Original Article

Laparoscopic Management of Benign Adnexal Cysts - Efficacy and Safety of Procedure

Nasira Tasnim[1], Kauser Tasnim Bangash[2], Kauser Masoom[3], Amna Abbasi[3]

[1]Professor and Head of Unit II, MCH center, Shaheed Zulfiqar Ali Bhutto Medical University ,Pakistan Institute of Medical Science (SZABMU-PIMS), Islamabad, [2]Assistant Professor, SZABMU-PIMS, Islamabad, [3]Senior Registrar , SZABMU-PIMS, Islamabad, [4]Postgraduate resident MS-SZABMU-PIMS, Islamabad

Correspondence: *Prof. Nasira Tasnim, Professor and Head of Unit II ,MCH center, Shaheed Zulfiqar Ali Bhutto Medical University ,Pakistan Institute of Medical Science (SZABMU-PIMS), Islamabad*
Email : whcg82@hotmail.com

Abstract

Objective: to evaluate safety and efficacy of laparoscopy in the management of benign adnexal cysts presenting in a tertiary care hospital.

Study design: prospective cross sectional study.

Place and Duration: MCH center, Pakistan institute of medical sciences from 1st July 2012 to 31st June 2014

Methodology: During 2 years period, 117 Pre-menopausal women with benign adnexal cyst of 4-10 cm size underwent laparoscopy for the purpose to treat. Laparoscopic procedure was performed after thorough evaluation, using standard technique .A predesigned structured study performa was filled for each case. Analysis was done through SPSS version 11.At the end of 2 years, cases were analyzed in terms of completeness of procedure through laparoscopy alone assessed and complication rate.

Results: among 117 adnexal cysts, 113(96.5 %) were Ovarian while the rest were Para ovarian. Serous cyst adenoma was the most common pathology in 52(46%), followed by endometriotic cysts in 42 (37%) cases. Majority were unilateral cysts (98%). Of 117 cases, 109 (93%) were successfully managed through laparoscope while 8 (7%) required conversion laparotomy due to inseparable intestinal adhesion in 5, technical difficulties in 2 and mesenteric vascular injury in 01 case. Mean postoperative hospital stay was 3 days. Post-operative course was uneventful in all except one patient with dermoid cyst who required laparotomy on 5th post op day due to severe chemical peritonitis. No mortality was reported.

Authorship Contribution: [1]Conceived the Idea, and designed, [2]Statistical expert & Drafting of the article, [2] Analysis and interpretation of data, [3] Collection and assembly of data drafting the article,
Funding Source: None
Conflict of Internet: None

Conclusion: laparoscopic procedure is safe and effective option for the treatment of benign adnexal cyst of ≤ 10 cm size. Proper selection of cases, experienced surgical team and well equipped setup are the key factors in achieving optimum results.

Keywords: laparoscopy, ovarian cystectomy, adnexal mass, laparoscopic ovarian cystectomy**.**

Introduction

Where ever in the body a cavity exists or a cavity can be created, laparoscopy is indicated and probably preferable.[1]The limiting factor is the skill and experience of the surgeon & availability of proper instruments. Currently, laparoscopy is the preferred surgical modality for a variety of procedures including ovarian cystectomy, oophorectomy, fundoplication and surgical management of ectopic pregnancies. It's most common use is seen in the management of adnexal cysts, where almost 50% of benign adnexal cysts are managed through laparoscope. Efficacy of laparoscopy in complete resection of adnexal cysts is reported to be 88-99%.[2] However the expertise of surgeons, size and type of cysts are major determinants in safe and complete removal of adnexal cysts.[3]

Advantages of laparoscopy are improved cosmoses, quicker recovery time, less blood loss, shorter hospitalization, decreased need for analgesics ,less adhesions and better results.[4]

The procedure has not gained an expected popularity in low resource countries due to high installation cost, scarcity of trained laparoscopic surgeons, limited training resources, long learning curve, tedious nature of procedure and inherent potential of complications[5]. The common complications include surgical emphysema, injury to blood vessels and wound infections. The reported incidence of these complications is 3.4% to 8.9%.[6] For these reasons laparoscopic management of benign gynecological diseases is limited only to a few tertiary care hospitals of Pakistan.[7 8 9]

Operative Laparoscopy is being carried out at Maternal and Child health care (MCH) center, PIMS for almost about 15 years. The current study is a 6 year audit of prospectively collected data in order to determine the efficacy and safety of laparoscopic surgery in the management of benign adnexal cysts.

Methodology

From 1st July 2012 to 31st June 2014,117 patients in the age range of 19-43 years with benign adnexal cysts underwent operative laparoscopy. Diagnosis of benign adnexal cysts was based on history, examination, transvaginal ultrasound and serum tumor markers .Women were evaluated on outpatient basis for the possibility of laparoscopic treatment and were admitted a day before surgery. Cases with suspected malignancy and with co morbidities were excluded from the study. The patients were informed in detail about operative procedure, possible intra and post-operative complications and need for laparotomy or other indicated procedures. Informed written consent was taken. Ethical committee approval

was taken. Pre-operative preparation included pre anaesthesia evaluation, gut preparation and blood arrangements.

All the procedures were performed under general anaesthesia. After an initial pneumo peritoneum, 10mm trocar was introduced through a sub umbilical vertical incision. Three accessory ports were made, two in lower abdomen and one in palmer space. Pelvic and abdominal cavities were thoroughly evaluated. Type /size of cyst and feasibility of procedure in removing adnexal cysts were assessed. In case of endometriosis, stage of disease was assessed.

Unipolar diathermy and harmonic scalpel were used for dissection / excision of cyst and to secure hemostasis. Cyst aspiration, cystectomy, oophorectomy, and salpingo oophorectomy were performed on case by case basis. Additional procedures like adhesiolysis were performed if needed. Surgical specimen was retrieved through 11mm accessory trocar under direct vision. Pelvic and abdominal cavities were reevaluated for hemostasis and thoroughly irrigated before removal of trocars.

Data from complete case records was entered in Excel sheet and was analyzed through SPSS version 10 with respect to following outcome variables: type of surgery, operative time, blood loss, completeness of procedure through laproscopy alone, conversion laparotomy, perioperative complications, post-operative hospital stay and pathological diagnosis of cysts.

Results

During 2 years study period, 117 patients underwent operative laparoscopy to treat benign adnexal cysts. Mean age of the patients was 28.5 ±6.9 years. Lower abdominal pain was the major presenting complaint in 53(45%) followed by primary infertility in 32(27%), mass abdomen in 18(15.3%) and secondary infertility in 14(12%) cases. Majority of cysts 115 (98 %) were unilateral with a mean size of 6.9 ±1.9 cm.

Of 117 operated adnexal masses, ovarian cysts were found in 113 (96.5%) and para ovarian cysts in 4 cases. Among ovarian cysts most commonly encountered pathology was serous cyst adenoma in 52 (46 %) patients, followed by endometriotic cyst in 42 (37%) patients (Table I).

Table I. Pathology of ovarian cysts (n=113)

Ovarian Cyst type	No of patient	% of patients
Serous cyst adenoma	52	46.01
Endometriotic cyst	42	37.1
Stage 3	27	(65%)
Stage 4	15	(35%)
Dermoid cyst	11	09.07
corpus luteum cyst	08	07.07

Of 117 operated cases, 109 were successfully managed through laparoscope while 8(7%) cases required conversion laparotomy. The indications for conversion to laparotomy are shown in figure 1.

Of 109 laparoscopically completed cases, the most commonly performed procedure was cyst excision in 88 (80.7%) cases, followed by cyst aspiration in 7 (6.4%) cases (Figure.1). Additional

procedure of adhesiolysis was performed in 57(52.2%) patients.

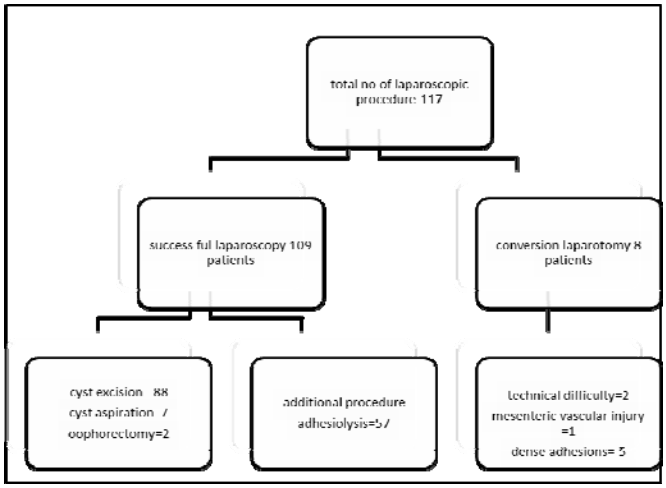

Figure 1. Outcome of laparoscopically managed adnexal cysts.

Retrieval of surgical specimen was successfully achieved through accessory ports without extension of incision in 107 (98.2%) patients. In remaining two cases incision had to be extended to 2-3 cm due to difficulty in retrieval.

Intra operative complications occurred in 4 (3.6 %) cases. These included surgical emphysema of abdominal wall in 3 patients which settled down after removal of accessory ports. Surgery was successfully completed in all these cases after reinsertion of ports .Mesenteric vascular injury occurred in 1 patient which required laparotomy. Post-operative course was uneventful in all except one patient of dermoid cyst who required emergency laparotomy on 5th post-operative day due to severe chemical peritonitis which failed to respond to conservative management. There was no mortality in 117 operated cases patients. Median post-operative hospital stay was 3 days.

Discussion

The field of operative laparoscopy has experienced great advances in operative technique, laparoscopic equipment and instruments. With increasing experience and proper selection of cases, laparoscopic surgery is now technically safe and feasible for the management of benign adnexal cysts.[10]

The procedure has gained preference over laparotomy at our tertiary care hospital for adnexal masses measuring less than 10 cm size. Any laparotomy procedure in such cases has to be justified. This shift in management from more invasive to less invasive but more challenging procedure, under same resources is a reflection of confidence of surgeons gained through experience. Acquired experience of surgeons in this regard is said to be the most important requirement for operative laparoscopy and learning curve is considered as an indirect reflection of success and post-operative complication.[11] Another contributor to this increasing confidence is exposure of our residents and junior faculty members to level 2 & 3 laparoscopic surgery resulting in increased sensitization and recruitment of more and more cases.

The conversion laparotomy rate in our study was 7% which is an indirect indicator of success of the procedure. The reported rate of conversion laparotomy in another study was 0.9%.[12] The rate is dependent on multiple factors including experience of surgical team, type/ size of cyst and pelvic/ extra pelvic adhesions. A proper selection

of cases through pre-operative work up including a detailed ultrasound has been found to reduce risk of conversion laparotomy.[13]

Procedure related complications occurred in 3.4 % cases in our patients, less than the reported rate of 8.9 % to 22.2%.[14] Incidence of such complications is dependent upon the same factors which determine conversion laparotomy rate. The complications are partially avoidable if cases are properly selected, principal of laparoscopic surgery are adhered to and early recourse to conversion laparotomy is done, keeping in mind that conversion laparotomy may be a 2nd line therapeutic step and not an incorrect indication for laparoscopy.[15 16]

One of major concerns in laparoscopic management of apparently benign adnexal masses is risk of fatal malignancy discovered after operation on histopathology specimen. No such incident was reported in our study. However the rate of such occurrence varies from 0.4-4 %.[17 18] A careful history, thorough physical examination, transvaginal ultrasound and tumor markers reduce the occurrences of such incidents. The negative predictive value of Trans vaginal ultrasound has been reported to be 88-100% [19 20] while that of serum CA125 (≤88 IU) as 99%.[21] Similarly laparoscopic evaluation for intraoperative features of malignancy including presence of papillary projections on outer surface or protruding into cystic cavity or masses appearing mostly solid carries a negative predictive value of 99%.[22] In this regard, De Wildey et all have suggested a routine examination of all specimens in frozen section before proceeding to definitive surgery, to rule out possible malignancy.[23]

The audit reflects that benign ovarian cyst of ≤ 10 cm in size can be safely managed through laparoscope. Cross sectional nature of the study is however one of the limiting factor for motivating those who still prefer laparotomy over laparoscopy due to their experience in the former. Large randomized control trials comparing the two procedures, extensive trainings on laparoscopy and clinical attachments may prove useful in popularization of this potentially safe and beneficial procedure.

Conclusion

Laparoscopic procedure is safe and effective option for the treatment of benign adnexal cyst of ≤ 10 cm size. Proper selection of cases, experienced surgical team and well equipped setup are the key factors in achieving optimum results.

Acknowledgement: We are grateful to Mr. Mohammmed Ahmed Rana and Mr. Noor Ahmed Anjum for providing technical support for Laparoscopic procedures. We are also grateful to Mr.Shafique arif, Director Survey and Resaerch, Oxford policy management for his statistical input.

References

1. Nezhat C, Nezhat F. Laparoscopic surgery with a new tuned high-energy pulsed CO2 laser. J Gynecol Surg 1992;8(4):251-255.
2. Seckin B, Ozdener T, Tapisiz OL, Batioğlu S. Laparoscopic treatment of ovarian cysts in adolescents and young adults. J Pediatr Adolesc Gynecol 2011;24(5):300-303. Epub 2011 Jun 29.
3. Brosens I, Benagiano G. Endometriosis, a modern syndrome. Indian J Med Res. 2011;133(6):581-593.

4. Akram H, Lodhi SK, Rana T. Laparoscopy versus laparotomy in the treatment of benign ovarian cyst. Ann King Edward Med Uni 2005;11(4):463-465.
5. Munro MG. Laparoscopic access: complications, technologies, and techniques. Curr Opin Obstet Gynecol 2002;14(4):365-374.
6. Chapron C, Fauconnier A, Goffinet F, Bréart G, Dubuisson JB. Laparoscopic surgery is not inherently dangerous for patients presenting with benign gynaecologic pathology. Results of a meta-analysis. Hum Reprod 2002;17(5):1334-1342.
7. Iftikhar R. Outcome of Laparoscopy in chronic pelvic pain. J Surg Pak 2008;13(4):155-158.
8. Saleem N. An analysis of adnexal masses in reproductive age group. Mother & Child 1998;36(1):36-41.
9. Hussain M, Ashraf M, Jabeen T, Nasir AK, Yasmin H, Noorani K. Laparoscopic evaluation of Endometriosis. J Surg Pak 2004;9(4):2-5.
10. Lee JW, Kim CJ, Lee JE, Lee SJ, Kim BG, Lee JH, Bae DS, Park CS. Selected adnexal cystic masses in postmenopausal women can be safely managed by laparoscopy. J Korean Med Sci. 2005;20(3):468-472.
11. Ferrari MM, Mezzopane R, Bulfoni A, Grijuela B, Carminati R, Ferrazzi E, Pardi G. Surgical treatment of ovarian dermoid cysts: a comparison between laparoscopic and vaginal removal. Eur J Obstet Gynecol Reprod Biol 2003;109(1):88-91.
12. Gad MS, El Khouly NI, Soto E, Brodman M, Chuang L, Nezhat FR, Gretz HF. Differences in perioperative outcomes after laparoscopic management of benign and malignant adnexal masses. J Gynecol Oncol 2011;22(1):18-24.
13. Takacs P, Latchaw G, Gaitan L, Chakhtoura N, De Santis T. Risk factors for conversion to laparotomy during laparoscopic management of an ectopic pregnancy. Arch Gynecol Obstet 2005;273(1):32-4. Epub 2005 Oct 28.
14. Ashraf M. Laparoscopic Complications: Risk Factors. Ann King Edward Med Uni 1998;4(4):67-69.
15. Yazbek J, Helmy S, Ben-Nagi J, Holland T, Sawyer E, Jurkovic D. Value of preoperative ultrasound examination in the selection of women with adnexal masses for laparoscopic surgery. Ultrasound Obstet Gynecol. 2007;30(6):883-888.
16. Mazher SB, Kamal R. Operative Laparoscopy for benign gynecological problems: a three year study. Ann Pak Inst Med Sci 2005;1(2):96-100.
17. Manolitsas TP, Fowler JM. Role of laparoscopy in the management of the adnexal mass and staging of gynecologic cancers. Clin Obstet Gynecol. 2001;44(3):495-521.
18. Marana R, Muzii L, Ferrari S, Catalano GF, Zannoni G, Marana E. Management of adnexal cystic masses with unexpected intracystic vegetations detected during laparoscopy. J Minim Invasive Gynecol 2005;12(6):502-507.
19. Leng JH, Lang JH, Zhang JJ, Feng FZ, Liu ZF, Sun DW, Zhu L, Zhao XY. Role of laparoscopy in the diagnosis and treatment of adnexal masses. Chin Med J (Engl). 2006;119(3):202-206.
20. Sassone AM, Timor-Tritsch IE, Artner A, Westhoff C, Warren WB. Transvaginal sonographic characterization of ovarian disease: evaluation of a new scoring system to predict ovarian malignancy. Obstet Gynecol 1991;78(1):70-76.
21. Bouzari Z, Yazdani S, Ahmadi MH, Barat S, Kelagar ZS, Kutenaie MJ, Abbaszade N, Khajat F. Comparison of three malignancy risk indices and CA-125 in the preoperative evaluation of patients with pelvic masses. BMC Res Notes 2011;4:206.
22. Lee JW, Kim CJ, Lee JE, Lee SJ, Kim BG, Lee JH, Bae DS, Park CS. Selected adnexal cystic masses in postmenopausal women can be safely managed by laparoscopy. J Korean Med Sci 2005;20(3):468-472.
23. Hesseling M, De Wilde RL. Safety and effectiveness of endosurgical management of benign adnexal tumors in the premenopausal period: a prospective study. Geburtshilfe Frauenheilkd 1994;54(8):437-439.

.