

Original Research Article

Comparison of transvaginal versus transumbilical retrieval technique of laparoscopically removed surgical specimens

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ABSTRACT

Background: Laparoscopy is a minimally invasive, safe, and acceptable technique for the removal of adnexal masses whereas specimen removal remains a big challenge due to the size and type of specimens. In this study, we have discussed the two different routes of specimen retrieval, transumbilical and transvaginal route.

Methods: A prospective study was conducted on 34 women with adnexal mass who were admitted for laparoscopic removal of adnexal mass. Patients were randomized into two groups, Group A included 17 women who underwent transumbilical retrieval of specimens, and Group B included 17 patients who underwent transvaginal retrieval of specimens.

Results: Basic demographic data were similar in both groups. None of our patients had intraoperative & postoperative complications. There was no significant difference in Specimen retrieval time, operative time, and blood loss. Two patients (N=2) in group A had spillage. Postoperative pain was significantly higher in group A and the cosmetic response was significantly higher in group B.

Conclusions: Both transumbilical and transvaginal techniques of specimen retrieval in the laparoscopically resected specimen are safe, feasible, and easy, but the Transvaginal route has advantages over the transumbilical route because of better cosmesis and less postoperative pain.

Keywords: Transumbilical, Transvaginal, Laparoscopy

INTRODUCTION

Adnexal masses & Ovarian cysts are the most common benign gynecological conditions seen in reproductive age group women.¹ Currently, laparoscopy is a minimally invasive and acceptable surgical technique in view of less post-operative pain, blood loss, infection & better cosmesis.² Specimen removal after laparoscopic resection is a major area of concern as specimens are usually larger than the port site. Now efforts are focused on developing strategies to reduce incisional morbidity and improve cosmesis. Transumbilical removal of an excised specimen using Endobag is a method of choice as the transumbilical port site is the thinnest, distensible area of the anterior

abdominal wall.³ But in large-size solid cysts, this route has disadvantages, excessive wound enlargement, and stretching fascia result in poor cosmesis as well as increased hernia and increased pain.³ There is also the risk of injury to the epigastric artery or its branch when using lateral trocars.

During the past decade, natural orifice transluminal endoscopic surgery (NOTES) rising in the field of general surgery, and it has emerged as a new concept of minimally invasive surgery. The transvaginal route using colpotomy is another route for specimen removal with better cosmesis than the conventional laparoscopic transumbilical approach. NOTES yields access to the abdominal

cavity without any incisions on the abdominal wall (scarless surgery), and the natural orifices of the body surface, such as vagina, serve as the gateway to the peritoneal cavity. Recently, clinical application of transvaginal NOTES has broadened significantly in gynecology.⁴ Also, colpotomy is a safe method with a short learning curve & in view of spillage, this route has minimal or no spillage in the case of large specimens. But, the Transvaginal route can be associated with an increased risk of infection, and injury to adjacent organs including the bladder, bowel, ureter, and vaginal walls.⁵ Also, the Vaginal approach is not possible in obliterated POD, DIE (deep infiltrating endometriosis), and chronic PID. Morcellator is another technique to retrieve solid masses resected laparoscopically which changes tissue into small strips.⁶ but due to the large diameter, it can cause incisional hernia that can be avoided by port closure.⁷ In this study, we have compared two different routes transumbilical and transvaginal routes in the removal of laparoscopically resected adnexal specimens.

Aims and objectives

Aim and objectives of current study were to compare the transumbilical route with the transvaginal route for retrieval of laparoscopically removed adnexal specimens.

METHODS

A prospective study was conducted at Dayanand medical college and hospital in the obstetrics and gynecology department from Jan 2021 to May 2022. A total of 34 women in the age group between 18 to 55 years admitted for laparoscopy of benign adnexal mass such as unilateral/bilateral ovarian cystectomy, salpingectomy, oophorectomy, or salpingo-oophorectomy were included in the study after taking informed consent. Patients were randomized into two groups. Group A included 17 women who underwent transumbilical retrieval of an adnexal specimen. Group B included 17 women who underwent transvaginal retrieval of an adnexal specimen. Basic demographic data including age, BMI (body mass index), Parity, adnexal mass size, and previous surgical history were recorded. Perioperative and postoperative outcomes were recorded in both procedures. Statistical analysis was done using the Chi-square test.

Inclusion and exclusion criteria

Patients with Benign adnexal mass up to 8cm removed laparoscopically were included. Patients with Suspicion of malignancy, Deep infiltrating endometriosis, Obliterated pod, Tuberculosis, Solid mass more than 10 cm were excluded.

RESULTS

Total 37 women were taken for the study having adnexal mass, 3 patients were excluded from the study, 1 had an intraoperative finding of malignancy, 2 patients had stage

4 endometriosis and obliterated POD. Out of the remaining 34, 17 women who underwent transumbilical retrieval of the adnexal specimen and 17 women who underwent transvaginal retrieval of the adnexal specimen were included in the study. Basic demographic data like Age, BMI, Parity, Previous surgery, and size of adnexal mass were studied and there was no statistically significant difference between the two groups (Table 1).

Table 1: Demographic data of both the groups.

Parameter	Group A (TU) (N=17)	Group B (TV) (N=17)	P value
Age (years)	31.24±9.5	30.7±8.5	0.880
BMI (kg/m ²)	23.8±2.20	23.98±2.66	0.911
Previous surgery	35%	41%	0.724
Size of lesion (cm)	5.39±1.27	5.79±0.76	0.274

In this study, (Table 2) indicates intraoperative details. 2 (N=2) patients had transumbilical extension up to 1 cm in group A. Specimen retrieval time was significantly shorter in group A. Two (N=2) of our patients had spillage in group A. None of our patients had an intraoperative complication. No woman underwent laparotomy for specimen removal. There was no significant difference in the type of procedure, blood loss, or operative time in the two groups (Table 2).

Table 2: Peri-operative outcome of both the groups.

Parameters	Group A (TU)	Group B (TV)	P value
Specimen retrieval time (Min)	6.88±3.39	8.24±3.11	0.234
Spillage	2	0	0.145
Complications	0	0	-
Estimated Blood loss(ml)	30.00±14.5	36.18±20.73	0.323
Operative time (minutes)	48.82±16.73	47.12±18.8	0.782

Table 3: Postoperative outcomes in both the groups.

Parameters	Group A (TU) (%)	Group B (TV) (%)	P value
Postoperative pain			
2 hours	76	29	0.006
24 hours	53	18	0.031
Cosmetic response	53	94	0.007
Hospital stay (days)	1.71±0.77	2.18±0.81	0.092
Postop complications	0	0	-

In our study post-operative pain was recorded using VAS (visual analog scale) at 2 and 24 hours postoperatively. We studied that postoperative pain was significantly lower in the Transvaginal group compared to the transumbilical group at 2 hours and 24 hours postop. The cosmetic response was higher in group B. But there was no significant difference in the hospital stay. Two (N=2) patients in group A had a fever and one (N=1) patient had scar site hematoma in group A but it was not significant. None of our patients in group B had colpotomy incision dehiscence & no patient reported with scar site hernia in group A (Table 3).

DISCUSSION

Specimen retrieval is a big challenge in laparoscopic surgery. In this study, we compared two routes for specimen removal transumbilical and transvaginal on 34 women who underwent laparoscopic resection of adnexal masses. Basic demographic data were similar in both groups. It was similar to a study conducted by Kilpio et al in 2017. In this study 2 (N=2) patients had transumbilical extension up to 1 cm in group A. This is due to stretching & tearing of fascia during removal of the specimen through the port site.⁷ similar results were seen in a study conducted by Amer et al.³ Specimen retrieval time was significantly shorter in group B. this was in contrast to a study conducted by Ghezzi et al.⁷ There was no significant difference in both routes in a study conducted by Kemal et al.⁸ In the transvaginal route pouch of Douglas is opened by direct bold incision vaginally with the monopolar hook on the bulging part of the vagina after inserting a colpotomizer and the site is closed with vicryl rapid suture easily, while port closure is required laparoscopically in the transumbilical route which takes more time. Two (N=2) of our patients had spillage in group A due to large specimens. This is due to the TV route being easily stretchable, and drainage of a large amount of peritoneal collection is done easily and quickly. All specimens were removed using an endo bag but spillage was seen in 1 ruptured ectopic pregnancy and 1 serous cystadenoma. In the TV route Incision is bigger and under direct vision & all specimens were removed using endobag. None of our patients had intraoperative complications. No woman underwent laparotomy for specimen removal. There was no significant difference in the type of procedure, blood loss, or operative time in the groups. These results were similar to a study conducted by Kilpio et al.² In our study, postoperative pain was assessed using VAS at 2 hours and 24 hours postoperatively. Postoperative pain was significantly higher in group A. it was similar in a study conducted by Ghezzi et al.⁶ This can be due to the fact that the transvaginal route does not require an abdominal incision and vaginal visceral nerves are less sensitive.⁹ In our study, the cosmetic response was significantly higher in group B compared to group A. This is due to the risk of enlargement of skin incision which may result in poor cosmetic outcomes & complications like adhesions, and hernia.¹⁰ hospital stay and postoperative complications were similar in both groups. This is also seen in a trial

conducted in 2022 at Erzincan Military Hospital.¹⁰ Cosmesis satisfaction rate was also higher in transvaginal route in one more study conducted by Zeynep et al.¹¹ In a study conducted by sefa et al, transvaginal route had better cosmetic results, less postop pain and morcellation need with equal blood loss and operative time.¹² Limitation of this study was small sample size.

CONCLUSION

This study concluded that both methods are safe and feasible in the removal of laparoscopically excised specimens. But the transvaginal route causes less postoperative pain, is less time-consuming, has minimal spillage, patient satisfaction, and better cosmetic results than the transumbilical route. Intraoperative complications and postoperative complications were almost similar in both routes. As Colpotomy is an easy, safe, and easily learned technique, the use of this technique is rising by most surgeons, especially in case of large masses. It also avoids extension of port site incision. Natural orifice surgery has emerged for specimen removal nowadays. Hence, during specimen extraction route should be individualized as per the clinical picture of the adnexal mass.

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