Bahrain Medical Bulletin, Vol. 22, No. 4, December 2000

Laparoscopic Surgery In Gynaecology - Salmaniya Experience

J K Dhaliwal, FRCOG * Affaf Al-Shafei, FRCOG *
Mona Al-Sharqi, CABOG *

Objective: To evaluate the results of our early experience with laparoscopic gynaecological surgery and to assess its benefits.

Design and settings: Retrospective review of all women who had laparoscopic surgery by the first author over a four year period between May1996 and July 2000 in a tertiary care teaching hospital.

Results: A total of 78 laparoscopic surgeries were performed and in 11 patients the procedure had to be abandoned and conventional laparotomy performed. Sixty seven (86%) patients were successfully managed by the laparoscopic technique. Forty one were operated upon for ovarian tumours, fourteen had laparoscopically assisted vaginal hysterectomy (LAVH) and twelve had a variety of other conditions. Only one woman developed complication which was successfully managed.

Conclusion: The present study has shown that laparoscopic surgery offers distinct advantages in dealing with many common gynaecological problems which require surgical intervention. Short hospital stay, reduced morbidity, quick mobilization and comfortable postoperative period are main advantages of the laparoscopic technique. Audit of our results has further revealed that proper training of the nursing staff as well as the junior doctors for this type of surgical procedure can help to reduce the operating time.

Bahrain Med Bull 2000;22(4):151-55

Laparoscopy has been a well-known procedure in the field of gynaecology and for many years, it has been used for female sterilization or as a diagnostic procedure for various acute and chronic abdominal ailments[1]. In comparison to the standard laparotomy, small incision laparoscopic surgery offers unique advantages with respect to speedy recovery and mobilization, reduced morbidity due to minimal surgical trauma and shorter hospital stay with its economic benefits[2]. In view of its definite advantages to the patient as well as the hospital, laparoscopic surgery has progressed very rapidly and has become frequently performed procedure in gynaecology practice. Laparoscopic gynaecological

---

* Consultant
Department of Obstetrics & Gynaecology
Salmaniya Medical Complex
State of Bahrain.

surgery was first started in our department in 1996 and its use has steadily increased since then. For the first time in Bahrain, we present an audit of our early experience of laparoscopic surgery in gynaecology, evaluate its benefits in order to draw some valid conclusions and recommendations for further developments in this field.

METHODS

The patients included in this study were all operated upon by the first author between May 1996 and July 2000 in Salmaniya Medical Complex. Minor laparoscopic procedures like sterilization, ovarian drilling or minimal adhesiolysis were excluded. A preoperative assessment was done in all patients which included clinical examination, complete blood count, pelvic ultrasonography and/ or measurement of tumour markers where indicated. The patients for laparoscopically assisted vaginal hysterectomy (LAVH) were assessed in terms of size, mobility of the uterus to exclude the presence of dense adhesions and the need for removal of the ovaries. The ovarian masses were assessed by abdominal or vaginal ultrasound to exclude the possibility of malignancy. Where necessary, further evaluation was done by measuring the tumour markers. Any potentially malignant ovarian tumours were managed by conventional laparotomy.

All laparoscopic procedures were performed under general anaesthesia. The patient was put in moderate(30 degrees) Trendelenburg position. An infraumblical skin incision was made and the Veress needle introduced through it. A pneumoperitoneum was created, the needle removed and a 10 mm trocar inserted intra peritoneally. The trocar sleeve was left in situ and a 10 mm 0 degree telescope (Karl Storz) was inserted and connected to a camera with a video monitor system. A preliminary laparoscopic evaluation was done before making incisions for instrumentation. The abdominal cavity especially the pelvic area was carefully inspected. The surface area of the ovarian cysts was carefully examined in order to ensure their benign nature.Two further 5 mm trocars were inserted through small incisions in the iliac fossas lateral to the deep inferior epigastric vessels. If required a third 5 mm trocar was inserted in the suprapubic region.

LAVH was performed by dividing the round ligaments, fallopian tubes and utero ovarian or infundibulopelvic ligaments by means of stapling devices. The uterovesical peritoneum was divided transversely. A circumferential incision was then made around the cervix by the vaginal approach. The bladder was dissected away from the cervix and the pouch of Douglas entered. The cardinal and uterosacral ligaments were cut and transfixed followed by transfixation of the uterine arteries. The uterus was removed vaginally and the vault sutured. All LAVH patients were given prophylactic antibiotics (intravenous Rocephin and Flagyl) during the procedure.

Ovarian cystectomy was performed by either enucleating the ovarian cyst or aspirating it followed by removal of the cyst wall. Very large cysts were aspirated, the wall was exteriorized and excised. The remaining ovarian tissue was reconstructed using Vicryl sutures. In other cases the cyst wall was excised and its edges were inverted by coagulating the adjacent inner surface. Haemostasis was achieved by unipolar or bipolar coagulation. When complete cystectomy was not possible due to the presence of

adhesions, the cyst was fenestrated by means of unipolar needle and scissors. The cyst wall was then examined carefully and coagulated. All specimens were sent for histopathology.

At the completion of the laparoscopic procedure, the peritoneal cavity was carefully lavaged until the irrigation fluid was completely devoid of any blood. The 5 mm abdominal punctures were closed by a single 3 zero Vicryl suture to the skin. The 10 mm wound was closed by suturing the rectus sheath and the skin by 3 zero Vicryl. Immediately following the completion of the surgery, a 100 mg Diclofenac (Volteran) suppository was inserted per rectum for pain relief. The patients who underwent LAVH were discharged after 48 hours and the rest after 24 hours.

RESULTS

During the study period between May 1996 and July 2000, seventy eight patients underwent operative laparoscopy. Sixty seven (86%) patients were successfully managed by the laparoscopic technique.Their ages ranged from 19 to 58 years (Table 1). The type of laparoscopic procedures performed are listed in table 2. Eleven patients required conversion to laparotomy (Table 3).

Table 1. **Age distribution of patients undergoing laparoscopic surgery**

Type	Age range (Years)	Mean (Years)	SD	95% CI
Ovarian masses	19-57	33.3	8.41	30.7-36.0
LAVH	40-58	47.9	5.3	44.8-50.9
Others	28-45	33.0	5.26	29.7-36.3

Table 2. **Type of laparoscopic procedures performed**

Type of Procedure	**No. of cases**
OVARIAN MASSES	
Ovarian cystectomy	31
Ovarian cyst exteriorization	5
Ovarian fenestration	5

Total of ovarian masses	**41**
LAVH	**14**
OTHERS	
Salpingectomy	3
Salpingostomy	4
Ventrosuspension	1
Salpingo oophorectomy	1
Adhesiolysis	2
Cauterisation of endometriotic spots	1
Total of others	**12**
Total of ovarian masses, LAVH and others	**67**

Forty nine cases were operated for persistent cystic ovarian tumours, 41 were removed laparoscopically without any surgical complication. Eight patients required conversion to laparotomy for various reasons listed in Table 3. The mean age of patients operated for ovarian disease was 33.3 years but 7 of them were above 40 years. Ovarian cystectomy was performed in 31cases (75.6%) which included 3 patients who required bilateral cystectomy for endometriosis. Fenestration of the cyst was done in 5 (12.2%) and ovarian cystectomy after exteriorization in 5 patients (12.2%). All the specimens were removed through the primary trocar puncture or after enlarging the incision. The histopathologic findings of the ovarian masses removed laparoscopically are summarized in Table 4. Most of the ovarian masses were cystic in nature. Serous and endometriotic cysts were the predominant pathology followed by dermoid cysts. Solid benign tumours were found only in 2 women. Advanced ovarian endometriosis was the principal reason for conversion to laparotomy.

Table 3. **Laparoscopic procedures converted to laparotomy**

Procedure	**No. of cases**
LAVH	
1.Extensive adhesions	2
2.Instrument malfunction	1
Total	3
OVARIAN CYSTECTOMY	
1.Bilateral endometriosis with dense adhesions	4
2. Endometriosis with dermoid cyst	2
3. Parovarian cyst with appendicular mass	1
4. Endometriotic cyst with fibroid	1
Total	8
Total of LAVH and Ovarian	**11**

Table 4. **Histopathology of ovarian masses removed laparoscopically**

Type	No. of cases
Serous cyst	12
Endometriosis	10
Dermoid cyst	8
Haemorrhagic cyst	4
Paratubal cyst	2
Corpus luteal cyst	2
Benign mucinous cyst adenoma	1
Serous cyst adenofibroma	1
Mesothelial cyst	1
Total	**41**

LAVH was attempted in 17 patients and was successfully performed in 14. The mean age for LAVH patients was 47.9 years. In three patients who required conversion to laparotomy, two had adhesions, while in the third case there was a technical problem due to stapler malfunction. One LAVH patient developed intraperitoneal bleeding postoperatively for which laparotomy was done later in the evening.

Twelve patients underwent laparoscopic surgery for a variety of other conditions listed in Table 2. The mean age for this group was 33 years. Five patients with ectopic pregnancy were dealt with laparoscopically. Two of them had salpingostomy and three required salpingectomy. All these five cases presented with subacute symptoms of persistent abdominal pain and therefore could be operated upon as elective procedures. All of them had unruptured ectopic pregnancies.

DISCUSSION

Laparoscopic surgery, although widely performed in most gynaecologic centres, has been recently introduced in the past four years in Salmaniya Medical Complex. This type of minimally invasive surgical technique is not without risks as there is an overall complication rate of 34/1000 and a mortality rate of 0.08/1000[3]. It is therefore essential that a careful preoperative assessment of the patient should be done followed by a meticulous laparoscopic examination prior to surgery.

A large number of the laparoscopic procedures are usually performed for ovarian masses[2, 4] and this was so in our study (61%). A thorough preoperative workup is even more important in these cases so as to avoid operating on unidentified malignant ovarian tumours thus resulting in dispersal of the cancer cells into the peritoneal cavity[5, 6]. In our study, none of the operated cases showed any malignancy on histopathology. On the other hand examination with a high-resolution ultrasound especially using the endovaginal probe has been of great help in evaluating adnexal masses[7]. This can help to

avoid immediate surgery for premenopausal women with a palpable ovarian mass, which persists for more than a month as advocated earlier[8]. Similarly, a total abdominal hysterectomy with bilateral salpingo-oophorectomy is not necessarily essential for all postmenopausal women with a clinically palpable ovary[9]. In our series there were 7 such patients above the age of 40 years in whom a laparoscopic ovarian cystectomy was considered to be an adequate procedure after careful evaluation of the ovarian mass. Therefore a thorough preoperative workup of the ovarian mass is essential to decide whether the patient should undergo conservative management, cyst aspiration, laparoscopic surgery or laparotomy.

Hysterectomy is one of the commonest inpatient surgical procedures in gynaecology and approximately 70% have been done using the conventional abdominal route[10]. The choice of surgical route in benign disease depends entirely on the surgeon's experience and skill[11]. Vaginal surgery is associated with shorter postoperative hospital stay and fewer complications. By combining operative laparoscopy with skillful vaginal surgery, most patients with benign pelvic pathology can avoid laparotomy. In our study LAVH was performed for patients who would have otherwise needed laparotomy. The number of LAVH operations performed were less due to two reasons: 1. On many occasions non-availability of appropriate staples and bipolar diathermy prevented us from proceeding with LAVH. 2. With passage of time it was found that the vaginal route alone as advocated by Johns[12] was sufficient for most of these cases. Three LAVH patients needed conversion to laparotomy. Two had adhesions which were not possible to dissect laparoscopically. Both these patients were converted to laparotomy in the initial phase of this study. However similar cases were successfully dealt with later on as we gained more experience. In the third patient malfunctioning of the stapler device forced us to abandon the laparoscopic technique.

Laparoscopic treatment of endometriosis is now well proven beneficial entity[13]. In fact laparoscopy is more effective in identifying small lesions of endometriosis due to its magnifying effects[14, 15]. Most of the cases of endometriosis in our series were of ovarian origin. These were basically treated by drainage, excision biopsy of the cyst wall and coagulation. This procedure prevents destruction of a healthy ovarian tissue, allows endometriosis to shrink in size and potentially avoids further surgery[16].

Laparoscopic salpingostomy was first reported by Gomel[17] in 1977. This may be done as a fertility promoting procedure or for unruptured ectopic pregnancy. In this study only five patients of ectopic pregnancy presenting with subacute pain abdomen were dealt with laparoscopically. The majority of ectopic pregnancies presented with acute symptoms and therefore had a diagnostic laparoscopy or laparotomy as an emergency. Tubal patency following conservative tubal surgery has been variably reported by different authors[18-20]. Follow up of our cases is very short to evaluate the patency of the tubes.

There were eleven patients who required conversion to laparotomy. Six of these patients had extensive dense adhesions as a result of endometriosis, which could not be dealt with

laparoscopically. In all the patients in this study, there was only one woman who had short-term complication in the form of intraperitoneal haemorrhage following LAVH. She was noted to have labile blood pressure postoperatively and at re-operation a suture on the blood vessel at the bladder base was found to have cut through and was responsible for the haemorrhage.

CONCLUSION

This first report of our initial experience since the introduction of laparoscopic surgery in our department, has shown that this procedure is very safe and useful in a variety of gynaecological problems. It allows minimal handling of tissues leading to lesser postoperative adhesion formation and minimal morbidity. Low incidence of complications and short stay in the hospital should prove financially beneficial to an already stretched health resources. However at present the operating time is longer basically due to lack of adequate training of the nursing staff and assisting junior doctors. With further experience these initial hurdles can be overcome and the operating time can be reduced so that more cases can be accommodated in the elective theater list. Further more, a thorough preoperative assessment of patients and increasing experience of the operating team can help to reduce the number of patients which require laparotomy.

REFERENCES

1. Sutton C. A practical Approach to Surgical Laparoscopy. In: Sutton C, Drummond PM, eds. Endoscopic surgery for Gynaecologists. 2nd ed. London: WB Saunders, 1998:41-53.
2. Peterson H, Hulka J, Philips J. American Association of Gynecologic laparoscopists 1988 membership survey on operative laparoscopy. J Reprod Med 1988;35:587-9.
3 Chamberlain GVP, Brown JC. Gynaecological Laparoscopy- The report of the Working Party of the Confidential Enquiry into Gynaecological Laparoscopy 1978. London: Royal College of Obstetricians and Gynaecologists.
4 Parker WH, Nezhat F, Canis M. Laparoscopic ovarian surgery. J Am Assoc Gynecol Laparosc 1993;1:78-84.
5. Tulandi T. Laparoscopc management of ovarian cyst in perimenopausal women. Gynecol Endosc 1996;5:1-4.
6. Hulka JF, Reich H. Adnexal surgery. In : Hulka J, Reich H, eds. Textbook of laparoscopy. Philadelphia:WB Saunders, 1994:212-21.
7. Bourne TH, Cambell S, Reynolds KM, et al. Screening for early familial ovarian cancer with transvaginal ultrasonography and colon blood flow imaging. BMJ 1993;306:1025-9.
8. Howkins J, Stallworthy J. Bonney's Gynaecological Surgery. London: Bailliere Tindall, 1974:586-92.

9. Barber HRK, Graber FA. PMPO syndrome (postmenopausal palpable ovary syndrome). Obstet Gynecol 1971;38:921-3.
10. Kovac SR, Cruichshank SH, Retto HF. Laparoscopy assisted vaginal hysterectomy. Journal of Gynecol Surgery 1990;6:185-9.
11. Dorsey JH, Steinberg EP, Holfz PM. Clinical indications for hysterectomy routes. Patient characteristics or physician's preference ? Am J Obstet Gynecol 1995;173:1452-60.
12. Johns DA. Laparoscopic assisted vaginal hysterectomy. In: Sutton C, Drummond PM, eds. Endoscopic surgery for Gynaecologists. 2nd ed. London:WB Saunders, 1998:300-7.
13. Redwine DB, Sharpe DR. Laparoscopic segmental resection of the sigmoid colon for endometriosis. J Laparoendosc Surg 1991;1:217-20.
14. Murphy AA, Green WR, Bobbic D, et al. Unsuspected endometriosis documented by electron scanning microscopy in visually normal peritoneum. Fertil Steril 1986;46:522-524.
15. Nisolle M, Paindaveine B, Bourdon A, et al. Histologic study of peritoneal endometriosis in infertile women. Fertil Steril 1990;53:984-8.
16. Martin DC. Laparoscopic Treatment of Advanced Endometriosis . In: Sutton C, Drummond PM, eds. Endoscopic surgery for Gynaecologists. 2nd ed. London: WB Saunders, 1998:380-9.
17. Gomel V. Salpingostomy by laparoscopy. J Repro Med 1977;18:265-8.
18. Dubnisson JB, Chapron C, Morice P, et al. Laparoscopic salpingostomy: fertilty results according to the tubal mucosal appearance. Hum Reprod 1994;9:334-9.
19. Cains M, Mage G, Pondy JL, et al . Laparoscopic distal tuboplasty: report of 87 cases and a 4 year experience. Fertil Steril 1991;56:616-21.
20. Oh ST. Tubal patency and conception rates with three methods of laparoscopic terminal neosalpingostomy. J Am Assoc Gynecol Laparoscopists 1996;3:519-23.