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Introduction of a Laparoscopic Gynecological Program in a General Hospital in Taiwan

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ABSTRACT

Background and Objectives: We reviewed the records for 571 gynecologic laparoscopies performed at a privately owned general hospital in Kaosiung Taiwan in 1998 and 1999 and discuss here the major obstacles we encountered while introducing these procedures at our institution.

Methods: Included in this series are 293 procedures performed in 1998 (149 hysterectomies, 144 adnexal procedures), and 278 procedures performed in 1999 (131 hysterectomies, 147 adnexal procedures). Thirty-nine of these patients also underwent laparoscopic appendectomy. Mean patient age was 62 years (range 28 to 82). All procedures were performed by 1 of 6 board-certified gynecologic surgeons, or by 1 of 4 residents under the direct supervision of a board-certified surgeon.

Results: We experienced 0% mortality and 7.2% morbidity in this series. In comparing cases from 1998 and 1999, we observed a decrease in both mean surgery time (135.4 to 123.0, P=0.032) and mean length of hospital stay (5.52 to 4.62, P=0.046) for hysterectomies and adnexal procedures combined.

Conclusions: These data support ongoing efforts to incorporate gynecologic laparoscopy as an alternative to open procedures at our institution. Introduction of these procedures in privately owned hospitals in Taiwan has been limited because of the large initial investment for equipment, patient education issues, and difficulties obtaining reimbursement.

Key Words: Laparoscopy, Laparoscopically assisted vaginal hysterectomy, Ovarian cysts.

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INTRODUCTION

The use of laparoscopy as an alternative to laparotomy in gynecologic procedures has increased in recent years, especially since the advent of laparoscopic cholecystectomy. Local general hospitals in Taiwan have been slow to follow this trend because of the large initial investment required for state-of-the-art equipment, patient education issues, and difficulties obtaining reimbursement. Only recently has the government approved reimbursement for the following laparoscopic procedures: hysterectomy, myomectomy, ovarian cystectomy, and treatment of ectopic pregnancy. However, reimbursement levels have not been sufficient to cover basic procedural costs. In addition, costs for initial equipment setup and disposable surgical items have proven to be considerably more prohibitive in local privately owned general hospitals than in government owned hospitals.

The advantages of the laparoscopic approach in these procedures have been well documented and include less patient discomfort, shortened hospital stay, and quicker recovery. Specifically, laparoscopic appendectomy results in lower morbidity and shorter hospital stay than does laparotomy.[1-4] Similar advantages have also been shown for laparoscopically treated adnexal masses.[5-7] In addition, minimizing adhesions improves the patient's chances of remaining fertile following surgery.[8] Although the Taiwanese government has approved reimbursement for a number of these procedures, concern remains regarding the potential for inexperienced surgeons performing these operations and creating iatrogenic injuries.

We present a summary of 571 gynecologic laparoscopies performed at Yuan's General Hospital, Taiwan, in 1998 and 1999 and include a discussion of advancements in the use of these procedures at this institution.

METHODS

We performed a comprehensive review of all laparoscopic gynecology procedures performed at Yuan's General Hospital in Kaohsiung, Taiwan, R.O.C. in 1998 and 1999. All procedures were performed by 1 of 6 board-certified gynecologic surgeons or by 1 of 4 residents under the direct supervision of a board-certified

surgeon. Pneumoperitoneum was established in all cases with a Veress needle and maintained with CO_2. Four laparoscopic trocars were used in most of the procedures. Operative dissection and desiccation were accomplished with bipolar cautery. Unipolar cautery was used for colpotomy. Suturing was applied selectively as necessary. Data include indications for surgery, complications, rate of conversion to laparotomy, need for transfusion, and length of hospital stay.

RESULTS

From 1998 through 1999, 571 gynecologic laparoscopies were performed at Yuan's General Hospital, 293 in 1998 and 278 in 1999. Patient demographics for all cases are summarized in **Table 1**. These included 280 laparoscopically assisted hysterectomies and 291 adnexal procedures **(Table 2)**. Secondary procedures performed in combination with the hysterectomy or adnexal procedures are shown in **Table 3**. The most common indications for hysterectomy were fibroids, menometrorrhagia/dysmenorrhea, and pelvic mass **(Table 4)**. Twelve of 280 laparoscopic hysterectomies performed during this period (4.3%) required conversion to laparotomy (5 of 149 in 1998, 7 of 131 in 1999). Reasons for conversion to laparotomy included bleeding (8 cases), adhesions (3 cases), and bladder injury (1 case). A J-P drain was inserted postoperatively in 154 of the laparoscopic hysterectomy cases (91 in 1998 and 63 in 1999). Serous adenomas and endometriomas were the most common types of adnexal masses diagnosed in this series **(Table 5)**. Only 2 of the 291 adnexal procedures (0.7%) required conversion to laparotomy (1 of 144 in 1998 due to adhesions, 1 of 147 in 1999 due to endometriosis). We used J-P drains in 39 adnexal cases in 1999 but in no adnexal surgeries the previous year. The mortality rate in this series was 0%, and the morbidity rate was 7.2% (41 of 571). Bleeding was the most common complication, occurring in 38 of the hysterectomy cases (21 in 1998 and 17 in 1999, 13.6% of the total), and 1 of the adnexal laparoscopies (<1%). Eight of these 39 cases (20.5%) required transfusion. Two patients incurred bladder injury during hysterectomy. From 1998 to 1999, we observed a reduction in both mean surgery time (135.4 to 123.0, P=0.032) and mean length of hospital stay (5.52 to 4.62, P=0.046) for hysterectomies and adnexal procedures combined.

DISCUSSION

The use of laparoscopy in gynecologic surgical procedures has increased in recent years as more studies have been presented that support the safety and efficacy of this approach. In particular, the advantages of laparoscopically assisted vaginal hysterectomy (LAVH) over laparotomy have been well documented.[3,9] These advantages include shorter hospital stay, shorter recovery time, reduced hospital charges, and comparable if not fewer

Table 1.

Patient Demographics in 571 Gynecologic Laparoscopies Performed at Yuan's General Hospital, Taiwan, R.O.C., in 1998 and 1999

	1998 mean (range)	1999 mean (range)
Age (yrs)	46.12 (29–77)	46.62 (28–83)
Wt (kg)	58.4 (40.5–94.5)	60.1 (38.0–90.5)
Ht (cm)	156 (140–168)	156 (143–174)

Table 2.

571 Gynecologic Laparoscopies Performed at Yuan's General Hospital, Taiwan, R.O.C., in 1998 and 1999

	1998	1999
Hysterectomy	149	131
Cyst adnexectomy	144	147

Table 3.

Secondary Laparoscopic Procedures Performed in Combination With the Hysterectomy or Adnexal Procedures Performed at Yuan's General Hospital, Taiwan, R.O.C., in 1998 and 1999.

Procedure	1998	1999
A & P repair	13	13
Appendectomy	9	30
Suspension	3	18
Cholecystectomy	1	3
Herniorrhaphy	1	4
Lysis of adhesions	6	41

complications while avoiding a large laparotomy wound. Similar advantages have occurred with laparoscopic management of adnexal masses that appear benign on ultrasound.[5] Several authors have suggested that with appropriate preoperative evaluation, laparoscopy should replace laparotomy in the management of most adnexal masses.[6,7,10] Despite this information, the general gynecologic surgical community has been slow to incorporate laparoscopic techniques. Although some institutions have reported reductions in the laparotomy rate for hysterectomy to around 10%, evidence exists from the United Kingdom and the United States that more than 70% of all hysterectomies are still being performed via laparotomy.[9] The primary obstacles cited include the large initial capital investment for equipment, the significant training necessary, and reluctance on the part of payers to reimburse for these procedures.

Table 4.

Indications for Laparoscopic Hysterectomy in 280 Cases at Yuan's General Hospital, Taiwan, R.O.C., in 1998 and 1999.

Indication	1998 (149 Cases)	1999 (131 Cases)
Fibroids	63 (42.3 %)	65 (49.6 %)
Menometrorrhagia/ dysmenorrhea	39 (26.2 %)	23 (17.6 %)
Pelvic mass	18 (12.1 %)	11 (8.9 %)
Prolapse	13 (8.7 %)	12 (9.7 %)
CIS	10 (6.7 %)	6 (4.8 %)
Hyperplasia	3 (2.0 %)	5 (4.0 %)
USI	3 (2.0 %)	2 (1.6 %)

Table 5.

Pathology of Adnexal Masses in 291 Cases Managed at Yuan's General Hospital, Taiwan, R.O.C., in 1998 and 1999.

Pathology	1998 (144 cases)	1999 (147 Cases)
Serous adenoma	55 (38.7 %)	53 (36.6 %)
Endometrioma	38 (26.8 %)	29 (20.0 %)
Tubal pathology	18 (12.7 %)	7 (4.8 %)
Mucinous	13 (9.2 %)	5 (3.4 %)
Fibroma	8 (5.6 %)	7 (4.8 %)
Ectopic pregnancy	6 (4.2 %)	20 (13.8 %)
Dermoid	3 (2.1 %)	4 (2.8 %)
Abscess	1 (0.7 %)	7 (4.8 %)
Adhesion with cyst (pseudocyst)	0 (0.0 %)	13 (9.0 %)

The Taiwanese surgical community has also been slow to adopt laparoscopic techniques for many of these same reasons. Complicating matters is the fact that medical care in Taiwan is socialized. All equipment must be imported, making it particularly expensive. Financial limitations are a particular obstacle in privately owned hospitals. For example, at our institution, disposable surgical tools are often sterilized and reused to save on expenses. For those procedures approved for reimbursement, the reimbursement levels are so low they rarely cover the basic costs of the procedure. In addition, a limited number of hospitals are set up to perform training, and few qualified surgeons are available to conduct the training. No reimbursement is available for procedures performed during training prior to certification. Even at our hospital, where we are making substantial progress with our laparoscopy program, patient education and expectations based on cultural tradition continue to be a major obstacle. Patients are reluctant to consent to laparoscopic surgery not only because it is new to them, but also because they often do not understand the benefits. For example, the average length of hospital stay for our series of patients does not differ significantly from that for patients undergoing laparotomy. The majority of our laparoscopy patients could safely be discharged on the second or third day postoperatively; however, our system allows patients to stay 4 or 5 days following gynecologic surgery. Patients expect to stay in the hospital for that period of time and often choose to do so even when unnecessary.

Despite these obstacles, we feel we are making progress with our program. We successfully train 4 or 5 new residents each year in laparoscopic gynecology techniques and have shown improvement in our surgeons' technique through lower complication rates, shorter procedure times, and shorter hospital stays. We believe these data support ongoing efforts to incorporate gynecologic

laparoscopy as an alternative to open surgeries for treatment of appendectomy, hysterectomy, and adnexal masses at our institution.

CONCLUSION

We feel these data support ongoing efforts to incorporate gynecologic laparoscopy as an alternative to open procedures at our institution. Introduction of these procedures in privately owned hospitals in Taiwan has been limited because of the large initial investment required for state-of-the-art equipment, patient education issues, and difficulty in obtaining reimbursement.

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