Immediate Complications of Laparoscopic Tubal Sterilization: 11 Years of Experience

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Objective : *To evaluate the complications of laparoscopic tubal sterilization.*
Method : *A retrospective study of laparoscopic tubal sterilization performed at Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, Chiang Mai, Thailand was conducted. The details of the operation, including complications and operation time were collected from the operative and family planning registry.*
Results : *Between January 1987 and December 1997, 948 cases of laparoscopic tubal sterilization were performed as an outpatient setting. The combination of intravenous sedation and local anesthesia was employed in all cases. Minor intra-operative complications were found in 4.6% of cases. The most frequent complications were meso-salphingeal and meso-ovarian bleeding. No serious complication was found in this study. The mean operation time was 19.3 minutes (range 5-75 minutes).*
Conclusion : *The present study suggested that out-patient laparoscopic tubal sterilization under the combination of intravenous sedation and local anesthesia is a convenient and relatively safe procedure.*

Keywords : *Laparoscopic, Tubal sterilization, Immediate Complication*

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Worldwide, the most commonly used method of fertility regulation is tubal sterilization which gives permanent contraception. The ideal method would be one which is highly effective, economical, able to be performed on an outpatient basis, allowing rapid resumption of normal activity, producing a minimal or invisible scar and having a potential for reversibility[1,2].

In developed countries, sterilization is generally performed by laparoscopy rather than minilaparotomy, based on the belief that this approach is both safe and effective[1]. Laparoscopy has become a widely used technique for sterilization because of its advantages including fewer operative risks or post operative complications[3].

The objective of this study was to review and evaluate the complications of laparoscopic tubal sterilization at Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, Chiang Mai University, Thailand.

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Material and Method

From January 1987 to December 1997, the details of laparoscopic tubal sterilization were collected from the operative and family planning registry.

According to standard hospital practice, history of previous pelvic surgery, medical diseases and general physical examination and pelvic examination were taken from all patients who decided to have a laparoscopic tubal sterilization. Most cases were scheduled as outpatient setting. Those who required anesthetic consultation were hospitalized one day before the operation.

Patients were sedated with 50-75 mg of meperidine and 10 mg of diazepam intravenously. Local infiltration with 3-5 ml of 1% lidocaine hydrochloride with 1:1,000 adrenaline was also provided at the site of skin incision.

The team consisted of one experienced surgeon, one residency training doctor, one theatre nursing staff and one circulating nurse.

The surgeon created pneumo-peritoneum with carbon-dioxide inflated after the insertion of a

trocar and canula. The amount of gas used varied between 1,000 and 2000 ml.

Single puncture laparoscopic technique was employed. The pelvic organs were inspected. The chosen occluding devices were applied 3 cm distal from the cornual ends. In case of bleeding, the surgeon stopped the bleeding by using unipolar electric cautery or applying the second ring banding. Bleeding points were checked before skin closing.

The patients were transferred to the recovery room and observed for at least 6 hours before leaving the hospital.

Results

There were 948 cases of laparoscopic tubal sterilizations, between January 1987 and December 1997. The vast majority (98.6%) were sterilized on a voluntary basis (considered request). Only 1.4% had medical contraindications to further pregnancy such as cardiac diseases. Six cases (0.6%) needed regional or general anesthesia and they were hospitalized one day before the operation.

The majority of patients (62.6%) were between 26-35 years old. Twenty-one women (2.2%) were younger than 25 years of age. Only 42.7% had a high school education or higher. Most procedures were outpatient laparoscopic interval the tubal sterilization. Only 12.1% underwent tubal diathermal procedure (Table 1).

Overall, 4.6% had minor intra-operative complications. The most frequent complications were mesosalpingeal and mesoovarian bleeding which were controlled with unipolar electrical cauterization or re-application of the second ring. No one required laparotomy. Only 3 cases (0.3%) had uterine perforation from the uterine manipulator but no further treatment was required after close observation.

Serious complications (i.e., bowel injuries, bladder injuries, cardiovascular events, anesthetic complications or death) were not found in the present study.

Discussion

From a total of 948 laparoscopic tubal sterilizations, associated pathologies were pelvic adhesion in 62 cases (6.5%) and small leiomyoma in 2 cases (0.2%). These pathologies, however, did not interfere with proper visualization and procedure nor result in requirement of laparotomy. These might be due to experiences of surgeon as well as exclusion of technically difficult cases such as having had a history of previous surgery or obesity.

Table 1. Demographic data of 948 women having laparoscopic tubal sterilizations between January 1989-December 1997

Characteristics	Percent distribution (N=948)
Age	
15-25	2.2
26-35	62.6
36-45	34.5
> 45	0.7
Education	
Primary school	57.3
High school	5.6
Certificate, Graduate	37.1
Status of Patient	
Interval	97.5
Post abortion	2.5
Type of procedure	
Tubal silastic banding (ring)	87.7
Tubal diatherny	12.1
Tubal clip	0.2
Anesthesia	
Local anesthesia and sedation	99.4
Regional anesthesia	0.3
General anesthesia	0.3

Table 2. Intra-operative complications

Complications	No	Rate/100 procedure
Mesosalpingeal and mesoovarian bleeding	41	4.3
Uterine perforation	3	0.3
Bowel, bladder injuries	0	0
Cardiovascular/anesthetic death	0	0

The mean operative time was 19.3 minutes (range 5-75 minutes) which was less than the average of 40.0 minutes for laparoscopic tubal ligation under local anesthesia reported by Hatasaka HH et al[4] and 33.0 minutes for microlaparoscopic technique for Pomeroy tubal ligation reported by Hibbert ML[5]. At 7 days after the operation, no serious complication such as pelvic inflammatory disease, peritonitis from bowel injuries and re-hospitalization was noted.

The surgical complications observed in present study (4.3%) were associated with Falope ring application onto pathologic fallopian tubes such as thick tubes, tube rocular or tortuous tubes, hydrosalpinx. This appears to be higher than the report of Mumford, et al[6] who reviewed their experience with 10,086 tubal ring sterilization cases and the surgical

complication rate was only 1.9%. Shet[7] also revealed that minimal bleeding from tubes and mesosalpinx was 194 while mesosalpingeal hematoma was 74 in a total of 30,000 cases of tubal ring sterilization.

Uterine perforation caused by the uterine manipulator during the operation was the second most common complication. This was encountered in 0.3% of cases which were not differently from previous reports[3,8].

Cunanan, et al [9] reviewed the experience of 5,018 women who underwent laparoscopic tubal diathermy. Bowel injuries occurred in five women (0.1%). In another major study, Baggish, et al[10] also reviewed their experience from 1972 to 1978. Thirteen cases sustained electrical burns (0.28%) and 3 required bowel resection (0.6%). There was no report of bowel injury in present study because only 12% of cases were performed by electric cauterization technique and all patients were screened for risk factors including diabetes mellitus, previous abdominal or pelvic surgery, and obesity before scheduling the operation.

The low complication rate of procedures performed under local anesthesia sedation in present study might be attributed to the surgeon with high experiences in performing laparoscopic tubal sterilization.

Sokal, et al[11] reviewed the serious adverse events related to tubal ring and Filshie clip for tubal sterilization, which were both rare. He concluded that techniques were effective and safe for using in tubal occlusion.

Present study confirms that outpatient laparoscopic sterilization under local anesthesia sedation is convenient and safe operation. There were minor intra-operative complications with rate of 4.6% and no major complication or mortality was encountered. Compared with the larger series reported by Mehta et al[8] in 1989, mortality rate of 4.8 per 100,000, major complications rate of 302 per 100,000 and pregnancy rate of 0.1% were found in 250,139 cases.

Conclusion

Present study suggests that laparoscopic tubal sterilization is a safe procedure. The complication rates were not higher than those performed under general anesthesia.

Most importantly, this technique costs less than other permanent sterilization techniques. Thus, under the pressure of quality versus cost for patient care in present economic situation, Laparoscopic tubal sterilization should be seriously considered a choice for sterilization of outpatients.

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ภาวะแทรกซ้อนเฉียบพลันจากการทำหมันผ่านกล้อง: ประสบการณ์ 11 ปี

สมศักดิ์ เชาว์วิศษฐ์เสรี, วีรวิทย์ ปิยะมงคล, สายพิณ พงษธา, ชัยรัตน์ คุณาวิกติกุล, นันทนา มรกต, วราภรณ์ จันทรวงศ์

วัตถุประสงค์ *: เพื่อประเมินภาวะแทรกซ้อนจากการทำหมันผ่านกล้อง*

วิธีการศึกษา *: เป็นการศึกษาแบบย้อนหลังของการทำหมันผ่านกล้อง ที่โรงพยาบาลมหาราชนครเชียงใหม่ คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่ เป็นการศึกษาภาวะแทรกซ้อนของการผ่าตัดทำหมันผ่านกล้อง โดยรวบรวมข้อมูลจากแบบบันทึกประวัติการผ่าตัดของหน่วยวางแผนครอบครัว*

ผลการศึกษา *: เป็นการศึกษาระหว่างเดือนมกราคม ปี พ.ศ. 2530 ถึง เดือน ธันวาคม พ.ศ. 2541 จำนวน 948 ราย ของการผ่าตัดทำหมันผ่านกล้อง โดยกระทำผ่าตัดแบบเป็นผู้ป่วยนอก ผู้ป่วยทุกรายจะได้รับยาระงับประสาททางหลอดเลือดดำ และยาระงับความรู้สึกเฉพาะที่ พบภาวะแทรกซ้อนที่ไม่รุนแรงร้อยละ 4.6 ภาวะแทรกซ้อนที่พบได้บ่อย ๆ คือ เลือดออกจาก meso-salphingeal และ meso-ovarian ไม่พบภาวะแทรกซ้อนที่รุนแรง ระยะเวลาเฉลี่ยที่ใช้ในการผ่าตัดเท่ากับ 19.3 นาที (พิสัย 5-75 นาที)*

สรุป *: การผ่าตัดทำหมันผ่านกล้องสามารถทำได้ในแบบผู้ป่วยนอก โดยการใช้ยาระงับประสาททางหลอดเลือดดำและยาชาเฉพาะที่ เป็นการผ่าตัดทำหมันที่มีความสะดวกและปลอดภัย*