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Original Research Article

Laparoscopic management of large ovarian cysts

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ABSTRACT

Background: Large ovarian cysts are conventionally managed by laparotomy. This study was undertaken to assess the feasibility and outcome of laparoscopic surgery for the management of large ovarian cysts.
Methods: Thirty-eight patients from January 2014 to December 2016, presumed to be large ovarian cyst were managed laparoscopically. Preliminary evaluation suggestive to be of benign ovarian cyst by history, clinical examination, sonographic imaging and basic serum marker were only included in this study. The cysts were aspirated initially followed by cystectomy, oophorectomy or total hysterectomy depending on age, parity, coexisting pathology and desire for future fertility.
Results: Out of 38 cases, 6 were non-ovarian adnexal masses. 8 out of rest 32 cases presented with pain due to torsion were managed on emergency basis, rest of the cases were operated electively. Mean operating time was 90 minutes. Mean size of the cyst was 16 cms. One cases of borderline malignancy were detected and the rest showed benign pathology. Three of the cases required mini Laprotomy for specimen removal. Most of women were successfully treated laparoscopically without any complications and conversion to laparotomy was required in 3 cases.
Conclusions: With proper patient selection and exclusion of malignancy, laparoscopic management of large ovarian cyst by general gynecologist is feasible.

Keywords: Large ovarian cysts, Laparoscopy

INTRODUCTION

Surgical treatment has become more conservative and less invasive. Thus, Operative laparoscopy is now considered as the gold standard for surgical management of gynaecological condition.

The advantages of laparoscopic surgery include small incisions, less post-operative pain, short hospital stay, early ambulation, early return to normal activities and decreased chance of deep venous thrombosis and pulmonary embolism, fewer complications related to the incision and better patients' satisfaction and quality of life. Despite being performed through small incisions, the visualization of the operative field, surgical outcome and the ability to achieve the surgical objectives have been similar among patients undergoing laparoscopic surgery compared to those whose surgery was performed through laparotomy.

Ovarian neoplasm is a common clinical entity affecting women of all age group. Up to 10% of women will have some form of surgery during their lifetime for the presence of an ovarian mass.[1]

Most of these ovarian neoplasms are benign and the overall incidence of asymptomatic ovarian cyst in a premenopausal female being malignant is only approximately 1:1000 increasing to 3:1000 at the age of 50. So, most of these benign neoplasms can be managed by general gynecologist at their peripheral centers. The definition of large ovarian cyst is not clearly described in

the literature. Some authors describe large ovarian cyst as those measuring above 10 cms sonologically, whereas others describe clinically as those reaching above umbilicus.[2,3] Although a maximum tumour size above which minimal access surgery is contraindicated has not been determined, some have suggested that ovarian masses more than 10 cm in size are best managed by Laprotomy because of anticipated technical difficulty with the procedure as well as the perceived higher malignant potential of large adnexal masses.

We report a 2-year experience with the laparoscopic management of adnexal masses more than 10 cm in size to determine the feasibility.

METHODS

All women presenting with adnexal mass more than 10 cms during January 2014 to December 2016 (2 years) to our rural teaching Institution was considered for this study. Pre-operative evaluation included history, clinical examination, ultrasound examination and basic serum marker evaluation (CA-125 upper limit 35U/ml).

Inclusion criteria

It included ovarian cyst of more than 10 cms with low probability of malignancy. Cases with ascitis, solid/complex mass, enlarged lymph nodes, elevated CA -125 were excluded from study.

Written informed consent was obtained from the patients after a thorough counselling, detailing therapeutic options, risks of the procedure, and the need for possible laparotomy or other indicated procedures. All procedures were performed by surgeons with training and experience in laparoscopic procedures.

10 mm primary port accessed supraumbilically in all cases either by open laparoscopy or by creating pneumoperitonium depending on the case. Three 5 mm working ports created, one on both side an inch above and medial to superior iliac spine, third port on left side midway between primary port and 5mm port. The cyst wall, interior of the capsule and the visceral organs were examined systematically for any suspicious signs of malignancy.

The cysts were aspirated initially followed by cystectomy, oophorectomy or total hysterectomy depending on age, parity, coexisting pathology and desire for future fertility. In cystectomy, capsule stripped from remaining ovarian tissue using graspers and bipolar current was used to coagulate the bleeding surface. If cystectomy was not performed or was not feasible, then cystic ovary (along with salphings in some cases) was mobilized and separated from its attachments using bipolar coagulation and cold scissors. If associated with other uterine pathology, salpingo oophorectomy followed by hysterectomy performed and the entire specimen was delivered vaginally. Specimen was retrieved by either of the 3 methods.

- Enmass along with cannula-through 10 mm primary port held with grasper,
- In bits and pieces-through 10 mm port after cutting into small strips or
- Through POD after Colpotomy.

We resorted to mini laparotomy, if all the above method fails. After the tissue was removed, the abdominal and pelvic cavities were thoroughly irrigated with copious amounts of normal saline. All the patients were discharged on 2nd post-operative day with standards of care at our institution.

RESULTS

The mean age of the patient was 37 (ranging from 22 to 69). Six patients were post-menopausal. Eight patients presented with features of torsion.

Table 1: Symptoms of patients with ovarian cyst.

Symptoms	Patients (n)
Acute pain abdomen	08
Infertility	05
Abdominal distension and discomfort	16
Incidental finding	03
Total	**32**

Most of the cases could be completed laparoscopically without any complication and conversion to laparotomy was needed in 3 cases (9.3%) to achieve desired surgical outcome (2 cases of severe endometriosis, 1 to arrest bleeding). The average diameter of the cyst was 16 cms (range 10 to 28 cms).

Patients underwent cystectomy, adnexectomy or total hysterectomy depending on age, parity, desire for future fertility and operative feasibility. 10 patients underwent laparoscopic adnexectomy followed by hysterectomy (prolapse 2, cervical dysplasia 2, fibroids 2, DUB 4).

Table 2: Laparoscopic procedure.

Procedure	Patients (n) 32
Laparoscopic cystectomy	06
Laparoscopic oophorectomy/salpingo-oophorectomy	13
Laparoscopic adnexectomy followed by hysterectomy	10
Laparoscopy followed by Laparotomy (conversion)	03
Total	**32**

Specimen retrieval-the specimen was delivered through vagina in all patients undergoing hysterectomy following

adnexectomy (n=10). Suprapubic mini Laprotomy incision of 3 cms was required to deliver the necrotic tissue (due to torsion) in 6 cases, as the specimen had hardened secondary to stagnation of blood.

Table 3: Specimen retrieval.

Specimen retrieval method	Number (n)
Vagina (after hysterectomy)	10
Colpotomy- through posterior fornix	07
Through port incision	06
Mini Laprotomy	06
Laparotomy (conversion)	03
Total	**32**

Mean duration of surgery was 90 min (range 70 to 135 min). patients had uneventful postoperative period and was discharged on 2nd day. All cases had benign pathology and the most common was serous cyst adenoma.

Table 4: Histopathology of specimen.

Histopathology	Patients (n)
Serous cyst adenoma	14
Mucinous cystadenoma	09
Dermoid	04
Endometrioma	04
Borderline serous cystadenoma	01
Total	**32**

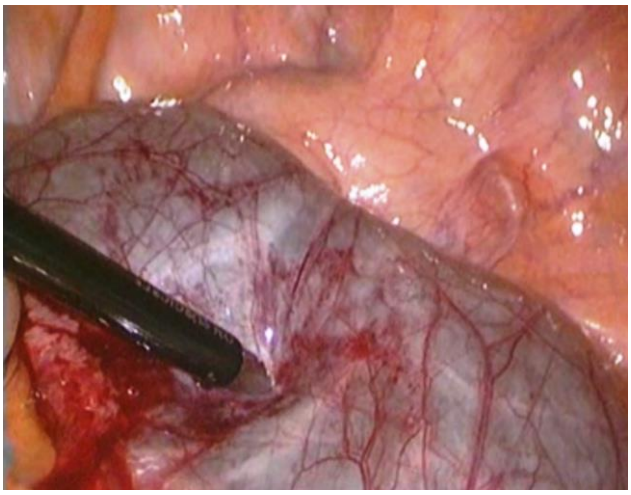

Figure 1: Intentional trocar puncture of the cyst under visualisation to deflate the cyst.

DISCUSSION

A randomized prospective study comparing laparoscopy and laparotomy in the management of patients with benign ovarian masses less than 10 cm in diameter reported a significant reduction in operative morbidity, postoperative pain and analgesic requirement, hospital stay and recovery period.[4]

However, the laparoscopic approach for the removal of cysts greater than 10 cm presents certain difficulties.

First, large ovarian cysts occupy major portion of abdominal cavity causing difficulty in peritoneal access, visualisation of vital structures and restriction of working space. Various techniques have been described in literature to overcome this difficulty such as 1) Palmer's point access or 2) open laparoscopy followed by intentional (Figure 1) trocar puncture of the cyst under visualisation to deflate the cyst.[5,6] In this study both the above techniques were adopted depending on the case and without much difficulty. In one study, transabdominal drainage under ultrasonographic control followed by laparoscopy and port/veress insertion directly into the cyst blindly has also been described.[7,8] Since these two later appears to be more blind technique compromising the safety of patient, these were not attempted in our cases.

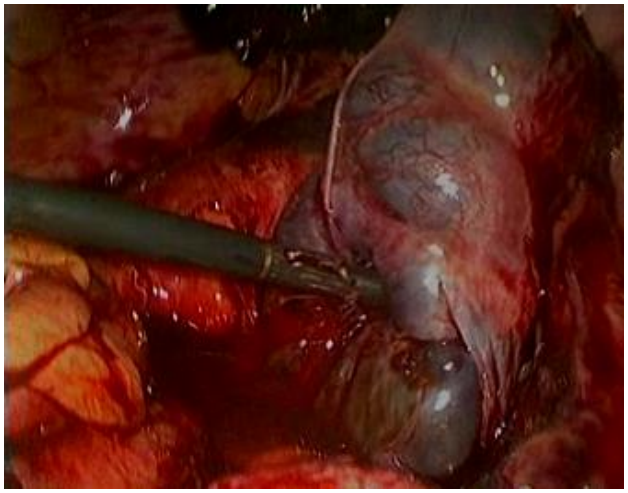

Figure 2: Large endometriotic cyst.

Second, the risk of spillage of the cyst contents is associated with complications such as pseudomyxoma peritonei (mucinous cystadenoma), chemical peritonitis (dermoid cyst) and the potential dissemination of unsuspected malignancy. Spillage rate depends on the cyst size, surgical expertise and route of retrieval. Various techniques described to minimize spilling are:

- Closure of the cyst puncture site with a 5mm grasper after deflating it and the adnexal extracted onto the abdomen wall through a mini laparotomy followed by extracorporeal cystectomy.[9]
- Placement of purse suture or endoscopic loop around the cyst incision.
- Specimen retrieval bags. Although described, these methods do not completely prevent spillage and is associated with increased operative time, hernia chances, operative cost and hence were not adopted in our study.

In our study, we had 9 cases of mucinous cystadenoma and 4 dermoid and one borderline serous cystadenoma and none had spill related complications. Third, longer operative time and technical difficulty associated with retrieval of larger tissue masses.

Mini-laparotomy is considered an acceptable minimally invasive approach yielding similar results.[10] In our study, mini laparotomy was resorted to in 6 cases for specimen retrieval. Posterior Colpotomy was successfully used in 7 cases to deliver specimen out.[11]

In 6 cases 10 mm port incision was used for specimen retrieval either enmass or after cutting into smaller bits. In another 10 cases, specimen delivered through vaginal vault after hysterectomy.

Every Attempt was made to conserve the ovarian tissue in all women of reproductive age.

However, owing to the large size of the cyst such an attempt was not possible, either because it was technically difficult or there was no ovarian tissue left in such huge cyst. Out of 24 reproductive age group patients, only in 8 (33%) cystectomy could have performed in our study. The results of the review article comparing 20 studies including 852 patients of laparoscopic management of large or huge ovarian cysts were comparable to our study.

Table 5: Comparison of results.

Results	Review article (n=852)	Present study (n= 32)
Conversion to laparotomy	9.3%	3.9%
Intra and postoperative complication	1.9%	0
Borderline tumour	2.5%	3.1%
Malignancy	3.1%	0

Both in review and our study the most common was Serous or mucinous cystadenoma.

CONCLUSION

With proper patient selection, the size of an ovarian cyst should not constitute a contraindication to laparoscopic surgery.

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Ethical approval: Not required

REFERENCES

1. Management of Suspected Ovarian Masses in Premenopausal Women. Green-top Guideline No. 62 RCOG/BSGE Joint Guideline I; 2011.
2. Paul PG., Chopade G, Patil S, Das T, Thomas M, Garg R. Should We Manage Large Ovarian Cysts Laparoscopically? J Gynecologic Surg. 2016;32(5):251-6.
3. Salem HA. Laparoscopic excision of large ovarian cysts. J Obstet Gynaecol Res. 2002;28:290-4.
4. Yuen PM, Yu KM, Yip SK, Lau WC, Rogers MS, Chang A. A randomized prospective study of laparoscopy and laparotomy in the management of benign ovarian masses. Am J Obstet Gynecol. 1997; 177(1):109-14.
5. Stitely ML. Laparoscopic removal of a large ovarian mass utilizing planned trocar puncture. JSLS. 2012;16(1):148-150.
6. Shindholimath VV, Jyoti SG, Patil KV, Ammanagi AS. Laparoscopic Management of Large Ovarian Cysts at a Rural Hospital. J Gynecol Endosc Surg. 2009;1(2):94-7.
7. Nagele F, Magos AL. Combined ultra-sonographically guided drainage and laparoscopic excision of a large ovarian cyst Am J Obstet Gynecol. 1996;175(5):1377-8.
8. Quinlan DK. The laparoscopic management of large Ovarian cysts. J Obstet Gynecol India. 2010;60 (1):152-6.
9. Gocmen A, Atak T, Ucar M, Sanlikal F. Laparoscopy-assisted cystectomy for large adnexal cysts. Arch Gynecol Obstet. 2009;279:17-22.
10. Panici PB, Palaia I, Bellati F, Pernice M, Angioli R, Muzii L. Laparoscopy compared with laparoscopically guided minilaparotomy for large adnexal masses: a randomized controlled trial. Obstet Gynecol. 2007;110:241-8.
11. Teng FY, Muzsnai D, Perez R, Mazdisnian F, Ross A, Sayre JW. A comparative study of laparoscopy and colpotomy for the removal of ovarian dermoid cysts. Obstet Gynecol. 1996;87:1009-13.
12. Gamal E. Laparoscopic Surgery for Large Ovarian Cysts-Review. Curr Trends Gynecologic Oncol. 2016;1:3.

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