Assessment of previous cesarean section influence on laparoscopic hysterectomy technique

Avaliação da influência de cesárea prévia na técnica de histerectomia laparoscópica

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ABSTRACT

Objective: To evaluate the influence of the previous section cesarean in the laparoscopy hysterectomy. Methods: The study was retrospectively of 253 laparoscopy hysterectomies performed between January 2000 to January 2006. Results: Among 153 total laparoscopy hysterectomies were performed (60.5% of the patients), 84 cases (54.9%) had cesarean section and 69 cases (45.1%) had not it. The laparoscopy supracervical hysterectomies in one hundred patients (39.5%), 53 cases (53%) with cesarean section and 47 cases (47%) without. Conclusions: The results of this study show that cesarean section does not increase the incidence of laparoscopy supracervical hysterectomy.

Keywords: Hysterectomy; Laparoscopy; Cesarean section/methods; Cesarean section/adverse effects

INTRODUCTION

Cesarean section is a surgical procedure used when the maternal and/or fetal conditions are not favorable to vaginal delivery. The World Health Organization (WHO) recommends rates of 15% for C-section(1) and the Brazilian rate is approximately 30 to 40%(2). According to a research carried out by the Agência Nacional de Saúde Suplementar (ANS), the cesarean rates in patients covered by Brazilian health insurance plans are the highest in the world (79.7%).

There are several technical criteria associated with non-clinical factors, such as high maternal schooling, higher purchasing power, private health insurance plan, previous cesarean section, and physician’s convenience to explain this high rate. Given the high number of cesarean sections, the ANS understands it is necessary to question the future gynecological consequences. It is estimated that approximately 20% of these women will undergo hysterectomy at approximately 55 years of age(3). Hysterectomy is the second most common surgery performed in the United States – the cesarean section is the first. The history of a previous cesarean section promoting adherence of the bladder to the uterus may make dissection more difficult during hysterectomy(4).

In 1989, Harry Reich reported the first case of hysterectomy by videolaparoscopy. Since then, advantages and disadvantages of abdominal,
laparoscopic and vaginal routes have been studied. The laparoscopic route, in addition to being safe, is an efficient alternative for abdominal hysterectomy and also when the vaginal route is contraindicated(5).

The choice of the access route varies according to the condition indicating the surgery. The uterine volume, the comorbidities and the experience of the surgical team also influence the choice. Some patients prefer the laparoscopic route due to aesthetic reasons and fast recovery; however, the complications related to the ureter and bladder are higher. Karaman et al. reported that, in 27 studies analyzed, there was a higher percentage of complications with the laparoscopic route (0.65 to 39%) compared with the abdominal route (0.04 to 0.4%)(4). In a study carried out by Soo et al., the complication rates were higher in total laparoscopic hysterectomy in patients with a previous cesarean section. According to these authors, among 583 patients who underwent this procedure, bladder lesion was more common in the group with a previous cesarean section (14.9%) compared with the group with no previous cesarean section (6.3%)(5).

OBJECTIVE
This study was designed to evaluate the influence of a previous cesarean section on the technique of laparoscopic hysterectomy.

METHODS
A retrospective study was carried out between January 2000 and January 2006 in medical records of 253 patients who were submitted to hysterectomy by laparoscopic at the Department of Gynecological Endoscopy at Hospital do Servidor Público Estadual “Francisco Morato de Oliveira” (HSPE-FMO), in São Paulo. The type of hysterectomy by laparoscopy and the presence of a previous cesarean section were evaluated.

The mean age of patients was 43.7 years (31 to 78 years). The uterine volume ranged between 56 and 567 cc, with a mean value of 200.6 cc.

The technique used was the same in all patients. All surgeries were performed under general anesthesia in dorsal lithotomy position. After appropriate pneumoperitoneum, a 10-mm lens was inserted through an umbilical trocar. Further on, under direct visualization, two 5-mm trocars measuring were inserted laterally to the epigastric vessels in the inferior abdomen. In some cases, another 5-mm accessory puncture was used in the midline. The round ligaments, uterine tubes and ovaries were dissected and cauterized with a bipolar electric current at 70 W. The vesicouterine reflection was dissected to move the bladder downwards. The uterine vessels were coagulated with bipolar current and sectioned at the isthmus level. In cases of total hysterectomy, a PVC catheter was inserted through the vagina, in order to open the vaginal wall through laparoscopic route. The uterus was removed through the vaginal route, and the cupola was sutured through vaginal or laparoscopic route. In cases of subtotal hysterectomy, the uterus was removed after morcellation, culdotomy or mini-laparotomy.

The statistical analysis used the $\chi^2$ test to compare the rations of total and subtotal hysterectomy in the presence of a previous cesarean section and the relation with the number of cesarean sections. The significance level was 5%.

The study project was approved by the Research Ethics Committee of HSPE-FMO (CEP/IAMSPE number 025/07).

RESULTS
Table 1 shows the indications of hysterectomies by laparoscopy. Note that the symptomatic myoma was the most frequent condition (85%), followed by abnormal uterine bleeding (4.74%), failure of endometrial ablation (4.35%), endometrial hyperplasia (3.56%), severe endometriosis (1.18%), endometrial cancer (0.39%), repeated hematometra (0.39%) and pelvic tumor (0.39%).

Table 2 shows the indications of laparoscopic subtotal hysterectomy with a previous cesarean section. The high percentage of indication of subtotal hysterectomy (52.8%) was due to previous choice of the patient, or preference of the medical staff associated with the teaching hospital. Due to simpler techniques and fewer complications to physicians in training until they crossed the learning curve, subtotal hysterectomy was chosen to be performed in several patients. The
patients in this group had full knowledge about the technique and agreed with it. All patients had a normal cervix and underwent annual colpocytology.

Table 2. Indications of laparoscopic subtotal hysterectomy in patients with a previous cesarean section

<table>
<thead>
<tr>
<th>Indications</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous choice of the patient, no technical difficulty</td>
<td>28</td>
<td>52.8</td>
</tr>
<tr>
<td>Bladder adherence with difficult dissection</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Intraligamentary, isthmic and cervical myoma</td>
<td>5</td>
<td>9.43</td>
</tr>
<tr>
<td>Large uterine volume</td>
<td>5</td>
<td>9.43</td>
</tr>
<tr>
<td>Cul-de-sac block</td>
<td>4</td>
<td>7.54</td>
</tr>
<tr>
<td>Excessive bleeding</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Pelvic kidney</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3 compares the type of hysterectomy by laparoscopy (total and subtotal) with the existence of a previous cesarean section. The presence of a previous cesarean section did not increase the incidence of laparoscopic subtotal hysterectomy (p = 0.767).

Table 3. Relation between the type of hysterectomy by laparoscopy and the existence of a previous cesarean section

<table>
<thead>
<tr>
<th>C-section</th>
<th>Total hysterectomy</th>
<th>Subtotal hysterectomy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Yes</td>
<td>84</td>
<td>54.9</td>
<td>53</td>
</tr>
<tr>
<td>No</td>
<td>69</td>
<td>45.1</td>
<td>47</td>
</tr>
<tr>
<td>Total</td>
<td>153</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4 compares the type of laparoscopic hysterectomy with the number of previous cesarean sections. There was no statistical significance with the \( \chi^2 \) test (p = 0.64).

Other indications for subtotal hysterectomy are as follows: bladder adherence with difficult dissection (17%), presence of intraligamentary, isthmic and cervical myomas (9.43%), cul-de-sac block (7.54%), excessive bleeding (1.9%) and pelvic kidney (1.9%).

Table 4. Relation between the number of previous cesarean sections and the type of hysterectomy

<table>
<thead>
<tr>
<th>Number of previous C-sections</th>
<th>Subtotal hysterectomy</th>
<th>Total hysterectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>0</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

DISCUSSION

There is an increased interest by physicians and patients in performing or undergoing hysterectomy with a less invasive technique, with less risk of complications and easier to be conducted\(^{(6-7)}\). The access route is established by anatomical conditions as well as the patient’s preference, surgeon’s skills, uterine volume and the condition that indicated the procedure\(^{(8)}\). Most studies comparing the different access routes evaluated the operative time, complications, postoperative recovery duration and quality of life\(^{(8)}\).

In a retrospective study, Hoffman et al.\(^{(9)}\) compared laparoscopic hysterectomy with abdominal hysterectomy and found that the first one had a longer surgical time with a shorter hospital stay, and less blood loss – which, according to the authors, means savings to the Health system.

Another data evaluated by the studies is performance of total or subtotal hysterectomy. Before the screening of the precursor lesions for cervical cancer was done in a large scale by means of colpocytology, gynecologists routinely removed the uterine cervix to prevent cancer; subtotal hysterectomy was reserved for those circumstances involving risk to the patient and because of intraoperative technical difficulties.

Advocates of subtotal hysterectomy state that the risk of residual cervical cancer with a normal cytology is not higher than 0.3% – approximately the same risk of vagina cancer after total hysterectomy due to a benign disease\(^{(10)}\). They also say that, during dissection of the cervicovaginal layer in total hysterectomy, there is damage to the enervation with compromise of bladder and sexual function, with a higher risk of ureteral lesion and increased surgical time and increased blood loss. Exposure to the vaginal flora may also increase the risk of infection\(^{(5,11-12)}\).

Subtotal hysterectomy is easier and safer, especially if there are adherences around the cervix, as in cases of previous cesarean section\(^{(13)}\).

Bojahr et al. advocate that laparoscopic subtotal hysterectomy should be the first alternative to nullipara, patients who did not have vaginal deliveries and those with a history of past surgeries\(^{(14)}\). Rooney et al. show that the presence of previous cesarean increases the risks of urinary tract lesions during hysterectomy\(^{(3)}\) and, in a comparative study between abdominal, vaginal and laparoscopic hysterectomy, this data was significant only in the laparoscopic route, according to the authors. The rate of bladder damage during laparoscopic hysterectomy was 1.8% due to technical difficulty of dissection caused by higher adherence of the bladder in the uterine isthmus. Hoffman et al. reported that all lesions in the upper and posterior
areas of the bladder identified intraoperatively were in patients with a scar of a previous cesarean section\(^9\). Other factors that also hamper hysterectomy are the large uterine volume and the high body mass index\(^{14}\).

Istre et al., who are associated with a teaching hospital with training physicians, prefered laparoscopic subtotal hysterectomy as this technique shortens operative time, have fewer complications and is a less invasive procedure\(^{15}\). Therefore, between 2001 and 2005, the rate of laparoscopic hysterectomy compared with the abdominal route in this service increased from 18 to 54%.

Some authors, such as Lieng et al.\(^{16}\), directly chose to perform laparoscopic subtotal hysterectomy at a day hospital using a loop with monopolar current positioned around the cervix stating that this technique is advantageous in voluminous uteruses, is easy to perform, has shorter surgical time and reduced costs. According to these authors, laparoscopic subtotal hysterectomy was the preferred surgical choice due to being easier to perform, presenting lower rates of complications and savings to the Health system. They stated that the decision for laparoscopic subtotal hysterectomy was not due to previous cesarean section.

Rosenthal et al.\(^{17}\) reported that previous cesarean section did not represent a contraindication to either total or subtotal laparoscopic hysterectomy.

This current study assessed the influence of a previous cesarean section on laparoscopic hysterectomy. The presence of a previous cesarean section as well as the number of cesarean sections did not have an influence on the type of hysterectomy and did not increase the number of laparoscopic subtotal hysterectomies. Only nine patients who underwent subtotal hysterectomy presented surgical technical difficulty due to adherence of the bladder and uterus.

REFERENCES