

LAPAROSCOPIC MANAGEMENT OF OVARIAN DERMOID CYSTS IN BIRAT MEDICAL COLLEGE, TEACHING HOSPITAL

Neupane BB¹, Karki GMS², Dahal P³, Karki SB⁴

Affiliation

1. Lecturer, Department of obstetrics and Gynecology, Birat Medical College and Teaching Hospital, Tankisinuwari-2, Morang, Nepal.
2. Department of Obstetrics and Gynecology, Birat Medical College and Teaching Hospital, Tankisinuwari-2, Morang, Nepal.
3. Assistant Professor, Department of Obstetrics and Gynecology, Birat Medical College and Teaching Hospital, Tankisinuwari-2, Morang, Nepal.
4. Department of Anesthesiology, Birat Medical College and Teaching Hospital, Tankisinuwari-2, Morang, Nepal.

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* Corresponding Author

Dr. Bhanubhakta Neupane
Lecturer

Department of obstetrics and Gynecology
Birat Medical College and Teaching Hospital
Tankisinuwari-2, Morang, Nepal.

Email: bhanubutwal@gmail.com

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ABSTRACT

Introduction

Spillage of contents of the dermoid cyst during surgery may cause chemical peritonitis and spillage is more likely to occur during laparoscopic surgery for the removal of the ovarian dermoid cyst. Thorough washing of peritoneal cavity with physiological solution greatly reduces the incidence of chemical peritonitis.

Objective

To study the outcome of laparoscopic treatment of ovarian dermoid cysts.

Methodology

This is a hospital based cross-sectional study conducted at Birat Medical College and Teaching Hospital from 2012 April to 2016 April. All patients being operated by laparoscopy for ovarian dermoid cysts were enrolled in the study. Occurrence of spillage of dermoid contents during surgery and development of symptoms and signs of chemical peritonitis in postoperative period were main outcome measures. The collected data was entered in Microsoft Excel and analyzed by SPSS software version 17.

Results

Eighty nine ovarian dermoid cysts from 82 patients were managed by laparoscopy. Among 89 cysts, 54(60.76%) cysts were removed by laparoscopic cystectomy, 21(23.59%) cysts were removed by laparoscopic salpingo-oophorectomy and 14(15.73%) cysts were removed by salpingo-oophorectomy with hysterectomy. Spillage of dermoid content occurred in 50 (56.17%) cysts removal. There was no conversion to laparotomy and no case of chemical peritonitis.

Conclusion

The risk of chemical peritonitis is negligible with spillage of dermoid content during laparoscopic procedure when peritoneal cavity is washed thoroughly.

KEYWORDS

Chemical peritonitis, dermoid cyst, laparoscopy, spillage.

INTRODUCTION

Dermoid cysts of ovary are the common germinal ovarian tumour in women of reproductive age. Dermoid cysts account for 20-25% of the all ovarian tumours and are bilateral in 10-15% of the cases.¹

Majority of the dermoid cysts are asymptomatic. They are often discovered incidentally in pelvic examination and during ultrasonographic scan of abdomen. The risk of complications such as torsion, spontaneous rupture of with risk of chemical peritonitis and malignancy changes make the surgical treatment necessary after diagnosing dermoid cyst. Traditional method of treatment of dermoid cyst of ovary is cystectomy or oophorectomy by laparotomy. As the most patients with ovarian dermoid cysts are of reproductive age, a conservative approach is ideal. Laparoscopy may minimize the adhesion formation and thus decrease the chances of compromising fertility.² Laparoscopy is the standard treatment of the ovarian dermoid cyst and provides many advantages over laparotomy.³ However, laparoscopic treatment could result in chemical peritonitis by spilled contents of a ruptured dermoid cyst.⁴ Contents of ovarian dermoid cyst may spill after spontaneous rupture or during cystectomy or during removal of the cyst. Therefore, it is very important to act promptly. We analyzed the outcome of removal of 89 ovarian dermoid cysts by laparoscopic route in 82 patients.

METHODOLOGY

This is a hospital based cross-sectional study conducted at Birat Medical College and Teaching Hospital from 2012 April to 2016 April. All patients who were being operated by laparoscopy for treatment of ovarian dermoid cysts were included in the study after taking informed consent. Eighty nine ovarian dermoid cysts were treated by laparoscopy route in 82 patients during above mentioned period.

Age of patients, size of ovarian cysts in ultrasound scan, operative techniques (cystectomy, salpingo- ophorectomy or hysterectomy with salpingo-ophorectomy), occurrence of spillage of dermoid contents during surgery or during removal of the cysts , method of specimen removal (use of endobag or not), route of removal of the specimen (umbilical port, lateral port, posterior culpotomy or colpotomy after hysterectomy) were recorded. During hospital stay in postoperative period, development of symptoms and signs of chemical peritonitis such as increasing pain in abdomen with abdominal distension, decreased bowel sounds and fever were noted. Later, histopathological reports of the operative specimen were also collected. The collected data was entered in Microsoft Excel and analyzed by SPSS software version 17. Frequency table was obtained and mean was calculated.

RESULTS

Eighty nine ovarian dermoid cysts from 82 patients were removed by laparoscopy. The mean age of patients was

30.1 years, ranging from 17 years to 54 years. Mean size of dermoid cysts was 6.29cm, ranging from 3cm to 10 cm. Among 82 patients, 7(8.53%) patients had bilateral ovarian dermoid cysts.

Forty patients (48.78%) had presented with variable degree of lower abdominal pain. Dermoid cysts were detected in 20 (24.39%) patients while investigating for subfertility, in 13 (15.85%) patients while investigating for abnormal uterine bleeding. Four (4.84%) patients had presented with oligomenorrhoea. Five cases (6.09%) had presented with symptoms of torsion of the cyst. One patient had 6 weeks pregnancy with twisted ovarian dermoid cyst. In 4 (4.89%) patients, ovarian dermoid cyst was diagnosed incidentally by ultrasonography while investigating for other medical problems.

Regarding operative procedures, laparoscopic cystectomy was performed for 54(60.76%) cysts in 48 (58.53%) patients, laparoscopic oophorectomy for 21(23.59%) dermoid cysts in 21(25.60%) patients and total laparoscopic hysterectomy (TLH) with salpingo-ophorectomy for 14 (15.73%) cysts in 13 (15.85%) patients.

Spillage of the dermoid contents occurred on removal of 50 (56.17%) dermoid cysts. Fifty four (60.76%) cysts were removed by cystectomy of which spillage of dermoid content occurred in 39 (72.22%) cyst removals, 21(23.59%) cysts removed by salpingo-ophorectomy of which spillage occurred in 11 (52.38%) cyst removals. Fourteen (15.73%) cysts were removed by salpingo-ophorectomy with hysterectomy with no spillage.

Seventy two (80.89%) cysts were removed through abdominal port site. Fifty eight (65.16%) cysts were extracted through umbilical port, 14 (15.73%) cysts were extracted through lateral port, 14(15.73%) cysts were extracted through colpotomy made after hysterectomy and 3(3.37%) cysts were extracted through posterior colpotomy. Surgical gloves, as alternative to endobag, were used for 71 cysts removal from abdominal cavity.

In postoperative period, symptoms and signs of chemical peritonitis such as increased abdominal pain, abdominal distension, decreased bowel sounds and fever were not noted in any patient. After discharge from hospital, 3 patients came with umbilical port site infection with pus formation and one patient came with serous collection at umbilical port site. All 4 cases were managed subsequently. There was no conversion to laparotomy.

Mature cystic teratoma was confirmed by histopathology in 88 cysts (98.87%). One case proved to be immature cystic teratoma.

Age (in years)	Number of patients (Percentage)
<20	6 (7.31%)
21 - 30	33 (40.24%)
31 - 40	34 (41.46%)
>40	9 (10.97%)



Table 2. Size of tumors (n=89)

Size of tumour	Number (Percentage)
<5 cm	15 (16.85%)
5 – 8 cm	62 (69.66%)
>8 cm	12 (13.48%)

Table 3. Spillage of dermoid content according to procedure for removal of the cysts. (n=89)

Procedures	Number of cysts removed	Number of cysts spilled (Percentage)
Cystectomy	54	39 (72.22%)
Salpingo-oophorectomy	21	11 (52.38%)
TLH with salpingo-oophorectomy	14	0 (0.00%)

TLH, Total Laparoscopic Hysterectomy

Table 4. Spillage according to routes of specimen removal. (n = 89)

Routes of specimen removal	Number of cysts removed	Number of cysts spilled (Percentage)
Through umbilical port	58	39 (67.24%)
Through lateral port	149	(64.28%)
Through Posterior colpotomy	32	66.67%)
Through colpotomy made for hysterectomy	140	(0.00%)
Total	89	50 (56.17%)

DISCUSSION

Ovarian dermoid cysts are one of the most common germ cell tumours in women.⁵ Most benign cystic teratomas (dermoid cysts) occur during the reproductive years, although dermoid cysts have a wider age distribution than other ovarian germ cell tumours. In this study, mean age of patients is 30.12 years. Sixty seven (81.7%) of 82 patients were from 21 to 40 years. Six patients (7.31%) were below 20 years of age and 9 patients (10.97%) were above 40 years of age.

Malignant transformation occurs in less than 2% of the dermoid cysts in women of all ages. The risk of torsion with dermoid cyst is approximately 15%, and it occurs more frequently than with other ovarian tumour, perhaps because of high fat content of most dermoid cysts.⁶ In our study, only one case was proved to be immature cystic teratoma. Remaining 88 cysts of 89 dermoid cysts were mature cystic teratoma. Five cases (6.09%) presented with symptom of torsion of the cyst.

In cases of dermoid cyst, 6.4% patients had bilateral ovarian

dermoid cysts, 62% had presented with pain abdomen, and 25% with abnormal vaginal bleeding, 2% with torsion and, in 17%, dermoid cysts were diagnosed incidentally.⁷ In our study, 48.78 % (40 patients) presented with pain abdomen, 15.85% (13) patients with abnormal uterine bleeding, 24.39% (20) patients with subfertility and 4 cases of dermoid cyst were incidental findings.

Due to the risk of torsion and malignant transformation, removal of the dermoid cyst is considered mandatory. Traditional method of treatment of ovarian dermoid cysts is cystectomy or oophorectomy by laparotomy. Laparoscopic surgery has now largely replaced laparotomy as the standard surgical option for the management of ovarian dermoid cysts. An ovarian cystectomy is almost always possible, even if it appears that only a small amount of ovarian tissue remains. Preserving a small amount of ovarian cortex in a young patient with a benign lesion is preferred to the loss of entire ovary.⁸ Laparoscopy should be considered as the method of choice for the removal of ovarian dermoid cyst.³ Laparoscopic cystectomy is often possible and intraoperative spill of tumour content is rarely a cause of complication. Content of dermoid cysts can be a potent irritant resulting in chemical peritonitis. The risk of chemical peritonitis can be minimized by washing out the peritoneal cavity thoroughly and draining the peritoneal cavity.³

Laparoscopy should be considered the method of choice for removal of benign ovarian cystic teratomas as it offers the advantage of fewer postoperative adhesions, reduced pain, shorter hospital stay and better cosmetic results.⁹ Nezhat CR et al conducted a study in which 93 ovarian dermoid cysts from 81 patients were treated by laparoscopic surgery. Cystectomy was performed in 70 cases and salpingo-oophorectomy was performed in 14 cases. Spillage of the cyst content occurred during procedure in 39 (41.93%) cysts. There were no intraoperative complication and no case of chemical peritonitis was noted.² This study also has the similar finding. Total of 89 dermoid cysts were removed from 82 patients. Spillage of the dermoid contents occurred while removing 50 cysts (56.17%) in 45 patients. Spillage occurred either during cystectomy procedure or during extraction of cyst out of abdominal cavity. The peritoneal cavity was thoroughly cleaned with normal saline solution. The peritoneal cavity was drained for 24 -48 hours so as to drain remaining dermoid content. No intraoperative or postoperative complication occurred. No cases of peritonitis noted.

In a study by Godinjac Z et al, 63 cases of ovarian dermoid cysts were managed by laparoscopic surgery and rupture of the cyst occurred in 38 (60.32%) of 56 patients with cystectomy and 3 (42.9%) of 7 patients in whom adnexectomy was performed. No intraoperative or postoperative complications occurred there was no case of chemical peritonitis.³ Forty seven patients with dermoid cysts underwent cystectomy in 57% and oophorectomy in 36% of patients, spillage of the dermoid contents occurred in 42.5% of patients. None developed chemical peritonitis and concluded that laparoscopic treatment of dermoid cyst appears to be safe procedure.⁷

Berg C et al retrospectively surveyed 83 patients undergone laparoscopic removal of benign dermoid cyst. In 59 cases with cystectomy, spill of content occurred in 39(66%) cases. Salpingo-oophorectomy was done in 24 patients and spill of the content occurred in 8(29%) of patients. No intraoperative or postoperative complication occurred and there was no incidence of chemical peritonitis.¹⁰ Likewise, in a case series, 47 dermoid cysts underwent laparoscopic cystectomy and 37 cysts removed by oophorectomy, in which spillage occurred in 11 cases but none developed peritonitis or fever.¹¹

Fifty eight dermoid cysts from 55 patients were enucleated and removed by operative laparoscopy through a 10mm cannula sleeve without intraoperative or postoperative complications, and spill of dermoid content occurred in 14 patients. No symptoms or signs of peritonitis were observed.¹²

Similarly, Zanetta G et al reports a case series in which spillage occurred in 43(88%) patients out of 47 cases of dermoid cysts. Three cases had postoperative fever. No cases of peritonitis were recorded. Peritoneal cavity was abundantly flushed.¹³ In 27 patients with dermoid cysts who underwent laparoscopic cystectomy or oophorectomy, spillage rate was 100% but no operative or postoperative complication were recorded.¹⁴

Intraoperative spillage of dermoid cysts is not associated with morbidity as long as vigorous lavage is performed¹⁵. Kavallaris A et al observed 12% of spillage rate among 127 dermoid cysts removed by laparoscopy with no signs or symptoms of peritonitis.¹⁶

In present study, there was one patient with 6 weeks pregnancy with twisted ovarian dermoid cyst which was

managed by laparoscopic cystectomy without any undesirable effects to mother and the embryo. De Santos et al reported a case with 18 weeks pregnancy with twisted ovarian cyst of 15 cm who underwent laparoscopic cyst removal with no further complication to fetus and mother.¹⁷

Similarly, in a case series, 12 women with pregnancy of 9–17 weeks had laparoscopic removal of ovarian dermoid cysts. Spillage occurred in 10(93%) women. But no patient had evidence of chemical peritonitis. There were no intraoperative or postoperative complication to mother or fetus.¹⁸

LIMITATIONS OF STUDY

The findings of this study cannot be generalized in a large population due to its small sample size.

CONCLUSION

From this study, it can be concluded that spillage of dermoid contents can occur significantly during laparoscopic procedure for removal of ovarian dermoid cysts but incidence of chemical peritonitis in postoperative period is very rare when the peritoneal cavity is abundantly washed with physiological solution.

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CONFLICT OF INTEREST

None

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