Laparoscopic Management of Adnexal Masses

Lt Col BS Duggal *, Surg Capt (Mrs) P Tarneja (Retd)⁺, Lt Col RK Sharma[#], Lt Col SK Rath^{**},
Lt Col RD Wadhwa, ^{VSM++}

Abstract

Retrospective study of 121 cases of adnexal masses which were managed laparoscopically was carried out. The aim of study was to evaluate the safety and effectiveness of laparoscopic management of adnexal masses. In 120 cases, procedure was completed safely with minimum morbidity. In one case laparotomy had to be done to complete the procedure. In 76 cases cystectomy was done, 26 required salpingo-oophorectomy and 19 required only salpingectomy. Histologic evaluation revealed 30 functional cysts, 36 endometriotic cysts, 11 dermoids, 9 serous cystadenomas, 3 mucinous cystadenomas, 11 parovarian cysts, 19 cases of hydrosalpinx and 2 cases of tuberculosis.

MJAFI 2004; 60 : 28-30

Key Words : Adnexal mass; Laparoscopy; Ovarian cyst

Introduction

The evolving laparoscopic technology has enabled endoscopic management of most of adnexal masses. Ovarian tumours occur in all stages of a woman's life, from childhood, when they are mostly dysgerminomas, through the reproductive age, when functional cysts, endometriotic cysts, dermoids and benign epithelial tumours predominate, to menopause when up to 30% of lesions are borderline or malignant. Before menopause ovarian benign tumours are predominantly treated by cyst enucleation, however after menopause, adnexectomy prevails.

Material and Methods

In a retrospective study we evaluated 121 patients with adnexal masses treated laparoscopically in our department between January 1997 and December 2001. The aim of the study was to establish the place of laparoscopy in the treatment of these lesions by trying to define preoperative and intraoperative diagnostic criteria to evaluate the technique of laparoscopic removal of adnexal masses, and to encourage laparoscopy for treatment of adnexal masses.

Preoperative evaluation included history, clinical examination, sonographic images and serum markers. Large, solid, fixed or irregular adnexal masses suspicious of malignancy were treated by laparotomy. Transvaginal ultrasound scanning was used as primary imaging modality in all cases. Adnexal masses with irregular borders, papillae, solid areas, thick septa, ascites and matted bowel were excluded from laparoscopic management group. Cysts less than 6 cm which were persisting inspite of hormonal suppressive therapy were also managed laparoscopically. CA-125 estimation was done for all postmenopausal women and 35IU/ml was taken as upper limit.

Intraoperative evaluation included cell washings from the pelvis and upper abdomen. After the pelvis and upper abdomen were examined, the cyst contents were aspirated except in those cases where preoperative sonography was suggestive of dermoid. Once the capsule was opened, the interior of the capsule was examined for any suspicious area. In large cysts hysteroscope was introduced inside the cyst and inner lining of capsule was evaluated. Smaller cysts were aspirated with laparoscopic injection needle, however, for bigger cysts 5 mm trocar and sleeve were introduced directly into cyst. Trocar was removed and suction irrigator inserted. Dermoids after excision were placed in pouch of Douglas. Posterior colpotomy was done with the help of CCL extractor. Dermoid was held in colpotomy incision and all the sebaceous material and hair drained trans-vaginally.

Capsule was stripped from the ovarian stroma using two graspers for traction and counter traction. Bipolar forceps was used to coagulate the bleeding vessels at the base of capsule. After achieving haemostasis edges of the capsule were left to heal without suturing. Small superficial endometriomas were difficult to remove surgically. After aspirating dark fluid from these endometriomas, bipolar coagulation of cyst wall was done.

In postmenopausal women and in those patients in whom ovary and tube could not be conserved, salpingo-oophorectomy was performed. When tube and ovary were not involved with adhesions, adnexal mass was lifted and pulled medially, infundibulopelvic ligament was dissected with bipolar forceps and cut with scissors. Utero ovarian ligament was dissected similarly and cut. In cases of endometriosis and pelvic inflammatory disease adhesions between ovary and pelvic side wall, broad ligament, bowel and omentum were lysed and adnexal mass made free. The course of ureter was identified under the peritoneum as it crosses the external iliac artery near the bifurcation of common

*Classified Specialist (Obstetrics and Gynaecology), Military Hospital, Shillong, ⁺Ex-Professor & Head, Department of Obstetrics and Gynaecology, Armed Forces Medical College, Pune - 411 040, [#]Classified Specialist (Obstetrics and Gynaecology), Army Hospital (R&R), Delhi- 110 010, ^{**}Classified Specialist (Obstetrics and Gynaecology), 151 Base Hospital, C/o 99 APO, ⁺⁺Classified Specialist (Obstetrics and Gynaecology), Military Hospital, Dehradun.

iliac artery at the brim.

In cases of infertility where tube was found to be irreparably damaged and enlarged to form hydrosalpinx, only salpingectomy was performed after doing serial bipolar dissection of meso salpingeal vessels. Ovaries were made free from surrounding adhesions and ovarian fossa so as to ease the ovum pick up later.

For removal of adnexal mass one of accessory port was converted to 10 mm. Tissue was held with grasper under vision and pulled out along with cannula. However, for larger adnexal masses, tissue was removed by posterior colpotomy. Posterior vaginal fornix was made prominent by ball of CCL extractor. Posterior colpotomy was done with unipolar knife electrode. Mass was held with 10 mm grasper which was passed through cannula extractor under vision. Cystic mass was brought to the incision and drained transvaginally. Culdotomy was repaired vaginally.

Results

The mean age of patients treated laparoscopically was 33 years (range 16-50 years). The average operating time was 70 minutes (range 30-110 minutes). Average blood loss was 155 ml (range 10-300ml). The average size of mass was 10 cm (range 4-16 cm).

The commonest operation performed was cystectomy (Table 1). Out of 76 cases, in 18 cases it was not possible to peel off cyst wall. All these cases were of superficial endometriomas where cyst was aspirated, biopsy taken and cyst wall dissected. There were 11 par-ovarian cysts which were shelled out of broad ligament.

Table 1

Type of operations for adnexal masses

Operative procedure	No
Cystectomy	76
Salpingo-oophorectomy	26
Salpingectomy	19

In 26 cases salpingo-oophorectomy was done, out of which only 9 were post menopausal. In remaining 17 cases conservation of tube and ovary was not possible. In one case of endometriosis, endometrioma had grown into the mesentery of pelvic colon and there were dense adhesions. In this case, procedure could not be completed laparoscopically and was converted to laparotomy.

In 19 cases only salpingectomy was performed. All these were cases of infertility with pelvic inflammatory disease resulting in hydrosalpinx. 12 of these cases had undergone adhesiolysis or cuff salpingostomy previously. 5 cases had only one tube as unilateral salpingectomy was done earlier for ectopic pregnancy. In all these cases, ovarian adhesiolysis was done so as to help in ovum pick up later.

There were no major complications except in one case where laparotomy had to be done to complete the procedure. The average hospital stay was 2 days (range 1-3 days). All the patients were reviewed with histopathological examination reports. Functional cysts and endometriotic cysts constituted

the bulk of adnexal masses (Table 2). Functional cysts included 21 follicular cysts and 9 corpus luteum cysts. These functional cysts persisted inspite of hormonal suppression. 8 of these functional cysts were haemorrhagic. There were 11 dermoid cysts. In all cases it was unilateral dermoid. In 2 cases, ultrasound reported bilateral dermoids, however, during surgery these were bilateral tubo-ovarian masses with encysted ascites due to tuberculosis. In 2 cases of dermoid and one case of mucinous cystadenoma, cysts punctured during dissection, causing spillage of sebaceous and mucinous material into peritoneal cavity. All the contents were sucked immediately and thorough lavage was done with warm saline. All these cases were closely observed post operatively but none of them showed any features of peritoneal irritation.

Table 2

Histopathology of adnexal masses

Type of adnexal mass	No
Functional cysts	30
Endometriotic cysts	36
Dermoid cysts	11
Serous cystadenoma	9
Mucinous cystadenoma	3
Par-ovarian cyst	11
Hydrosalpinx	19
Tuberculosis	2

Discussion

This study tried to assess the status of the laparoscopic approach to primarily benign ovarian tumours and other adnexal masses. Careful preoperative diagnosis allowed us not to break any standard surgical rules for treatment of ovarian cancer. For assessing possible malignancy, our evaluation was similar to those of other authors [1,2]. Transvaginal ultrasonography and tumour markers helped us to decide the feasibility of laparoscopic management. Finkler et al [3] have given the sensitivity and specificity of three tests commonly employed for pre-operative evaluation (Table 3). Nezhat and coworkers [4] evaluated 1011 cases with these tests and found only 4 unsuspected ovarian cancers. In another study only 53 malignancies were reported among 13,739 laparoscopic procedures, an incidence of 0.4% [5].

Table 3

Sensitivity and specificity of diagnostic tests

	Premenopausal %		Postmenopausal %	
	Sensitivity	Specificity	Sensitivity	Specificity
Ultrasound	50	96	78	92
Clinical impression	17	92	68	85
CA-125	50	69	84	92

Our results were similar to two other reports [6,7].

It is commonly understood that enucleation of ovarian tumours and attempts to save ovarian tissue in women of reproductive age are preferred. However, with regard to wound closing, several techniques are open for discussion. Whereas one group strongly advocates leaving the wound open and letting tissue heal on its own accord, another favours bipolar coagulation. After haemostasis with bipolar or endocoagulation, we left the wound edges open.

Extraction of material in endobags is unanimously accepted [8-10], however, we followed very strict criteria for pre-operative evaluation and on slightest suspicion of nature of adnexal mass, laparotomy was preferred. We extracted adnexal masses without endobags and in spite of spillage of contents post operative outcome was not affected. In our small series, we did not have any malignancy. The risks associated with spillage of cyst contents have been re-evaluated [11]. In a multivariate analysis of stage 1 ovarian cancer, factors that influenced the rate of relapse were tumour grade, dense adhesions and ascites. Intra-operative spillage demonstrated no adverse effects on prognosis [12].

In cases of endometrioma, Donnez [13] proposed only opening the cyst, coagulating the borders and letting the endometrioma dry out. This practice is based on the theory of how an endometrioma is formed. However, we preferred total enucleation. When enucleation was not possible, bipolar coagulation of cyst lining was done. Vercellini and co-workers showed that simple aspiration and washing of capsule of endometrioma was ineffective [14]. Hasson [15] found no therapeutic value of simple aspiration.

Ovarian cystectomy is the method of choice in young patients to preserve fertility. It is evident that in the future more and more laparoscopic surgeons will treat even early stages of ovarian carcinomas by laparoscopy. This suggests the need for prospective clinical studies to establish safety and efficacy of laparoscopic surgery in these women. Laparoscopic operations have changed

postoperative morbidity, length of hospitalization, blood loss and quality of life.

References

1. Herrmann U, Locher G, Goldhirsch A. Sonographic patterns of malignancy : prediction of malignancy. *Obstet Gynecol* 1987;69:777.
2. Jacobs I, Bast R. The CA-125 tumour associated antigen : a review of the literature. *Hum Reprod* 1989;4:1.
3. Finkler N, Benacerraf B, Lavin F. Comparison of serum CA-125, clinical impression and ultrasound in the preoperative evaluation of ovarian masses. *Obstet Gynecol* 1988;72:659.
4. Nezhat C, Nezhat F, Welandar CE. Four ovarian cancers diagnosed during laparoscopic management of 1,011 adnexal masses. *Am J Obstet Gynecol* 1992;167:790.
5. Hulka JF, Parker WH, Surrey M. Management of ovarian masses : AAGL 1990 Survey. *J Reprod Med* 1992;37:599.
6. Canis M, Pouly JJ, Wattiez A. Laparoscopic management of adnexal masses suspicious at ultrasound. *Obstet Gynecol* 1997;89(1):679-83.
7. Childers JM, Nasser A, Surwit EA. Laparoscopic management of suspicious adnexal masses. *Am J Obstet Gynecol* 1996;175(6):1451-9.
8. Lin P, Falcone T, Tulandi T. Excision of ovarian dermoid cyst by laparoscopy and by laparotomy. *Am J Obstet Gynecol* 1995;173(3 Pt 1):769-71.
9. Campo S, Garcea N. Laparoscopic conservative excision of ovarian dermoid cysts with and without an endobag. *J Am Assoc Gynecol Laparosc* 1998;5(2):165-70.
10. Teng FY, Muzsnai D, Perez R et al. A comparative study of laparoscopy and colpotomy for the removal of ovarian dermoid cysts. *Obstet Gynecol* 1996;87(6):1009-13.
11. Webb MJ, Decker DG, Mussey E. Factors influencing survival in stage 1 ovarian cancer. *Am J Obstet Gynecol* 1973;116:222.
12. Dembo AJ, Davy M, Stenwick AE. Prognostic factors in patients with stage 1 epithelial ovarian cancer. *Obstet Gynecol* 1990;74:263.
13. Donnez J, Nisolle M, Smoes P. Peritoneal endometriosis and endometriotic nodules of the rectovaginal septum are two different entities. *Fertil Steril* 1996;66:362-8.
14. Vercellini P, Vendola N, Bocciolone L. Reliability of the visual diagnosis of ovarian endometriosis. *Fertil Steril* 1991;56:1198.
15. Hasson HM. Laparoscopic management of ovarian cysts. *J Reprod Med* 1990;25:863.

When I die, I want to go peacefully like my Grandfather did, in his sleep;
not screaming, like the passengers in his car.