

ORIGINAL RESEARCH ARTICLE

RELAPAROTOMY IN RESIDUAL OVARIAN SYNDROME: AN APPRAISAL

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ABSTRACT

Background: Hysterectomy is one of the most commonly performed surgical procedures among females, usually accompanied by unilateral or bilateral salpingo-oophorectomy. Women tend to preserve normal ovary as its removal is associated with higher risks of cardiovascular diseases, osteoporosis, neuro-psychiatric disorders, colorectal and lung cancer. However, preservation of ovary during hysterectomy may increase risk of relaparotomy for residual ovarian syndrome. This study aimed to evaluate the clinical, intraoperative and histopathological characteristics of ROS.

Methods: This was a retrospective study done in the Department of Obstetrics and Gynecology, TUTH. Seventeen cases of ROS that were identified to have undergone relaparotomy from year April 2015 to March 2020 were studied. Review of documents was done to find out the cause of hysterectomy and preservation of ovaries. Operative/pathological characteristics of mass along with operative complications were accessed. Data was entered and descriptive analysis was done in SPSS 24 software.

Results: Total of 17 patients who underwent relaparotomy for ROS was identified. Most common presentation was abdominal pain(53%) and most patient(41%) presented with ROS within five years of hysterectomy. Pelvic adhesions were seen in almost 94% of the cases. One case sustained bladder injury. However, DJ stenting was done in 4 cases as precaution. Eighty two percent mass were benign in nature whereas 18% were malignant.

Conclusions: Relaparotomy in cases with ROS has a vital role. Though intraoperative complications like adhesions are encountered, it helps to diagnose the pathology of the symptomatic residual mass for the further management of the case.

INTRODUCTION

Hysterectomy is one of the most commonly performed surgical procedures among females, usually accompanied by unilateral or bilateral salpingo-oophorectomy.^{1,2}The most common indication being benign disease of uterus. Women tend to preserve normal ovary as its removal is associated with higher risks of cardiovascular/bone problems, neuro-psychiatric disorders, colorectal and lung cancer.^{3,4}Residual ovarian syndrome(ROS) can be defined as the appearance of abdominal pain, mass or dyspareunia in a woman with history of hysterectomy with conservation of single or both ovaries.⁵There is a linear relation between rate of hysterectomy and incidence of ROS which differs among type of hysterectomies performed, i.e. 4.9% and 0.37% for abdominal and vaginal respectively.⁵Though benign, ROS causes a significant number of patients to show symptoms in them requiring surgical intervention.^{4,6} The retroperitoneal position of ovary and adhesions formed leads to local accumulation of follicular fluid giving rise to mass and pain. During surgery extensive adhesions and distorted anatomy may increase potential risk of bowel and ureteric injury. The surgical options available are oophorectomy and adhesiolysis.⁷ Among various studies, development of malignancy in conserved

ovaries after hysterectomy was reported as 0.1% to 0.75%.⁸

The purpose of this study was to find out intraoperative findings along with clinic-histopathological features of ROS. Hence, this study aimed to evaluate the clinical, intraoperative and histopathological characteristics of ROS.

METHODS

This research was a retrospective study done in the Department of Obstetrics and Gynecology, TUTH for the duration five years. Approval from Institutional Ethical Review Committee (IRC) was taken prior to the study. All women, who had undergone laparotomy for adnexal mass following prior hysterectomy from year April 2015 to March 2020, were enrolled in the study. Women who had undergone surgery for an adnexal mass without a previous hysterectomy and the patients whose operative or histopathology reports of relaparotomy records were not recorded in the hospital were excluded from the study. The surgical and pathological data related with hysterectomy were collected retrospectively from the available documents. Demographic characteristics of patient were noted from the chart available. The characteristics of adnexal mass

including symptoms, serum tumor marker, interval to diagnosis, operative and pathological characteristics of adnexal mass along with operative complications and postoperative hospital stay were noted. Descriptive analysis was done using the SPSS 24 software.

RESULTS

Out of 894 laparotomies done for ovarian diseases, 17 patients with relaparotomy for ROS were identified from the records. All the 17 patients were included in the study. The age of the patients ranged between 30-73 years. The mean age was calculated to be 53.47 ± 14 years. Nine (52.95%) patients had history of abdominal hysterectomy whereas eight (52.95%) had vaginal hysterectomy. All patients (eight patients) with vaginal hysterectomy and three patients with abdominal hysterectomy, making total of eleven (64.71%) patients had both ovaries preserved. Likewise four (23.53%) had single ovary preserved during hysterectomy. Ovary conservation could not be ascertained in two (11.76%) women due to non-availability of previous medical record. However, intraoperative finding revealed that there was only one ovary found in both the cases mentioned above. The data regarding previous hysterectomy is shown in Table 1.

Table 1: Demographic characteristics and details of hysterectomy of the patients

Characteristics	n=17
Age at diagnosis of adnexal mass (years, mean \pm SD)	53.47 \pm 14 (Range 30-73 years)
Age at hysterectomy (years, mean\pmSD)	
Abdominal	38.33 \pm 6.80 (Range 30-54 years)
Vaginal	46.87 \pm 11.41 (Range 35-73 years)
Type of hysterectomy	
Abdominal	9(52.95%)
Vaginal	8(47.05%)
Indications of hysterectomy	
Abdominal	
Fibroid	4(23.50%)
AUB	3(17.60%)
Not known	2(11.80%)
Vaginal	
Prolapse	8(47.10)
Ovary preservation	
Bilateral	11(64.71%)
Unilateral	4(23.53%)
Not known	2(11.76%)

The main indication for abdominal hysterectomy was fibroid uterus. All vaginal hysterectomies were done for uterovaginal prolapse.

As shown in Table 2, forty one percent of patients presented with a residual mass within five years of hysterectomy. Most of them had undergone abdominal hysterectomy whereas 35% of patients presented after 10 years.

Table 2: Interval between hysterectomy and presentation of ROS

Time interval between hysterectomy and presentation of ROS (n,%)	n=17
0-5 years	7(41.18%)
5-10 years	4(23.53%)
>10 years	6(35.29%)

Abdominal pain alone was the major presenting symptoms among nine (52.94%) patients with ROS. Four(23.53%) patients presented with both abdominal pain and mass. Ultrasonography (USG) findings were suggestive of complex adnexal cyst in almost 71% of cases with raised tumor markers in 35.29% (Table 3).

Table 3: Clinical presentation of ROS (n=17)

Clinical presentation of ROS	n (%)
Abdominal pain	9 (52.94%)
Adnexal mass	3(17.65%)
Both pain and mass	4(23.53%)
Urinary symptoms	1(5.88%)
Radiographic findings of ROS (n,%)	
Simple cyst	5(29.41%)
Complex cyst	12(70.59%)
Tumor marker (n,%)	
Raised	6(35.29%)
Normal	11(64.71%)

As shown in Table 4, during the intraoperative period, 76% patients had benign tumor which was evident by thin walled, simple or hemorrhagic cyst, absence of solid areas/ papillary projection and absence of ascites. In contrast to these findings, about 18% had malignant tumor.

Table 4: Intraoperative findings during the relaparotomy

Intraoperative findings (n,%)	n=17
Benign tumor	13(76.47%)
Malignant tumor	3(17.66%)
Ovarian abscess	1(5.88%)

In almost 76% of the cases, there were adhesions only which involved bowel, bladder and omentum. Ureter involvement was seen in two cases whereas one case had bladder injury along with blood transfusion. DJ stenting was done as precautionary step in four cases prior to surgery. Most of the cases (76%) had duration of surgery of less than two hours except four cases (24%) in which the duration extended upto three to four hours (Table 5).

Table 5: Intraoperative complications during relaparotomy

Intraoperative complications (n,%)	n=17
Pelvic adhesions only	13(76.47%)
Pelvic adhesions with ureter involvement	2(11.76%)
Pelvic adhesions with bladder injury & blood transfusion	1(5.88%)
None	1(5.88%)

Most of the ovarian lesions (29.41%) were benign neoplasm however malignancy was detected in three (17.65%) cases as tabulated above. The mean length of hospital stay was 4.94 ± 1.6 days (minimum 3, maximum 10) (Table 6).

Table 6: Histopathological finding of ROS

Histopathological finding of ROS	n (%)
Benign neoplasm of ovary	5 (29.42%)
Malignant neoplasm of ovary	3 (17.65%)
Corpus luteum	3 (17.65%)
Functional cyst	2 (11.76%)
Endometrial cyst	2 (11.76%)
Borderline tumor	1 (5.88%)
Ovarian Abscess	1 (5.88%)

DISCUSSION

With the increasing rate of hysterectomy, the occurrence of ROS is also rising. ROS refers to a condition when any pathology develops in purposely preserved ovary during hysterectomy. Although the number of patients with ROS is increasing with the rate of hysterectomy, there are very few studies reflecting the problem. A retrospective, quasi, case-control analysis was done in 2561 patients who has undergone hysterectomy over 20 years by Arie Dekel, which stated the incidence of ROS to be 2.85%.⁵ This study focused in the controversy regarding elective oophorectomy with regards to appearance of ROS. However, current study done in TUTH focused on the cases operated for symptomatic ROS only.

Total cases recorded were 17, among which the mean age of presentation of ROS was 53 years which coincides with the mean age of presentation of ROS in the study recently done by Shiber et al.⁹ Almost 53% of cases in present study had undergone abdominal hysterectomy for benign indications in the past and the most common indication noted were fibroid (24%) followed by AUB (18%). This finding was consistent to different studies done by Dekel, Shiber and Grogan in which the common indication were fibroid and AUB.^{5,9,10}

Forty seven percent cases had undergone vaginal hysterectomy and were all for uterovaginal prolapse. This data showed that there was no preference for route of previous hysterectomy with the appearance of ROS.

Cases with ROS in this study were seen more in patients with history of bilateral preservation of ovary. The results were consistent with study done by Farhat Naz in which 44% of cases with ROS had preserved bilateral ovaries.¹¹ In contrast, Ploekinger and Kolbe reported increased risk of ROS in those with unilateral preservation of ovaries.¹² Arie Dekel et al. in their study stated that almost 75% of patients with ROS underwent surgery during the first 10 years of hysterectomy, while the highest incidence occurred during the first five years (47%).⁵ Though the number of patients in current study is less, this finding coincided with the study done by Arie Dekel et al.⁵

In close relation to other reports, the most common presenting symptoms of ROS in our patients were abdominal pain followed by adnexal mass.^{5,6,10} Nevertheless coexistence of both symptoms were also seen in few cases.

During the relaparotomy of these patients, clinical suspicion of malignancy was done in three cases (18%) which on histopathology were confirmed to be malignant neoplasm of ovary. It correlated with the percentage of malignancy found in the study done by Shiber et al. which enrolled 250 cases of relaparotomy.⁹ Noteworthy, the cases with malignancy presented after more than ten years from the previous hysterectomy whereas the cases with benign mass presented earlier. Likewise, 13 looked benign and one as ovarian abscess during intraoperative period which was confirmed on the histopathological findings.

Focusing on the complications, fortunately there was no mortality related to this condition. As anticipated, during the surgery, adhesion to hollow organs was seen in 16(94%) cases. As a precautionary step DJ stenting was done in four cases among which two (12%) cases had ureter adhered to the mass. No bowel or ureteric injury was noted whatsoever which may be due to meticulous dissection and prior DJ stenting in cases suspected to be in high risk for ureteric injury. One case sustained bladder injury during adhesiolysis which was repaired by the urosurgeons and same patient required blood transfusion in the immediate postoperative period. However, no life threatening complications were encountered during the surgery or immediate postoperative period.

The major limitation of this study was the retrospective nature of the study as cross checking was not possible to rule out confounding factors. Hence the actual number of the cases with ROS was not known. The small-time frame also limited the horizon of the study.

CONCLUSION

Relaparotomy in symptomatic ROS plays an important role. It helps to identify the nature of mass which guides the further management of the patients. Patients with previous hysterectomy can present with abdominal mass or pain requiring surgical intervention. Though majority of mass were found to be benign, the risk of malignancy cannot be ignored. Furthermore, intraoperative complications like adhesions to hollow organs were seen in majority of cases. These findings direct to keep in mind the possible intraoperative complications and available precautions to be undertaken before the procedure.

CONFLICT OF INTEREST: None

FINANCIAL DISCLOSURE: None

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