

Laparoscopic Management of Benign Ovarian Cysts: Three Years Experience in Combined Military Hospital, Dhaka

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Abstract

Introduction: Ovarian cyst is a common clinical problem affecting women of all age groups. Laparoscopy should be considered as an alternative to laparotomy in the management of benign ovarian cysts. The aim of this study is to determine the safety, efficacy and outcome of laparoscopic surgery for benign ovarian cysts.

Materials and Method: A Prospective observational study has been carried out during the period of Jun 2016 to May 2019 in combined military hospital Dhaka. Total 107 patients who underwent laparoscopic surgery for benign ovarian cysts during this period were included in this study.

Results: The maximum number of women was in the 21-30 year- old age groups. Majority were endometriotic cyst (45.79%) followed by perovarian cysts (14.01%) and dermoid cysts (12.14%). The diameter ranges from 4-15 cm. and most of them were unilateral (91.5%). Ovarian cystectomy is the most commonly performed procedure (88.78%). Mean duration of surgery was 62.75 minutes. Complications were also fewer like postoperative fever (22.2%), and trocar site infection. (11.2 %). None of the pts required conversion to laparotomy.

Conclusion: With a careful preoperative screening the laparoscopic surgery is a safe and effective treatment for benign ovarian cyst. Laparoscopic surgery seems to offer significant advantages such as less adverse effects, reduced hospital stay and better quality of life.

Key-words: Benign ovarian cyst, Laparoscopic surgery, Surgical outcome.

Introduction

An ovarian cyst is a common gynecological problem which a gynecologist has to treat. Benign ovarian cyst such as endometrioma, dermoid cyst, serous or mucinous cyst adenoma is frequently seen in young and reproductive age group. It is estimated that approximately 10% of women in United States will undergo surgical procedure for a suspected ovarian neoplasm during their lifetime¹. Several surgical modalities can be performed to manage benign ovarian cyst. Laparoscopic surgery has become the gold standard approach in the management of benign ovarian cyst². During the last decades laparoscopic treatment has been established as a routine method of benign ovarian masses³. The benefit of laparoscopy includes reduced postoperative analgesic requirement, earlier mobilization and reducing chance of deep venous thrombosis, cosmetic advantages, earlier discharge from the hospital and return to normal activity⁴.

Laparoscopy facilitates illumination and magnification of the pelvis. Furthermore, one is able to obtain a panoramic view of the pelvis for an easier assessment of the extent of the disease. Clinical assessment of the patient with a cystic ovarian mass plays an

important role in the management of ovarian cyst. According to the current evidence the parameter which should be examined preoperatively in order to exclude the possibility of a malignancy are the following like morphology of the ovarian cyst (septations papillary projection, echogenicity and volume) and characteristics which could be evaluated by using transvaginal ultrasonography. Doppler ultrasonography could also be helpful by examining the vascularity of the mass to exclude possibilities of malignancy. In addition, tumour markers like CA19-9, CA-125 should be done to exclude the possibilities of malignancy⁵. The purpose of the study is to observe the outcome of laparoscopy in the management of benign ovarian cysts.

Materials and Methods

This prospective observational study was carried out in the department of obstetrics & gynaecology department of combined military hospital Dhaka during the period from February 2018 to January 2019. Total 107 patients with ovarian cysts in whom there were no signs of malignancy preoperatively from history, clinical examination and radiological findings and tumour marker level are included in this study. Excluding criteria were known contraindication for laparoscopy such as medical reasons as well as ultrasonographic evidence of malignancy like, presence of thick septation, papillary projection, low vascular resistance and pulsatility index. All the operations were done under G/A. After creating prior pneumoperitoneum with veress needle one 10 mm and two 5 mm trocars were introduced in each patient. A third suprapubic 5 mm port often used for better dissection. Curved scissors and plain grasping forceps were used for dissection in most of the cases. For haemostasis bipolar coagulation were used. Clinical data were collected from patients' history, clinical findings, USG and tumour markers reports. Per-operative and postoperative complications were recorded. The number of postoperative days spent in hospital was also noted. Patients were followed up up-to 3 months for delayed complication. A preformed data sheets were used to collect all the data. Histopathological reports of all the cases were also obtained, Data were analyzed using SPSS.

Results

Total 107 patients underwent laparoscopic surgery for benign ovarian cysts during the study period of 3 years from February 2018 to January 2019. Most of them were in the age group of 16-30 years 21(19.6%) patients were asymptomatic and presented with USG diagnosis of ovarian cyst, 47(43.92%) women came with history of infertility, 39(36.44%) women were presented with dysmenorrhoea, 42(39.25%) women came with dull aching pelvic pain, and 24(22.42%) patients reported with acute abdominal pain (Table-I). Size of the ovarian cysts were ranged from 4-14 cm and maximum number of patients had cyst size of 4-6 cm. Unilateral salpingo-oophorectomy was done in 11(10.28%) patients' and cyst aspiration

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in one patient. Adhesiolysis were done as an additional procedure in 32(22.9%) cases. Per-operatively it was found that 93(86.91%) cases were ovarian in origin, and 14(13.08%) cases were perovarian cysts. Among the ovarian cysts endometrioma were most common findings (45.79%) followed by dermoid cysts (12.14%). Per-operative complications were very less. Rupture of the cysts prior to drainage occurred in 18(16.82%) cases specially in cases of endometriomas during dissection and in 89(83.17%) cases cysts were intact before aspiration. Excessive bleeding had occurred from the ovary during cystectomy in 6(5.6%) patients and two of them required one unit of blood transfusion per-operatively. Postoperative complications were fever in 24(22.42%) women, port site infection in 12(11.2%) patients. There was no bowel or urinary tract injury. In all cases diagnosis were confirmed by histopathology. None of the patients found to have malignancy. Histology confirmed endometrioma, in 49(45.79%) patients, dermoid cyst in 13(12.14%) women serous cystadenoma in 12(11.2%) cases, mucinous cystadenoma in 5(4.67%) patients, perovarian cyst in 15(14.01%) patients, corpus luteal cyst. in 7(6.54%) and simple follicular cyst in 6(6.54%) cases (Table-II). Tumour markers were within normal limit in most of the cases (83.1%) except in few cases (22.42%) of suspected endometrioma CA-125 were slightly elevated, 95(88.78%) women underwent ovarian cystectomy (Table-III). Mean operating time were 62.75 minutes, Mean estimated blood loss were 39.62 ml. Mean reduction of Hb level in the 2nd post-operative day were 0.7gm/dl. Mean hospital stay were 4.43 days (Table-IV).

Table-I: Demographic characteristics of patients (n= 107)

Characteristics		Frequency	Percentage
Age	10-20	6	5.60
	21-30	68	63.55
	31-40	31	28.97
	41-50	2	1.8
Parity	Para-0	33	30.84
	Para-1	26	24.29
	Para-2	23	21.49
	Para-3	3	2.80
	Para-4	0	0
Clinical presentation	Asymptomatic	21	19.62
	Dull aching abdominal pain	42	39.25
	Acute abdominal pain	24	22.42
	Dysmenorrhoea	39	36.44
	Infertility	47	43.92
	Abdominal Lump	1	0.93
	Abnormal uterine bleeding	2	1.86

Table-II: Size of the ovarian cysts (n=107)

Characteristics		Frequency	Percentage
Size of ovarian cyst	4-6 cm	53	49.53
	7-9cm	44	41.12
	10-12cm	9	8.41
	13-15 cm	1	0.93
Name of operation	Cystectomy	95	88.78
	Salpingo-oophorectomy	11	10.28
	Cyst aspiration	1	0.93
Name of surgery	Adhesiolysis	32	29.9
	Myomectomy	1	0.93
	Appendisectomy	2	1.86
	Tubal sterilization	1	0.93
	Cholecystectomy	1	0.93
Histological type	Endometrioma	49	45.79
	Parovarian cyst	15	14.01
	Dermoid cyst	13	12.14
	Serous cystadenoma	12	11.21
	Mucinous cystadenoma	5	4.67
	Simple follicular cyst	6	5.60
	Corpus luteal cyst	7	6.54
Per-operative complication	Cyst rupture prior to drainage	18	16.82
	Haemorrhage from ovary	6	5.60
	Injury to the omentum	1	0.93
	Injury to inferior epigastric Vessels	1	0.93
	Injury to the bowel	0	0
Post-operative complication	Fever	24	22.42
	Port site infection	12	11.21
	Port site fistula	1	0.93

Table-III: Tumour markers level (n=107)

Tumour markers	Normal	Percentage	Raised	Percentage
CA-125	83	77.57	24	22.42
CEA	105	98.13	2	1.86
CA19-9	104	97.19	3	2.80
LDH	106	99.06	1	0.93

Table-IV: Surgical outcome of patients

Mean operative time	62.75 minutes
Estimated blood loss	39.62 ml
Postoperative Hb decreased	0.71 gm%
Mean hospital stay	4.43 Days

Discussion

Benign ovarian tumour is one of the common entity which the gynaecologist has to treat. Most ovarian cysts are benign with malignancy found in only 7-13% of premenopausal women and 8-45% of postmenopausal women⁶. Laparoscopic surgery is the most frequent indication for the management of benign ovarian cyst in the obstetrics and gynecological field⁷. Laparoscopy has been accepted for years as a management of benign ovarian tumour⁸. It is considered as the gold standard treatment for small to moderate size ovarian cyst but huge ovarian cyst can also be managed laparoscopically by experienced surgeon though there is possibility of cyst rupture and spillage of malignant cells. The procedure is associated with reduced operative blood loss, fewer postoperative complications, shorter hospitalization, less pain and earlier recovery compared with laparotomy^{9,10}. In this case series maximum no. of women presented with ovarian cyst between the age of 21-30 years which is similar to another study by Zahra Fatimah et al¹¹. The majority of the women had presenting complaints that resulted in a planned elective laparoscopic surgery whereas a total 24(22.42 %) pts presented with acute pain in the abdomen with suspicion of ovarian cyst accident such as torsion or haemorrhage and needed emergency operation.

Proper patients' selection is mandatory to minimize the risk of draining malignant tumour previous reports indicate that meticulous clinical and ultrasound examination of ovarian cysts can exclude most cases of ovarian malignancies¹². Potential malignant tumour should be carefully excluded from laparoscopic options. This is performed by the use of transvaginal ultrasonography combined with where possible with Doppler and 3D ultrasound. In that cases parameters that have to be examined are diameter of the cyst larger than 5cm, presence of unilocular or bilateral ovarian cyst, septa and solid particles of papillomatous structure. Concerning tumour markers CA-125 has a special predictive value in premenopausal women even than false positive are expected in case of endometriosis and uterine fibroid¹³. In addition to tumour markers intraoperative inspection of the cysts prior to the drainage should reduce the risk further. In this case series CA-125 were found raised in 24(22.42%) patients where frozen section biopsy had been arranged but none found malignant.

In this study small to moderate size ovarian cysts ranging from 4-15cm were managed laparoscopically. Maximum number of patients had cyst diameter of 4-6 cm (49.53 %), 41.12% had cyst diameter of 7-9 cm and (8.41%) had cyst diameter of 10-12cm. However, there are several case reports where huge ovarian cyst measuring up-to 21-22 cm were also removed laparoscopically^{14,15}. Most of the ovarian cysts were unilateral (91.5%). Right ovary was involved in (51.40 %), left ovary in (41.18%) cases and (8.41%) were bilateral which coincides with other studies^{15,16}. Cystectomy is the most common procedure performed in this case series as most of the patients were in the reproductive age group and ovaries had to be preserved for future fertility. Salpingo-oophorectomy were done in 11(10.28%) patients due to torsion where there is no viable ovarian tissue and in older patient.

Laparoscopic approach is associated with a great risk of spillage of cyst contents¹⁶. In most of the cases cystic fluid were first drained and cyst cavity was thoroughly washed before removal of cyst wall completely. Cyst wall then retrieved through 10 mm port. In cases of dermoid cyst and endometrioma plastic bag is used to prevent spillage of cyst contents. Although the cyst contents can usually be

removed by using careful technique and peritoneal ravage remaining cyst contents are known to cause chemical peritonitis in patients of dermoid cysts. Case reports have described severe chemical peritonitis that has resulted in significant pelvic adhesive disease, bowel obstruction, abdominal wall abscess and enterocutaneous fistula formation requiring multiple intensive medical management and repeat laparotomies¹⁷. In this study inadvertent cyst rupture before aspiration occurred in (16.82) % cases specially in some cases of endometriomas and in two cases of dermoid cysts but thorough peritoneal wash with saline were done. Yuen et al¹⁸ report that the cyst was removed unruptured in 72.2% of the cases which was 83.18% in this study.

After getting histopathological report it was found that endometrioma is most common (45.79% which is similar to another study by D Jukie et al¹⁹ which was 80.6%. In this study no one found to have malignancy on histopathological examination but another study among 61 patients by Mendilcioglu et al²⁰ two patients are found to have malignancy. Mean operating time was 62.75 minutes which was comparable to the same study²¹ which was 67.2 minutes. In this study more time is required due to additional procedure like adhesiolysis, appendisectomyetc. Average hospital stay was 4.43 days and EBL was 39.62 ml which was more or less similar to other studies^{19,21}.

Conclusion

Laparoscopic surgery should be the preferred surgical approach in the management of benign ovarian cysts. With appropriate preoperative evaluation it is technically feasible, safe, and advantageous with minimal morbidity and should replace laparotomy in the management of most adnexal masses. Careful patient selection and proper surgical training are critical to ensure safe performance of laparoscopy.

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