Laparoscopy Versus Laparotomy in the Treatment of Benign Ovarian Cyst

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Objective: To compare laparoscopy with laparotomy in the treatment of benign ovarian cyst in women under 40 years of age. **Design**: Experimental. **Place and duration of study:** The study was conducted over a period of one and half year from June 2003 to Nov 2004 in Obstetrics & Gynaecology Department, Unit-III, Lady Willingdon Hospital, Lahore. **Subjects & Methods:** The sixty consecutive patients of benign ovarian cysts who required surgical treatment underwent either Laparoscopy(group I), or laparotomy (group II). The laparoscopic fenestration, aspiration and cystectomies were performed in group I (30 patients). However, ovarian cystectomies, salpingo-oophorectomy and oophorectomy were performed by laparotomy in group II (30 patients). **Results:** The comparison was done with respect to duration of surgery intra-operative blood loss, time of mobilization, duration of hospital stay and amount of analgesia used, time to return to normal activity. The amount of analgesics used, time of mobilization, duration of hospital stay and time to return to normal activity was less ($P<0.05$) in Laparoscopy as compared to Laparotomy. There was statistically no significant difference in the duration of surgery, blood loss and post operative morbidity ($P>0.05$). **Conclusion:** With appropriate preoperative evaluation, laparoscopic surgery is safe and effective in treating benign ovarian cyst in women under 40 years of age where the risk of malignancy is low. It is associated with early mobilization, less use of analgesia, shorter hospital stay.
Key words:- Laparoscopy, Laparotomy and Benign Ovarian Cyst.

The evolving Laparoscopic technology has enabled endoscopic management of most of adenexal masses. Ovarian tumours occur in all stages of women's life [1]. Ninety percent of ovarian tumours are benign although this varies with age[2,3].

The benign nature of the cyst is determined by the clinical finding, ultrasound scan (USS) appearance for example the size of the cyst with absent interval septation and solid component, no free fluid in cul-de-sac and CA 125 within normal range [4,9]. The choice of treatment is according to the symptoms, age and the desire for future fertility. It could either be conservative or surgical. In reproductive age, a follicular cyst upto 3cm in diameter requires no investigation. However, ovarian cyst upto 10 cm or more are less likely to resolve. A clear unilocular cyst of 3-8 cm should be reexamined 3-6 months later for evidence of diminution of size. If the cyst does not become smaller, laparoscopy or laparotomy is indicated. There was little controversy in the treatment of simple ovarian cyst until 15 years ago when the operative endoscopy gained popularity. Before this time laparotomy was standard treatment for pelvic masses. Boesch laid the foundation stone for Laparoscopic surgery in gynaecology[2]. It has definite advantage over traditional abdominal surgery. It significantly reduces blood loss, analgesic requirement, hospital stay and length of convalescence, compared with laparotomy.

The advent of minimal invasive surgery is replacing the traditional open surgery. The study was done to compare laparoscopy with laparotomy in the treatment of benign ovarian cyst in women under 40 years of age with regard to the duration of surgery, intraoperative blood loss, time of mobilization, duration of hospital stay, amount of analgesia used and time to return to normal activity.

Subjects and Methods:

The study was conducted in Lady Willingdon Hospital, Lahore Unit-III from June 2003 to Nov. 2004. It was a experimental study. Out of 890 patients, sixty consecutive patients of benign ovarian cyst were selected on the basis of selection criteria. They were divided into two groups to undergo either laparoscopy or laparotomy.

Inclusion Criteria: Patients 15-35 years of age were included in study. Size of the cysts varied from 5-10 cm with smooth surface, absent internal septation, no solid component and no free fluid in cul-de-sac on ultrasonography. CA 125 level was within normal range and there was no previous surgical intervention.

Exclusion Criteria: Patients with acute symptoms due to complication and past family history of malignancy in first and second degree relatives and previous surgical intervention excluded from study.

Methodology: The patients were selected through gynaecological OPD. The history obtained regarding, age, marital status, parity, dysmenorrhoea, dyspareunia, menstrual problem and intake of drug, previous surgical intervention. The examination performed for evaluation of general status and pelvic masses. The ultrasound scan (USS) was major diagnostic tool to determine the nature of cyst. CA 125 was normal.

The persistent ovarian cyst were included in study for surgical intervention. Laparoscopy performed under general anaesthesia during the procedure, pelvis, abdomen and diaphragm thoroughly inspected. The ovarian cyst inspected carefully to ensure that cyst was smooth and there was no vegetation and other evidence of malignancy. The laparoscopic treatment of the cyst included fenestration, aspiration of the fluid for cytology, examination of inner side of cyst, removal of cyst and

reconstruction of ovary. Adhesiolysis also performed. However, in some cases only fenestration, aspiration performed due to in accessibility. Haemostasis secured with electrocoagulation. After surgery antibiotic given for 24 hours.

Second group underwent laparotomy, abdomen opened through pfennensteil incision. The cyst examined and removed by incising capsule and enucleating it, followed by ovarian reconstruction. However, salpingo-oophorectomy performed where the ovary was damaged and contralateral ovary normal looking. Specimen sent for histopathology. Subsequently patients followed in OPD. Medical treatment given in cases of endometriosis. The data was analysed on SPSS. Inter group comparison was done through standard 't' test. Chi square was also used for qualitative data.

Results:

In this study the mean age (±SD) among the patient undergoing laparoscopy and laparotomy was 26.87 (5.93) and 27.07 (6.5) years respectively. The parity ranged from 1-5 and there were 12 unmarried patients. Most of the patient had combination of symptoms. Most common presentation was chronic pelvic pain followed by dysmenorrhoea and menstrual irregularity. The size of the cyst varied on USS from 5-10 cm. Maximum number of cysts were in the range of 7-8 cm in both groups.

In laparoscopy group 5 patients (16.6%) had fenestration and aspiration. Cystectomy without adhesiolysis performed in 7 patients (23.3%) and cystectomy with adhesiolysis done in 18 patients (60%). In laparotomy group 9 patients (30%) underwent cystectomy, 14 patients (46.6%) had cystectomy with adhesiolysis. However, 5 patients (16.6%) had salpingo-oophorectomy with adhesiolysis. 2 patients (6.6%) had unilateral cystectomy and contralateral salpingo-oophorectomy with adhesiolysis.

The table 1 depicts that there was statistically no significant difference in the duration of surgery and blood loss (P>0.05). However, the time of mobilization among the patients undergoing laparoscopy was less as compared to laparotomy group (P<0.05). The analgesic used was diclofenac sodium both in injectable and oral form. There was more analgesic requirement in laparotomy group (P<0.001) due to larger skin incision. The table shows that duration of hospital stay was 2.3±0.65 days in laparoscopy group as compared to 6.7±1.44 days in laparotomy group. Where the stay was prolonged due to post operative distension, fever and wound infection in 3 patients (P<0.01).

The patient after laparotomy took more time 12.64(±2.53) days to return to normal activity as compared to 4.87 (±1.68) days after laparoscopy. The post operative pain and recovery time are almost related to size and position of surgical incision. After Laparoscopy the recovery period is short irrespective to duration of operation and the nature of pathology (P<0.05).

Table 1

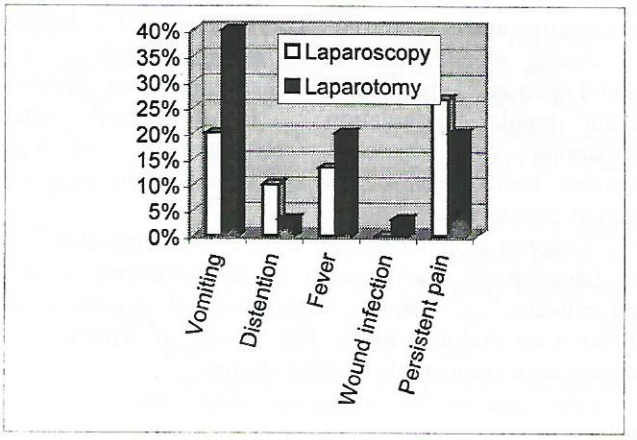
Patient Parameters	Laparoscopy (mean ± SD)	Laparotomy mean ± SD	Significance of Difference P. Value
Duration of surgery (min)	60.33±14.50	36.0±5.63	P>0.05
Blood loss(mls)	114.67 ±58.06	163±80.86	P>0.05
Time of mobilization (days)	1.03 ±0.18	1.67 ±0.48	P<0.05
Amount of Analgesia used (mg)	162.5±147.5	731.8±1.88	P<0.001
Duration of hospital stay (day)	2.3±0.65	6.7±1.44	P<0.01
Time to return to normal activity (day)	4.87±1.68	12.64±2.53	P<0.05

The chi-square test was used for qualitative data for example, post operative morbidity. The difference among two groups, in terms of post operative vomiting, distension, fever, wound infection and persistent pain was not significant (P>0.05).

Table II: Morbidity among patients undergoing laparoscopy and laparotomy

Morbidity	Laparo scopy		Laparotomy		Significance of difference (P.value)
	=n	%age	=n	%age	
Vomiting	6	20.0	12	40.0	NS (P=0.79)
Distention	3	10.0	1	3.3	NS (P=0.306)
Fever	4	13.3	6	20.0	NS(P=0.365)
Wound infection	-	-	3	3.3	NS(P=119)
Persistent pain	8	26.6	6	20.0	NS(P=0.381)

Morbidity among patients undergoing laparoscopy & laparotomy



Discussion

The study tried to assess the status of Laparoscopic approach to benign ovarian cyst in reproductive age. Only 3% of ovarian cancer are seen in women younger than 35 year and the vast majority of these are non-epithelial cancer such as germ cell tumour[6].

The careful preoperative diagnosis allowed not to break any standard surgical rules for the treatment of ovarian cancer for assessing possible malignancy. Our evaluation including clinical finding, USS criteria and tumour markers was similar to other studies[7,8,9] Finkler et al have given the sensitivity and specificity of these tests commonly employed for preoperative evaluation (Table III)[10]. Nezhat & Coworker evaluated 1011 cases with these test and found only 4 unsuspected ovarian cancer[11]. In other study only 53 malignancies were reported among 13, 739 laparoscopic procedure, an incidence of 0.4%[12].

Table III: Sensitivity and Specificity of Diagnostic test

Parameters	Premenopausal		Post Menopausal	
	Sensi-tivity	Speci-ficity	Sensi-tivity	Speci-ficity
USG	50	96	78	92
Clinical Impression	17	92	68	85
CA 125	50	69	84	92

Zanetta et al suggested that therapeutic ultrasound guided cyst aspiration has no place in the treatment of benign cyst. Although avoids surgery, it is associated with high recurrence rate as compared to laparoscopic cyst removal[13].

According to SteinKampf and Hammond, the use of combined Oral Contraceptive is unlikely to accelerate the resolution of a functional cyst and hormonal treatment of Endometriosis does not usually benefit an endometrioma [(14)]. However, there is role of post operative medication to eliminate any residual, macro or microscopic disease. In this study, no hormonal treatment was tried preoperatively. However, the diagnosed case of endometrioma put on medical therapy post operatively. Lt Col BS Duggal described that the enucleation of ovarian tumour and attempt to save the ovarian tissue in women of reproductive age is preferred[1]. There are several technique for closing wound. One group advocates leaving the wound open and letting the tissue heal on its own. Another favour bipolar coagulation[1]. In this study, after fenestration, cyst content aspirated and the cyst wall removed, haemostasis secured and wound edges were left open in most of cases.

Chapron C and Bateman BG (1994), suggested that the Laparoscopic management of endometrioma is safe and effective[15, 16]. In this study most of ovarian cysts (30%) were endometrioma. The results of laparoscopic surgery were comparable to other studies[17,18].

The amount of analgesia used, time of early mobilization, the duration of hospital stay, time to return to normal activity was less ($P<0.05$) in Laparoscopy as compared to Laparotomy. However, statistically there was no significant difference in the duration of surgery, blood loss and post operative morbidity. Park KH (1999), showed the comparable results to our study that laparoscopic treatment of benign ovarian cyst significantly reduces hospital stay, analgesic requirement and there is early mobilization and early return to normal activity[19].

Conclusions:

In last few years, the improvement of operative laparoscopy had led to the rise of this technique as an alternative to the traditional surgical approach. It is essential that this should be done with strict adherence to carefully constructed preoperative criteria and intra-operative protocol. Operative laparoscopy significantly reduces postoperative stay, analgesics requirement and length of convalescence.

References:

1. Lt Col BS Duggal, Ptarneja et al. Laparoscopic, management of adenexal masses. M.JAFI 2004; 600: 28-30.
2. Pat Santter, Joanna Girling. Benign tumor of ovary. In Shaw RW, Soutter WP, Stanton SL, editors. Gynaecology. London: Livingstone Press, 2003: 665-75.
3. Demont F, Fourquet F, Rogers M J. Epidemiology of apparently benign ovarian cyst. J Gynecol Obstet Biol Reprod 2001; 30: 8-11.
4. Jermy K,. The characterization of common ovarian cyst in premenopausal women ultrasound. Obstet Gynecol 2001; 17: 140-4.
5. Vinatier D, Houffli V, Collinet P. Tumour markers and ovarian cyst. J Gynecol Obstet Biol Reprod. 2001; 30: 534.
6. Roberto Dine, Gordon J.S Rustin, Pat Soutter. Carcinoma of ovary and fallopian tube. Shaw RW, Soutter P, Stanton SL, editors gynaceology. London: Livingston press, 2003: 677.
7. Herrman U, Lochen G. Sonoghraphic pattern of malignancy: Prediction of malignancy. Obstet gynecol 1987; 69 : 777.
8. Jacob I, Bast R. The CA 125 tumour associated antigen: A review of literature. Hum Reprod 1989;4:1.
9. Gucrriero S, Ajosa S. The preoperative evaluation of ovarian tumour can be improved. Am J Obstet Gynecol 1997; 117: 246-7.
10. Finkler N, Benalerrat B, Lavin F. Comparison of serum CA 125, clinical impression and ultrasound in preoperative evaluation of ovarian masses. Obstet Gynecol 1988; 72: 659.
11. Nezhat C, Nezhat F, Welander CE. Four Ovarian cancer diagnosed during Laparoscopic management of 1011 adenexal masses. Am J Obstet Gynecol 1992; 167: 790.
12. Hulka JF, Parker WH, Surrey M. Management of ovarian masses: AAGL 1990 Survey. J. Repord Med 1992; 37 : 599.
13. Zanetta G, Lissoni A, Torri V et al. Rate of puncture and aspiration in expectant management of simple ovarian cyst. A Randomized Study. Br Med J 1996; 313: 1110-3.
14. Steinkanif MP. Hammond KR. Hormonal treatment of functional ovarian cyst: a randomized prospective study. Fertility and Sterility. 1990; 54: 775-777.
15. Chapron C, Duhnisson JB, Fanconnier A Vurri M. Management of Endometriotic cyst. J Gynecol Obst Biol Reprod 2001;30:S78-85.
16. Bateman BG, Kolpl A, Mills S. Endoscopic Versus Laparotomy, management of endometrioma. Fertil Steril 1994; 62: 690-5.
17. Hidlebaugh DA. Treating adenexal masses. Operative Laparoscopy versus Laparotomy. Reprod. Med 1997; 42: 551-8.
18. Cristelli, Cayol A, Izard V. Levaidon Benefits of operative laparoscopy for ovarian tumour suspected of bengnicity. J Laparoeendosc Surg 1992;2:69-73.
19. Park KH, Chung TE, Kim JY, Lee BS. Operative laparoscopy in treating benign ovarian cyst. Yonsei Med J 1999;40:608-12.