

Case Report

Citation: Gnanarathne S, Ratnayake A, 2024. Large Ovarian Cyst - Laparoscopic Entry: A Case Report. Sri Lanka Journal of Medicine, pp 72-76.
DOI: <https://doi.org/10.4038/sljm.v33i1.479>

Large Ovarian Cyst - Laparoscopic Entry: A Case Report

S Gnanarathne¹, A Ratnayake²

¹Department of Obstetrics and Gynaecology, Faculty of Medicine, University of Peradeniya, Sri Lanka

²Department of Anesthesiology and Critical Care, Faculty of Medicine, University of Peradeniya, Sri Lanka

Correspondence:

A Ratnayake

E mail: aashaniratnayake@yahoo.com

 <https://orcid.org/0000-0002-7266-1874>

ABSTRACT

This report is aimed at introducing a simple technique to improve safety in drainage of large ovarian cyst managed with laparoscopic techniques. A 31-year-old, nulliparous woman, presented with a massive unilocular ovarian cyst measuring 22.48 cm in height, 18.92 cm in transverse axis, and 8.03 cm antero posteriorly. She had a normal CA125 level. Entry was done with the open technique (Hasson's) at the midpoint between umbilicus and the xiphisternum (Lee Huang). Through this opening the cyst wall was separated by blind dissection to avoid damage to cyst wall. Then the cyst contents were drained with a Veress needle. Troche was inserted through the same incision and pneumoperitoneum was created allowing a routine cystectomy. The critical step in managing large cysts is safe entry and inducing pneumoperitoneum. Using a simple technique, could improve safety resulting in successful a successful outcome of laparoscopic techniques for large ovarian cysts.

Keywords: *Ovarian cystectomy, large cysts, Laparoscopic cystectomy, Mucinous cyst adenoma*

INTRODUCTION

Laparoscopy is the gold standard in the treatment of benign adnexal mass. The size of the cyst will serve as a limiting factor for the use of laparoscopy due to problems in creating pneumoperitoneum and lack of space for equipment handling. Due to this, large ovarian masses are traditionally managed with open laparotomies. Laparotomy is a major surgery which increases morbidity, post operative pain and length of hospital stay. Because of these minimally invasive techniques with prior drainage of cyst has been attempted in various settings. We report a safe and successful

technique for cyst drainage in the laparoscopic management of large ovarian cysts.

CASE REPORT

A 31-year-old previously well nulliparous woman presented with a gradual enlargement of abdomen and weight gain over 2 years. She had an unremarkable menstrual history, good appetite and normal bowel habits. Her other system examinations were not significant.



MRI scan of the abdomen revealed a massive unilocular ovarian cyst filling her entire abdominal cavity. The cyst measured 22.48 cm in height, 18.92 cm in transverse axis at the level of umbilicus, and 8.03 cm antero posteriorly. (Figure 1) In addition there was a small fibroid (2cm to 3cm) in the posterior wall of the uterus, otherwise unremarkable pelvic organs. She had a normal CA125 level (12.3miu/l) Considering the age, patient's fertility wishes, benign characteristics noted in the imaging and tumor markers, and cosmetic reasons a laparoscopic cystectomy was planned.

The open technique (Hasson's) was used for entry. The site was the midpoint between umbilicus and the xiphisternum (Lee Huang). After entering into the peritoneal cavity, the cyst wall was separated from the anterior abdominal wall using blind dissection with a finger. The attempt to inflate the peritoneum with gas was not successful due to already distended abdomen. Then using a Veress needle the cyst content was aspirated to confirm its serous nature as well as the correct position of the needle. The cyst was drained to the extent where gas could be inflated. Using the same incision, 10 mm main trocar was inserted, and pneumoperitoneum was created. Following drainage of the cyst there was adequate space for pneumoperitoneum and instruments handling. The thinned-out ovarian tissue, which comprised most of the cyst wall was excised and the normal ovarian tissue was reserved by carefully handling the thick viable tissue detected towards the Infundibulopelvic ligament. This was done by using non-traumatic graspers and followed by reconstruction of the ovary with 2-0 vicryl. Ideally, drainage of an ovarian cyst should be done inside an endo bag to prevent the spillage of toxic content such as in cases of dermoid cyst, and to prevent spread over the peritoneal cavity in cases of malignancy. In this case the endo bag method was not used considering the practical difficulty of inserting a very large cyst into the bag and also because it was a benign cyst containing non-toxic content. The excised cyst wall was retrieved through 10mm main port while visualizing the peritoneal cavity via a 5mm accessory port using a 5mm camera. The peritoneal cavity was thoroughly cleaned with warmed saline and systematically inspected for remaining residual particles. Patient made an uneventful recovery

while histology report revealed the cyst to be a mucinous cyst adenoma.



Figure 1: MRI abdomen: Transverse section of the abdomen showing the extent of the cyst.



Figure 2: MRI abdomen: Sagittal section showing the extent of the cyst.

DISCUSSION

Laparoscopic excision of large ovarian cyst is challenging. Many institutes including our institute the usual practice is to perform a laparotomy when the pelvic mass is more than the size of a 24 week gravid uterus. Laparoscopic resections provide less morbidity, minimum length of hospital stay and reduce postoperative pain. In addition, it produces

less post procedure adhesions and allows the operator to have a wider look of the pelvis to detect any associated abnormalities (1).

There is no accepted size to perform laparoscopic resection. Most case series and case studies refer cysts larger than 15cm in diameter in any view are too large to be excised with a laparoscope. The maximum measurement in our patient's cyst was 22.48 cm. In a case series by Dubuisson et al, resection of a cyst of 30cm serous adenoma is reported in a 84 year old lady (2).

There are several laparoscopic entry techniques and technologies for safe entry into the peritoneum. The initial entry could be closed or open (3). In closed entry techniques peritoneal cavity is entered using Veress or trocar and pneumoperitoneum is created. Open technique or Hasson's technique involves cutting down to the peritoneum and inserting a blind trocar under direct visualization. The Hassan technique is less likely to cause visceral injury and bleeding (4). In this patient, as the cyst was extending up to the xiphisternum, it was likely to rupture if a closed technique was used. Therefore, in addition to Hassen's technique was preferred. A blind dissection with a finger was done to clear the cyst wall from the anterior abdominal wall. Most of the previously reported cases which involved laparoscopic removal of large ovarian cysts have used Hassen's technique for abdominal entry. Alaboid et al report a series of 5 cases, all of which were done using Hassen's technique without any complications (5).

Umbilicus has been used as the preferred site of entry for creating pneumoperitoneum for a long time. However, the disadvantages of using this point, such as the close proximity to the great vessels and the possibility of unanticipated paraumbilical adhesions has raised concerns using this. There could be technical difficulties with lack of free space as the entry point lies too low in the abdomen (6,7,8). A large multicentric prospective study revealed that intestinal injuries and major complications during laparoscopy occur in 5.7/1000 procedures. Approximately, 70% of these are related to the primary port entry and 50% of the major complications occur prior to commencement related to the first blind primary

umbilical port (9). Hence, the Royal College of Obstetricians and Gynaecologists (RCOG) has also declared that umbilicus may not be the safest point for first blind entry (10).

Alternatively, the concept of non-umbilical entry has developed, and it is used to avoid catastrophic complications that could be associated with the first blind umbilical entry (11). When the mass is large, entry through the umbilicus will cause technical problems. There is a risk of accidental perforation of the cyst, but this risk cannot be minimized by changing the entry position even if an alternative approach is used as the cyst size is very large. In addition to this the umbilical entry may be too low to achieve the best ergonomics during resection of a large cyst. Therefore a non-umbilical entry was done in this patient. Non-umbilical entry is recommended in patients with previous surgery, large pelvic masses, pregnancy, very lax abdomen, umbilical hernia, and gross obesity or underweight. Looking at the recent literature it is safe to use the non-umbilical entry technique universally in all patients. However, there are some cases with large ovarian cysts which have been performed with umbilical entry without any complications (2,5).

Several techniques were used to create space inside for the formation of pneumoperitoneum. Most cases have used draining techniques to drain the cyst contents. One case reported highlights the drainage of a cyst measuring 40x30 cm in a 16-year-old girl with a mini-laparotomy followed by a laparoscopic cystectomy (5). In the same case series, another large cyst was decompressed by suction and irrigation under vision from laparoscopy. In our case, we have combined 2 techniques highlighted in the literature: draining the cyst via Veress needle similar to the method used by Nagele & Magos (1996) (12) and laparoscopically aspirating cyst using the open Hasson's technique for trocar insertion as done by Thakur et al (2018) (13). Olguner et al (2006) describes an alternative method for drainage of fluids. They have inserted a nephrostomy catheter into the cyst under ultrasonography guidance and aspirated the content of the cyst completely so that there is no intraperitoneal spillage of the cyst (14).

Laparoscopic surgery has replaced most of the open surgeries, due to its better magnification, reduced invasiveness, and shorter hospitalization. It is considered the gold standard treatment for small to moderate size ovarian cysts, but when confronted with extremely large and apparently benign cysts, only few surgeons advocate laparoscopic management due to technical difficulties like space constraints. Also, there is fear of cyst rupture and spillage of cyst content to the peritoneal cavity. Proper patient assessment and evaluation, meticulous clinical and ultrasound examinations of ovarian cysts, and analysis of tumor markers would help to exclude malignant ovarian cysts.

CONCLUSION

There is no consensus for the size limitations of ovarian cyst to be resected via laparoscopic technique. Due to the advantages of minimally invasive techniques, it is beneficial for the patients to have the option of laparoscopy even in very large ovarian cysts. The critical step in managing large cysts is safe entry and inducing pneumoperitoneum. Using a simple technique could improve safety resulting in a successful outcome of laparoscopic techniques for large ovarian cysts.

Author declaration

Authors' contributions:

Both authors contributed equally.

Conflicts of interest:

The authors declare that there is no financial or non-financial conflict of interest.

Funding statement:

Self-funded

Consent for publication:

Informed consent has been obtained from the patient for the publication of this case report.

REFERENCES

1. Philippe Y. Laberge, Stephanie Levesque, Short-Term Morbidity and Long-Term Recurrence Rate of Ovarian Dermoid Cysts Treated by Laparoscopy Versus Laparotomy. *J Obstet Gynaecol Can* 2006; 28(9):789–793
2. J. Dubuisson, S. Heersche, P. Petignat and M. Undurraga, Laparoscopic Management of Giant Ovarian Cysts Using the Alexis Laparoscopic System®: A Case Series *Frontiers in Surgery* 2020 Vol. 7
3. Ahmad G, Baker J, Finnerty J, Phillips K, Watson A. Laparoscopic entry techniques. *Cochrane Database Syst Rev.* 2019 Jan 18;1(1):CD006583. doi: 10.1002/14651858.CD006583.pub5. PMID: 30657163; PMCID: PMC6353066.
4. Vilos GA, Ternamian A, Dempster J, Laberge PY. Laparoscopic entry: a review of techniques, technologies and complications. *Journal of Obstetrics and Gynaecology Canada* 2007;29(5):433-65.
5. Alobaid A, Memon A, Alobaid S, Aldakhil L. Laparoscopic management of huge ovarian cysts. *Obstet Gynecol Int.* 2013;2013:380854. doi: 10.1155/2013/380854. Epub 2013 May 8. PMID: 23766763; PMCID: PMC3665257.
6. Attwell L, Rosen S, Upadhyay B, Gogalniceanu P. The umbilicus: a reliable surface landmark for the aortic bifurcation? *Surg Radiol Anat.* 2015;37:1239–1242. doi: 10.1007/s00276-015-1500-1. [PubMed] [CrossRef] [Google Scholar]
7. Ellis H. The magnitude of adhesion related problems. *Ann Chir Gynaecol.* 1998;87:9–11. [PubMed] [Google Scholar]
8. Liakakos T, Thomakos N, Fine PM, Dervenis C, Young RL. Peritoneal adhesions: etiology, pathophysiology, and clinical significance. *Recent advances in prevention and management.* *Dig Surg.* 2001;18:260–273. doi: 10.1159/000050149. [PubMed] [CrossRef] [Google Scholar]
9. Jansen FW, Kapiteyn K, Trimbos-Kemper T, Hermans J, Trimbos JB. Complications of laparoscopy: a prospective multicentre observational study. *Br J Obstet Gynecol.* 1997;104:595–600. doi: 10.1111/j.1471-0528.1997.tb11539.x.[PubMed] [CrossRef] [Google Scholar]
10. RCOG. Green-top guideline: preventing entry-related gynaecological laparoscopic injuries. London: Royal College of Obstetricians and Gynaecologists; 2008. p. 49. [Google Scholar]
11. Alkatout I. Complications of laparoscopy in connection with entry techniques. *J Gynecol Surg.* 2017;33(3):81–91. doi: 10.1089/gyn.2016.0111. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
12. Fritz Nagele, Adam L. Magos, Combined ultrasonographically guided drainage and laparoscopic excision of a large ovarian cyst. *American Journal of Obstetrics and Gynecology* 1996, 175(5) 1377-1378 DOI:https://doi.org/10.1016/S0002-9378(96)70060-1
13. Thakur A, Dangal G, Karki A, Pradhan HK, Shrestha R. Laparoscopic cystectomy of huge ovarian cyst in nulliparous woman. *NJOG.* 2018 Jul;13(3):3–5. doi: 10.3126/njog.v13i3.23478. [CrossRef] [Google

Scholar]

14. Olguner M, Sec M. Laparoscopic excision of a giant ovarian cyst after ultrasound-guided drainage. *J Pediatr Surg.* 2006 Oct;41(10):E9–11. doi: 10.1016/j.jpedsurg.2006.06.023. [PubMed] [CrossRef] [Google Scholar]