

# Laparoscopic treatment of benign adnexial cysts

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## Summary

The results of laparoscopic adnexial cyst excision operations performed within the last 2.5 years in our clinic are reported.

Thirty-three adnexial masses thought to be benign after gynaecological examination and ultrasonographic findings were treated. Laparoscopy was done in 32 cases but laparotomy had to be performed in one case of stage IV endometriosis. The mean duration of the operations was  $72.78 \pm 34.09$  minutes and no major complication occurred. Pathologic examinations of the specimens were reported as benign in all cases.

According to these results, laparoscopy should be the preferred method in the treatment of benign adnexial cysts.

**Key words:** Laparoscopy; Ovarian cyst; Adnexial cyst; Endometriosis; Dermoid cyst; Cystadenoma.

## Introduction

Laparoscopy should be preferred to laparotomy in the treatment of benign adnexial masses as there are some advantages of laparoscopy in comparison with laparotomy such as low maternal morbidity, short hospitalization period, etc. [1-3]. But it is still debatable because of the possibility of harming, instead of benefitting, the patient when the operated mass is found to be malignant [4]. This possibility may be minimized with better selection criteria of the patients [5].

The results of laparoscopic treatment of benign adnexial cysts, in our clinics are reported.

## Materials and Methods

Thirty-three adnexial mass cases were laparoscopically treated in our clinic within the last 2.5 years. Preoperatively, masses were ultrasonographically evaluated for their cystic patterns and the patients with findings simulating malignancy such as thick septations or solid components within the cyst or ascites did not undergo laparoscopy.

All of the operations were done under general anaesthesia. Three litre of CO<sub>2</sub> were injected into the abdomen through a 120 mm Werres needle. Then a 1 cm long transverse incision was done below the umbilicus to place a 10 mm trochar into the abdomen through which an endoscope was introduced into the abdominal cavity. Then three 5 mm trochars were passed into the abdominal cavity at the suprapubic region. After observing the whole pelvis and abdomen in cases where the cyst had a malignant-like appearance, intraperitoneal fluid and cystic fluid were aspirated separately for immediate cytological examination. When the interior of the cyst was septated, a specimen of the cyst wall was taken for frozen section.

Following identification of the cleavage line of the cyst wall, the ovarian tissue was held by two atraumatic forceps and then the cyst wall was peeled off by a dissector. After removal of the cyst, haemostasis was obtained by electrocoagulation and the ovarian capsule was left open. The cystic mass was taken out of the abdomen through the formerly placed 5 mm trochar or

through 10 mm or 18 mm trochars which replaced the 5 mm trochar when necessary.

As no normal ovarian tissue remained, a patient with a dermoid cyst was oophorectomized by placing two 2/0 chromic catgut endoloop sutures at the ovarian peduncle following aspiration of the cyst contents.

At the end of the operation, the abdominal viscera were irrigated with almost 3000 ml ringer lactate until clear aspiration fluid was obtained.

All operations were done by video laparoscopy and disposable instruments manufactured by Autosuture and Ethicon companies.

All patients were given single dose prophylactic antibiotics and none, except for one, developed infection. The patient who developed postoperative fever was given antibiotics for five days.

## Results

Thirty-three laparoscopically treated cases had a mean age of  $27.85 \pm 5.19$  (range 19-38) mean gravidity of  $0.89 \pm 1.06$  (range 0-3), mean parity of  $0.57 \pm 0.74$  (range 0-2) and mean abortion of  $0.29 \pm 0.66$  (range 0-3).

Sixteen (48.5%) had chronic pelvic pain, 17 (51.5%) had dysmenorrhoea, nine (27%) had irregular menstruations, 12 (36.3%) had dyspareunia, and 11 (33.3%) had infertility.

The need for laparotomy was found to be 3% (1 case) out of 33 cases. This sole case was diagnosed with stage IV endometriosis by laparoscopy and then laparotomy was performed to remove the cyst which had adhered to neighbouring tissues.

Thirty-five cysts were removed from 32 patients by laparoscopy. Endometriosis was found in three bilateral cyst cases. According to ultrasonographic measurements the largest cyst was 80 mm, the smallest cyst was 42 mm in diameter and the mean diameter was  $57.41 \pm 10.69$  mm.

Pathological examination of 35 cyst extirpations revealed

led 22 (62.8%) endometriomas, five (14.2%) persistent luteal cysts, three (8.6%) dermoid cysts three (8.6%) functional cysts and two (5.8%) serous cystadenoma cases. Because the frozen section of the cyst wall and the cytology of the cystic fluid were reported to be benign, both serous cystadenomas were removed laparoscopically. Out of three dermoid cysts, two were removed following the perforation and aspiration of the cystic contents and the right ovary was completely removed in the remaining case because the cyst had completely replaced all ovarian tissues.

The mean duration of surgery was  $72.78 \pm 34.09$  minutes. It took a minimum of 20 minutes in a case of a persistent luteal cyst and a maximum 120 minutes in three cases of endometriosis.

The mean duration of surgery was  $92.50 \pm 32.21$  minutes in endometriosis cases while those who needed immediate pathological examination took longer.

Among 11 infertility cases, nine had endometriosis cysts, one had a serous cystadenoma and one had a persistent luteal cyst.

Among 16 chronic pelvic pain patients, 11 (68.75%) had endometrial cysts, two (12.5%) had dermoid cysts, one (6.25%) had serous cystadenoma, one (6.25%) had a persistent luteal cyst and one (6.25%) had a serous cyst.

Among 17 dysmenorrhoea cases, 11 (65%) had endometriod cysts, three (17.6%) had persistent luteal cysts, one (5.8%) had a serous cyst, one (5.8%) had a serous cystadenoma and one (5.8%) had a dermoid cyst.

Among nine patients with menstrual dysfunctions, one (11%) had a dermoid cyst, one (11%) had a serous cyst, three (33.5%) had persistent luteal cysts and four (44.5%) had endometriosis cysts.

None of the cases had intraoperative complications. However, one case who needed laparotomy was discharged on day 5, and one case who developed subcutaneous emphysema on the first postoperative day and one case who had fever early postoperatively were hospitalised for 48 hours. The remaining 30 patients were discharged from the hospital within the first 24 hours.

## Discussion

Besides being superior to laparotomy in adhesiolysis, endometriosis and ectopic pregnancy, laparoscopy has been used widely in the treatment of adnexial masses in recent years [1-3]. It has advantages and disadvantages as do the other treatment modalities and these are becoming clarified as laparoscopically-treated cases increase in number.

The most argued subject in the treatment of adnexial masses with laparoscopy is the possibility of harming instead of benefitting to the patient when the mass is malignant. Possibility of malignancy is not high in patients who are chosen for laparoscopy. Nezhat *et al.*, found four malignancies among 1011 cases and Canis *et al.* reported this ratio as 0.85% [4, 6]. There was no malignancy in 83 cysts that were removed from 68 patients by Marana [7]. We also had no malignancy in 33 laparo-

scopically treated adnexial masses in our clinic. The most important reason why the majority of pathological examinations give benign results in the laparoscopically treated masses is their selection criteria. Recent advances have made easy the preoperative diagnosis of ovarian cancer which has the incidence of 1,8 / 100,000 in women under age 40 [8]. Scoring systems, depending on the size, cystic - solid pattern, unilateral - bilateral existence, septations, presence of ascites, and neovascularization, were developed after transvaginal and colour ultrasonography became available. It is possible to discriminate benign from the malignant ones by scoring according to these criteria. Negative predictivity of this scoring system is reported to be 100% by Sassone. He found 81 - 95% negative predictivity when he considered seven different studies including 1000 operations among which 200 were reported to be ovarian cancer [5]. In our cases, the possibility of having a malignant lesion was reduced to nil by evaluating the patient with transabdominal ultrasonography preoperatively and taking the age of the patient into account.

What happens when the adnexial mass is found to be malignant during laparoscopy? Satisfactory results can be obtained by laparotomy, while laparoscopy can cause an increase in stage because the cyst may be ruptured in those cases. However, it is not important in advanced stages. Does the iatrogenic progression of stage IA ovarian cancer to stage IC by rupturing the tumor affect prognosis? There is no agreement on this subject. Although three studies have reported bad prognoses with the rupture of the tumor during surgery, there are some studies reporting no effect of cyst rupture on prognosis [9-11]. Dembo *et al.*, has dealt with largest patient population in recent years. Among 519 stage I ovarian cancer patients, the factors influencing prognosis were evaluated and the most important one was found to be differentiation of the tumor. The second was the presence of dense adhesions and the third was the presence of ascites. Bilaterality (stage IB), rupturing (stage IC), capsular penetration (stage IC), size, histological subtypes and age of the patient were not seen as affecting the prognosis [12].

There should be a delay in the treatment of laparoscopically-diagnosed malignant cases. Immediate laparotomy was observed in 17% and delayed laparotomy within 4-8 weeks was observed in 71% in a multicenter study among laparoscopically-diagnosed malignant cases in 156 oncology centers. In this study out of 42 cases, 67% of lesions were smaller than 8 cm in diameter, 62% were cystic, 81% were unilateral, 48% were unilocular and 31% showed all of these properties [13]. These results indicate that patient selection should not be decided by a single criterion of the mass but by the scoring system.

The most frequent pathological diagnosis among laparoscopically removed cysts is the endometrial cyst. Out of 819 cystic masses in a study 194 were reported to be endometriosis [5]. Among these pathologically diagnosed 194 endometrioma cases, 178 were diagnosed to be endometriosis preoperatively. In our study endometriosis was 62.5%. Because its incidence is 10 high, the role of lapa-

roscopy in the treatment is open to debate. Laparoscopy was first used in the treatment of endometriosis by Mettler and Semm in 1979 [14]. Later on, unipolar cautery, bipolar cautery and laser were introduced in endometrioma treatment [15, 16]. Future pregnancy rate in the laparoscopically treated cases was found to be higher than the cases treated by laparotomy [17]. Therefore, our first choice in preoperatively diagnosed endometrioma cases in our clinic is laparoscopy.

Suturing or leaving the edges open of the remaining ovarian tissue after the removal of the cyst is still being discussed. Marana showed no effect of cauterisation of tissues on the subsequent tubo-ovarian functions [18, 19]. Therefore, in our clinic the bleeding points in the remaining ovary are cauterized following the removal of the cyst the abdomen is irrigated with almost 3000 cc ringer lactate solution.

Another discussed point in laparoscopy is the duration of the surgery. Though it took more time for endometriomas with adhesions, the mean operation time was found to be  $72.78 \pm 34.09$  minutes in our study and did not exceed the time needed for laparotomy.

Laparotomy was performed in one case of endometriosis cyst out of 33 cases and 30 of the remaining 32 patients were discharged from the hospital within the first 24 hours postoperatively.

## Conclusion

It can be seen from the results that laparoscopy has a very low morbidity and high success rate with a short period of postoperative care. Therefore it should be considered the first treatment modality in preoperatively selected ovarian cysts.

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