Usefulness, Accessibility and Safety of using a Bag for Ovarian Cystectomy

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Received: February 14, 2019; Accepted: February 15, 2019; Published: February 26, 2019

Introduction
Introduction of new technologies in endoscopic surgeries are increasing in the past few years. These techniques allows complete excision of benign ovarian cysts to be easy safe technique [1].

Endoscopic interventions needs lower duration of hospital stay with less recovery period [1,2].

Excision of an ovarian cyst within a bag is a technology that could be used in adnexal cysts [3,4].

The usefulness of this bag is in to hinder leakage of contents in case of intra operative opening of the cyst but this was not properly evaluated in a prospective way [5,6].

Materials and Methods
Patients with ovarian cysts coming to suex canal university hospitals and helwan university hospitals and Algezeera hospital, Egypt complaining from lower abdominal pain and proved to have ovarian cysts less than 6 cm were recruited to participate in this study that was conducted in the period from June 2016 till September 2018. The study was approved by local ethical committee. 121 women participated in this study.

The study was made to address usefulness of a large laparoscopic bag in avoiding leakage of contents after rupture of laparoscopically excised cysts. We also attempted to determine the possibilities of rupture for each of the several histologically different ovarian cysts that are present in young women included in the research in whom an attempt to remove the cyst intact was tried. Also the aim was to know the preoperative and intraoperative risk factors for rupture, and leakage after rupture, and know the limitations for trying excision of an intact cyst versus doing a puncture and evacuation of its contents inside the bag.

Inclusion criteria included women in the age between 20-45 year-old aiming to preserve the ovary, women with ovarian cystic lesions, which have a suspicion of malignancy or has endometriomas were excluded from the study.

The following preoperative investigations in the form of tumor markers (CA 125 - CA19-9 - CEA, Alpha -fetoprotein, and β-hCG), transvaginal ultrasound full laboratory investigations, CT abdomen and pelvis were made.

Transvaginal Ultrasonography assess the ovarian cyst for either unilateral or bilateral its content, presence of a solid component, size, presence of septations, papillary projections the thickness of the its
Laparoscopic surgery was made using 4 trocars: one primary trocar was introduced through a vertical intraumbilical incision, allowing the use of a 10 mm, 0-degree laparoscope. And 2 accessory trocars (5 mm) were inserted in the lower abdomen lateral to the inferior.

After insertion of the laparoscope, a careful evaluation of the pelvis and abdomen was made and peritoneal washings or free peritoneal fluid was taken for cytological examination. The waterproof endoscopic bag (Unimax, Medical Technology Promedt, Consulting GmBH, 5"X 7") was introduced into the peritoneal cavity wrapped tightly into its plastic applicator through the umbilical trocar and opened by unrolling it with a forceps, after replacing the laparoscope. The lesion-harboring adnexa was placed and kept inside the bag throughout its dissection.

The cyst was deflated inside the endoscopic bag by the use of a needle and a suction pump to decrease its volume and make the extraction of the bag and the remaining cyst feasible without spillage in abdominal wall.

**Results**

In the present study, there was no statistical significance regarding demographic data of the women included in the study.

**Discussion**

In a previous study was made on young women who need to preserve their future fertility. They thought that preventing leakage during excision of a cyst is of high value not only for malignant lesions but also for benign lesions, due to the that the spilled fluid may cause peritonitis and cause adnexal and intraperitoneal adhesions, even in the absence of symptoms [7,8].

Also in contrary to the present study, the cutoff point in cyst diameter with a major clinical importance was recognized at 8 cm in a study made by Stelios Detorakis et al. revealing that 43.8% of the cysts with mean cyst diametr ≥ 8 cm sustained leakage of their contents, compared with only 1.1% of those <8 cm, they also thought that the method of excision of an intact cyst is effective and oncologically safe for lesions equal or less than 8 cm.

In a previous study made by Stelios Detorakis et al. showed that the low rate of rupture for those cystic lesions that were described as suspicious. Overall, only 3/14 (21.4%) cysts in this group (4 borderlines, 5 cystadenofibromas, 2 serous cystadenomas, and 3 teratomas) ruptured, with 0% leakage.

They used the modified technique with laparoscopic bag, even in the group of women with borderline ovarian lesions, the rupture rate was 50% (one in a pregnant woman) with zero % leakage [12].

Also in the present study, Some ovarian cysts ruptured but in the presence of the endoscopic bag there was no spill of any content in cysts less than 6 cm.

But a slight leakage happened in 3 /119 (2.47%) women with cysts more than 6 cm of 2 dermoid and one serous cyst in these cases the

<table>
<thead>
<tr>
<th>Histopathology</th>
<th>Mean Cyst diameter (Mean)</th>
<th>Rupture Yes</th>
<th>No</th>
<th>Leakage Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucinous cystadenoma</td>
<td>5.1</td>
<td>1</td>
<td>23</td>
<td>0</td>
<td>24</td>
<td>24</td>
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<tr>
<td>Serous cystadenofibroma</td>
<td>5.8</td>
<td>2</td>
<td>9</td>
<td>0</td>
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<tr>
<td>Serous cystadenoma</td>
<td>5.3</td>
<td>7</td>
<td>18</td>
<td>1</td>
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<td>25</td>
</tr>
<tr>
<td>Simple serous cyst</td>
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<td>2</td>
<td>27</td>
<td>0</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Benign teratoma</td>
<td>4.8</td>
<td>6</td>
<td>22</td>
<td>2</td>
<td>26</td>
<td>28</td>
</tr>
<tr>
<td>Borderline ovarian tumor</td>
<td>5.5</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2: Showing classification of cases according to pathological results of excised cysts.
mean cyst diameter of these cysts was more than 6 cm.

In accordance with our study, the study made by Stelios Detorakis revealed that laparoscopic ovarian cystectomy might be made safely in a BOT without leakage and that oophorectomy must not be the obligatory method of choice for suspicious cystic masses management.

**Conclusion**

Proper decision in managing ovarian cysts is very important as when we combine the following factors; the type of the cystic lesion based on ultrasonographic picture with excluding malignant possibility and a mean cyst diameter of less than 6 cm with the use of endoscopic bag gives the best chance for proper excision of ovarian cysts laparoscopically with less possibility for cyst rupture and spillage and even if rupture occurs leakage of cyst contents could be prevented by the endoscopic bag.

**References**