Complications of laparoscopic assisted hysterectomy

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INTRODUCTION

Being the most common major gynecologic surgery performed in non-pregnant women, hysterectomy can be done in four major approaches: abdominal, vaginal, laparoscopic or robotic. The rates of laparoscopic (12%) and vaginal (22%) are considerably lower than abdominal hysterectomy (66%) [1] even though many benefits of laparoscopic hysterectomy are well documented [2-6].

Compared to open procedures, laparoscopic hysterectomy is associated with less blood loss and postoperative pain, reduced mortality, lower chances of sepsis, venous thromboembolism and ileus, faster recovery and shorter hospitalization [2-6].

It was first introduced in 1989, as a minimally invasive technique to perform hysterectomies and since then it has been adopted by many surgeons as the preferred technique.

Compared to the vaginal technique, it usually takes longer and has the risk brought by abdominal incisions. Nevertheless it is the second most expensive technique after the robotic one.

MAJOR COMPLICATIONS

Complications can be due to medical disorders, anesthesia, surgical technique or postoperative period. Overall, it is a procedure with a low mortality, 0.12 to 0.34/1000 surgeries [7]. Major complications include visceral injury, hemorrhage, death, thromboembolic disease, stroke, myocardial infarction, organ failure.

If laparoscopic is compared to abdominal approach, conversion to laparotomy is included in the category of major complications, but when excluded no significant difference remains.

Mainly studies comparing complications of one procedure versus the other, are made in pairs, the control group being considered the one having an abdominal hysterectomy. The results of such comparative studies are shown in tables 1 and 2.

Infectious complications after hysterectomy are common, 10.5% for abdominal hysterectomy to 13.0% for vaginal hysterectomy and only 9.0% for laparoscopic hysterectomy [9]. Infectious complications include vaginal cuff cellulitis, wound infections, urinary tract infections, abscesses, infected hematomas, respiratory infections [9].

Another classification for hysterectomy complications was suggested by DeNardis in 2008 who divided them in perioperative (first week after surgery) or delayed (1 to 6 weeks after surgery) [10]. Perioperative complications include pulmonary embolism, fever, ileus, hemorrhage, colitis, while delayed complications include seroma, wound infec-

ABSTRACT

Hysterectomy remains the most common gynecological procedure for both benign and malignant causes. Throughout the years, various surgical methods have been studied with the purpose of avoiding immediate and late complications. Laparoscopic surgeries have gained momentum in all surgical specialties, and gynecology is no exception.

Keywords: laparoscopic, hysterectomy, complications
TABLE 1. Complications of Hysterectomy from the eVALu ate Trial [8]

<table>
<thead>
<tr>
<th>Complication</th>
<th>Abdominal Hysterectomy</th>
<th>Laparoscopic Hysterectomy</th>
<th>Vaginal Hysterectomy</th>
<th>Laparoscopic Hysterectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion to laparotomy</td>
<td>3.9%</td>
<td>4.2%</td>
<td>2.7%</td>
<td></td>
</tr>
<tr>
<td>At least one complication</td>
<td>6.2%</td>
<td>7.2%</td>
<td>5.4%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Major hemorrhage</td>
<td>2.4%</td>
<td>4.6%</td>
<td>2.9%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Bowel injury</td>
<td>1.0%</td>
<td>0.2%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Bladder injury</td>
<td>1.0%</td>
<td>2.1%</td>
<td>1.2%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Ureter injury</td>
<td>0%</td>
<td>0.9%</td>
<td>0%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

TABLE 2. Incidence of postoperative complications after hysterectomy, depending on the surgical approach [11]

<table>
<thead>
<tr>
<th>Complication</th>
<th>Abdominal</th>
<th>Vaginal</th>
<th>Laparoscopic</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac</td>
<td>17 (0.1%)</td>
<td>10 (0.1%)</td>
<td>2 (0.0%)</td>
<td>5 (0.0%)</td>
</tr>
<tr>
<td>Vascular</td>
<td>576 (7.7%)</td>
<td>78 (1.7%)</td>
<td>210 (1.4%)</td>
<td>864 (3.2%)</td>
</tr>
<tr>
<td>Respiratory</td>
<td>43 (0.6%)</td>
<td>8 (0.2%)</td>
<td>17 (0.1%)</td>
<td>68 (0.3%)</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>127 (1.7%)</td>
<td>30 (0.7%)</td>
<td>69 (0.5%)</td>
<td>266 (0.8%)</td>
</tr>
<tr>
<td>Genitourinary</td>
<td>22 (0.3%)</td>
<td>14 (0.3%)</td>
<td>39 (0.3%)</td>
<td>75 (0.3%)</td>
</tr>
<tr>
<td>Infectious</td>
<td>439 (5.9%)</td>
<td>271 (6.0%)</td>
<td>693 (4.6%)</td>
<td>1403 (5.2%)</td>
</tr>
<tr>
<td>Reoperation</td>
<td>105 (1.4%)</td>
<td>71 (1.6%)</td>
<td>202 (1.3%)</td>
<td>378 (1.4%)</td>
</tr>
<tr>
<td>Readmission</td>
<td>283 (3.9%)</td>
<td>122 (2.9%)</td>
<td>455 (3.1%)</td>
<td>860 (3.3%)</td>
</tr>
<tr>
<td>Death</td>
<td>7 (0.1%)</td>
<td>1 (0.0%)</td>
<td>2 (0.0%)</td>
<td>10 (0.0%)</td>
</tr>
</tbody>
</table>

MINOR COMPLICATIONS

Most often minor complications after laparoscopically assisted hysterectomy are represented by wound infection or by the apparition of punctiform areas of numbness which will disappear after a certain period of time. Meanwhile, in cases in which an uterine manipulator is placed, minimal vaginal lesions might be encountered which can be easily managed by placing intravaginal ovules. In the meantime, due to urinary bladder dissection and manipulation, transient hematuria might be encountered.

CONCLUSION

Laparoscopic hysterectomy presents plenty advantages such as complete exploration of the abdominal cavity, short recovery period and better cosmetic result, but it is still not the gold standard due to its limitations and possible complications. Women with obesity, large uterus or previous abdominal surgery are no longer considered restricted from laparoscopic approach [12].

Nevertheless, it was observed that laparoscopic hysterectomy has lower chances of complications than abdominal technique. Only ureteral injury and vaginal cuff dehiscence were reported more frequently after laparoscopic hysterectomy.

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REFERENCES