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Salpingectomy via Laparoscopy: A New Surgical Approach

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ABSTRACT

This study presents 100 consecutive cases of total salpingectomy performed via laparoscopy for indications of ruptured or recurrent ectopic pregnancy, hydrosalpinges, torsion of the fallopian tube, hematosalpinges, or extensive adhesions. A multiple abdominal puncture approach was used, and salpingectomy was accomplished by electrosurgical coagulation and laser transection of the isthmus, mesosalpinx, and tubo-ovarian ligaments using the CO_2 laser. The fallopian tubes were removed from the pelvic cavity through one of the suprapubic punctures. The mean duration of the procedure was 22 minutes, and the mean duration of hospitalization after surgery 7.4 hours. No major intraoperative or postoperative complications were encountered. Laparoscopic salpingectomy appears to be a safe and relatively simple procedure associated with the advantages of outpatient surgery.

INTRODUCTION

SINCE THE INITIAL REPORTS on laser laparoscopy by Bruhat,[1] (second puncture) Tadir,[2] (joy stick via operative laparoscope) and their colleagues, several surgical lasers have been developed for the treatment of gynecologic disorders. Argon,[3,4] Nd:YAG,[5,6] potassium-titanylphosphate (KTP/532),[7] and carbon dioxide (CO_2)[8–15] lasers have been used to treat endometriosis, ectopic pregnancy, pelvic adhesions, hydrosalpinges, and dermoid cysts.[11–18] We have modified use of the CO_2 laser via the operative channel of the laparoscope by direct coupler without a joy stick and by adding the video camera to the eyepiece of the laparoscope[15–18] (videolaseroscopy).

Gomel and Taylor[16] and Mage and Bruhat[17] described the techniques of linear salpingostomy and partial salpingectomy via laser laparoscopy. Few reports in the literature, however, address the outcome of salpingectomy by laparoscopy in a large patient population. We report here on 100 consecutive cases of salpingectomy performed by laparoscopy.[15]

MATERIALS AND METHODS

From January 1986 through December 1989, 100 women between 25 and 49 years of age underwent diagnostic laparoscopy for either symptoms of or known pelvic diseases. The findings were: ruptured ectopic pregnancy (9); a history of two or more ectopic pregnancies in the same fallopian tube or a severely damaged

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tube beyond repair (21); severe tubal damage and severe pelvic adhesions due to inflammatory disease, endometriosis, or previous surgical intervention (47); hydrosalpinges beyond repair (11); and torsion of the fallopian tube (12) (Table 1).

The procedures were performed under general endotracheal anesthesia, using multiple abdominal punctures and the videolaseroscopic techniques described previously.[18] Each procedure was recorded on videotape as a permanent record. The carbon dioxide (CO_2) laser was used via the operating channel of the laparoscope according to the technique described previously.[15] Bipolar Kleppinger forceps were used for coagulation, and cutting was achieved with 30 to 80 W of the CO_2 laser in the superpulse mode.

The pelvis and abdominal cavity were explored via laparoscopy. Total salpingectomy was performed by coagulation (not dessication) and transection of the isthmic portion of the fallopian tube at its junction to the uterus, followed by coagulation and transection of the mesosalpinx at intervals of 1 to 2 cm in the direction of the tubo-ovarian ligament; the tubo-ovarian ligament also was coagulated and transected (Figs. 1 to 3). The fallopian tube was removed from the pelvis via one of the suprapubic punctures through the 5-mm (or 10-mm, if necessary) trocar sleeve or via the operating channel of the laparoscope. Finally, the pelvic cavity was

TABLE 1. INDICATIONS FOR SALPINGECTOMY

Indication	*No. of patients*
Ruptured ectopic pregnancy	9
Severe tubal damage or >2 ectopic pregnancies	21
Severe pelvic adhesions due to PID, endometriosis, or previous surgical intervention	47
Hydrosalpinges	11
Torsion of fallopian tube	12
Total	100

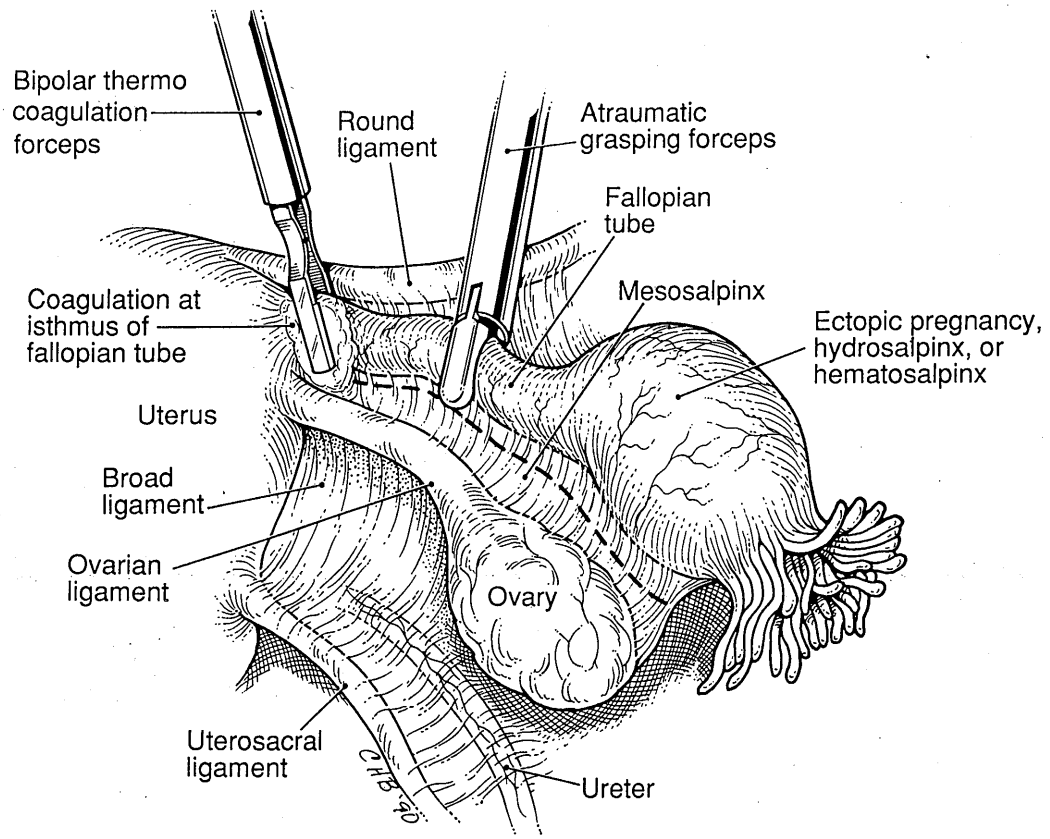

FIG. 1. Coagulation and transection of the isthmus portion of the fallopian tube using the CO_2 laser.

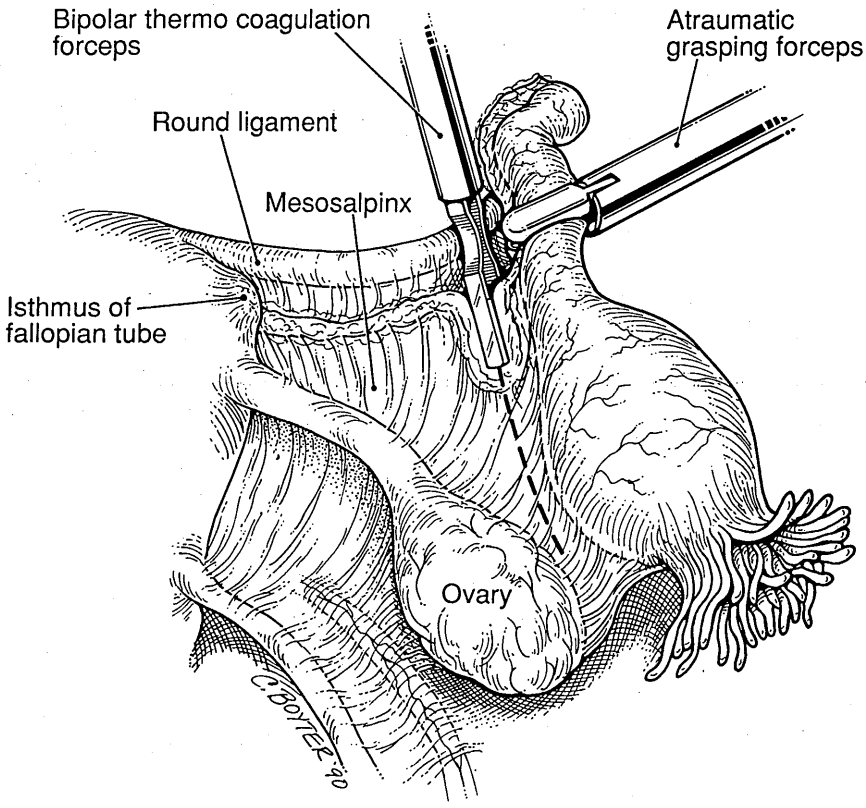

FIG. 2. Coagulation and transection of the mesosalpinx using the CO_2 laser.

irrigated thoroughly and checked for bleeding vessels. This was accomplished by letting the gas completely out of the abdominal cavity and while observing the monitor, reinsufflating the abdomen. If there is any temporary control of active bleeding due to pressure of CO_2, it will show itself by this technique (Nezhat sign).

A total of 105 fallopian tubes were removed from these 100 women. The duration of the salpingectomy portion of the procedure ranged from 15 to 35 minutes, with a mean of 22 minutes. Blood loss was minimal.

No major complications were encountered during or after any of the procedures. Eight patients experienced minor complications of abdominal wall ecchymosis, and two required recatheterization for temporary urinary retention. The average hospital stay after surgery was 7.5 hours. Eight patients remained in the hospital overnight because surgery was performed late in the day or for their own convenience. Excluding these eight patients, the average postoperative hospital stay was 4.5 hours.

DISCUSSION

Certain pathologic conditions require the removal of one or both fallopian tubes. Several gynecologic surgical procedures, including salpingectomy, have been performed by operative laparoscopy rather than traditional laparotomy, with notable advantages. If there is no definite contraindication to laparoscopy, indicated salpingectomy can be performed at the time of diagnostic laparoscopy. Laparoscopy requires a smaller incision, shorter hospital stay, with more rapid recovery, and decreased cost to both the patient and the hospital.

The techniques of laserlaparoscopy with video for salpingectomy are advantageous to both the patient and the surgeon. Electrocoagulation (not dessication) with the laser transection is associated with good hemostasis and eliminates the need for sutures and the inherent risk of adhesions.

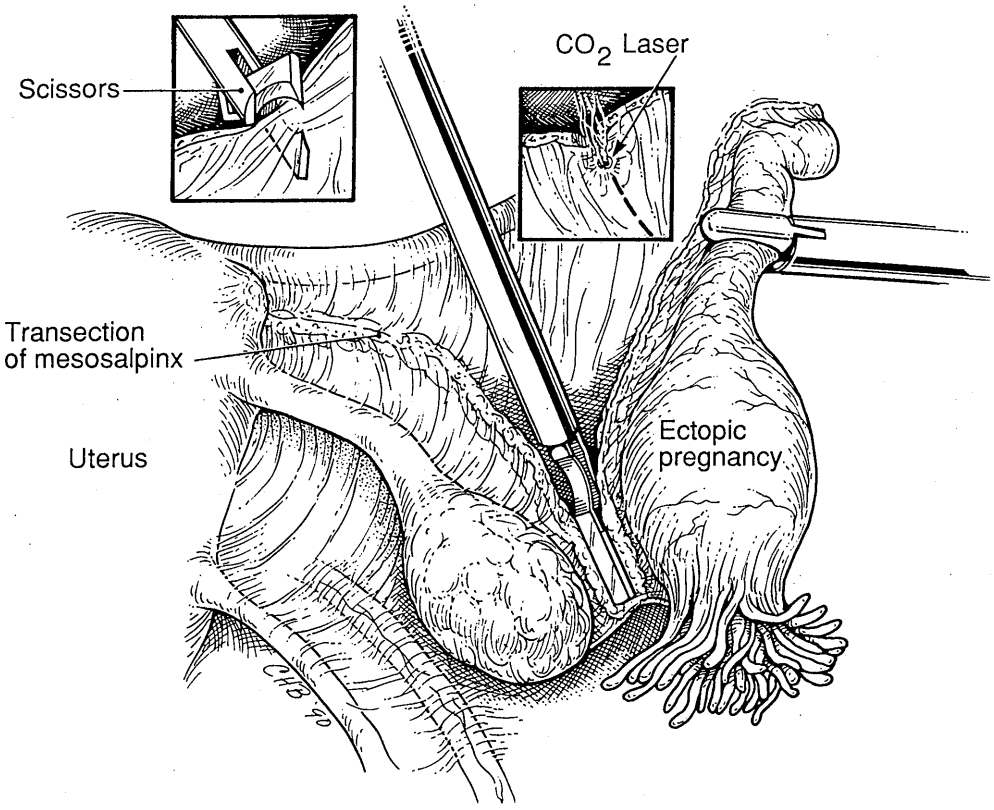

FIG. 3. Coagulation and transection of the tubo-ovarian ligament using the CO_2 laser.

CONCLUSION

Laparoscopic salpingectomy among the 100 women in this study was a safe and relatively simple procedure and was associated with all the advantages of outpatient surgery. There were no major complications. Minor complications (abdominal wall ecchymosis) were associated with the laparoscopic instrumentation, not the salpingectomy procedure. The limiting factors in performing videolaparoscopic salpingectomy are the skill and experience of the surgeon and availability of the proper instrumentation.

Although this study represents the experience of surgical "technique" for laparoscopic salpingectomy, there is a wide variety of underlying pathology. Small numbers are present in each category. Long-term follow-up is ongoing to determine the extent of benefit of the technique.

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