is at least one case of pregnancy post tubal resection that has used the Product Liability Act, 2008, to directly sue a physician. This physician needed to go to court him/herself even though he/she worked in a government hospital.

The debate regarding tubal tissue confirmation in the authors' department persists. The group opposed thinks that the cost to the hospital for tissue confirmation per patient is costly (*i.e.*, 500 baht x 548 case or 274,000 baht in 2010 alone) and ultimately much greater than the 25,000 baht per case paid out by the NHSO. By contrast, the group in favour of getting tissue confirmation thinks that the money paid out does not represent the whole cost (*i.e.*, the problem comprises costs plus the reputation of the hospital plus the personal stress for the doctor(s) if sued). Our study group has concluded that tubal tissue pathology confirmation is ultimately beneficial for physicians because (a) it can lead to an appropriate intervention before a pregnancy occurs, (b) it reduces the rate of failure, and (c) it is good clinical practice.

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#### Potential conflicts of interest

None.

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## ประเมินการทำหมันหญิงและการส่งตรวจชิ้นเนื้อหลอดมดลูกที่โรงพยาบาลศรีนครินทร์

ยุทธพงศ์ วีระวัฒนตระกูล, มลฤดี ประสิทธิ์, กิรติ ลีละพงศัวัฒนา, พิไลวรรณ กลีบแก้ว

**วัตถุประสงค์:** เพื่อหาความชุกของชิ้นเนื้อที่ไม่ยืนยันว่าเป็นหลอดมดลูก และเปรียบเทียบความชุกของชิ้นเนื้อที่ไม่ยืนยันว่าเป็นหลอดมดลูก ในกลุ่มผู้ทำผ่าตัดที่แตกต่างกัน

**วัสดุและวิธีการ:** นำข้อมูลสตรี 693 ราย ที่รับการผ่าตัดทำหมันในช่วง มกราคม พ.ศ. 2553 ถึง ธันวาคม พ.ศ. 2553 ที่โรงพยาบาลศรีนครินทร์ มาวิเคราะห์แยกประเภทการผ่าตัดทำหมันหญิง ผู้ทำผ่าตัดหมันหญิง และผลตรวจชิ้นเนื้อทางพยาธิวิทยา

**ผลการศึกษา:** มีการทำหมันหญิงหลังคลอด 329 ราย ทำหมันแห้งหญิง 6 ราย และทำหมันหญิงร่วมกับการผ่าตัดคลอด 358 ราย การผ่าตัดทำหมันหญิง 3 ประเภทนี้ ทำผ่าตัดโดยสูตินรีแพทย์ เป็นจำนวน 133, 2 และ 195 ราย ทำผ่าตัดโดยแพทย์ใช้ทุนแพทย์ประจำบ้านสูติ-นรีเวช เป็นจำนวน 196, 4 และ 163 ราย ตามลำดับ ร้อยละ 79.08 (548 ราย จาก 693 ราย) ได้ส่งชิ้นเนื้อตรวจทางพยาธิวิทยา การรายงานผลครั้งแรกของการตรวจทางพยาธิวิทยา พบว่าชิ้นเนื้อไม่ยืนยันหลอดมดลูก 3 ราย ในจำนวนนี้ 2 ราย เป็นหมันหลังคลอด 1 ราย เป็นหมันพร้อมการผ่าตัดคลอด มี 1 ราย ที่ผู้ทำผ่าตัดเป็นสูตินรีแพทย์ผ่าตัดหมันหลังคลอด อีก 2 ราย เป็นแพทย์ใช้ทุนแพทย์ประจำบ้านสูติ-นรีเวชทำผ่าตัด อย่างไรก็ตามเมื่อทำการทบทวนสไลด์ตัดชิ้นเนื้อเพิ่มเติมพบว่า มีเพียง 1 ราย ที่ชิ้นเนื้อทางพยาธิวิทยาไม่ยืนยันหลอดมดลูกโดยเป็นการทำหมันพร้อมการผ่าตัดคลอด

**สรุป:** ความชุกของชิ้นเนื้อที่ไม่ยืนยันว่าเป็นหลอดมดลูกมีร้อยละ 0.18 ความชุกของชิ้นเนื้อที่ไม่ยืนยันว่าเป็นหลอดมดลูกระหว่างกลุ่มสูตินรีแพทย์ เปรียบเทียบกับแพทย์ใช้ทุนแพทย์ประจำบ้าน พบว่าไม่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติ อย่างไรก็ตาม แพทย์ส่วนใหญ่ในภาควิชาสูติศาสตร์และนรีเวชวิทยา เห็นว่ามีความแตกต่างกันทางคลินิกอย่างมีนัยสำคัญ