Total Laparoscopic Hysterectomy
Technique and Results
Experience of Clermont-Ferrand

Revaz Botchorishvili, Arnaud Wattiez, Michel Canis, Jean Luc Pouly, Benoit Rabischong, Kris Jardon, Gérard Mage
The incidence is variable

- In the USA, 43% of patients who are 85 years have had an hysterectomy

- In Danemark, only 10.4% of the women have an hysterectomy during their life
The French situation
(PMSI data)
Limitations for TLH

Fig. 4. “What is the main limitation in your decision for route of hysterectomy?”
**HISTORY**

- 1988: First laparoscopic hysterectomy: H. Reich
- November 1989 - First laparoscopic radical hysterectomy in Clermont-Fd
- 1989-94: Technical evolution and improvement in each surgical step
- 1995: Uterine manipulator and establishment of an operative manual
- 1995-2008: 250 cases every year
Actual operative technique

Equipment

- 1 Curved scissors
- 2 Grasping forceps
- 2 Bipolar forceps
- Monopolar capabilities
- Lavage-suction device
- 3 Needle holders
- 1 Knot pusher
Actual operative technique

Equipment

Uterine manipulator:

- Screwed into the uterus
- Allow to mobilize the uterus in all directions
- Valves to expose the cul de sac
- System to avoid gas leakage

Uterine Manipulator
Clermont-Ferrand Model
Bi polar forceps

Pinces et ciseaux bipolaires rotatifs
Modèle Clermont-Ferrand.
Clarke HC. A Simple Surgical Ligator Archives of Surgery 701: 914, 1973
Morcellators
Actual operative technique
1-5  Operative steps

- Coagulation and section of the round ligaments
- Opening of the anterior peritoneum of the broad ligaments
- Fenestration of the broad ligaments
- Bipolar control of the adnexal vessels
- Posterior peritoneum dissection
Actual operative technique
6-10 Operative steps

- Vesicovaginal dissection
- Uterine vessels dissection and coagulation
- Opening of the vagina
- Uterine extraction (± morcellation)
- Vaginal closure
Total Laparoscopic Hysterectomy
left round ligament

Start afar from the uterus!
Total Laparoscopic Hysterectomy
left round ligament

Start afar from the uterus!
Total Laparoscopic Hysterectomy
fenestration of the left broad ligament

Fenestration is mandatory!
Actual operative technique

left posterior peritoneum dissection
Total Laparoscopic Hysterectomy
Vesicovaginal dissection
Total Laparoscopic Hysterectomy
dissection and control of left uterine vessels
Total Laparoscopic Hysterectomy dissection and control of right uterine vessels
Intrafascial and extrafascial Hysterectomy
Intrafascial Hysterectomy
Intrafascial Hysterectomy
Intrafascial Hysterectomy
Total Laparoscopic Hysterectomy
opening of the vagina
Total Laparoscopic Hysterectomy
opening of the vagina
Total hysterectomy vaginal closure
Total hysterectomy vaginal closure
SUPRA CERVICAL HYSTERECTOMY
Safety rules
Prevention of ureteral injury

Laparoscopic specificity:
no retractors

Mobilisation of the uterus:

- Patiente positioning
- Uterine manipulation

Create a safe anatomical situation:

- Fenestration of the broad ligament
- Bladder dissection, section of the pillars
- Coagulation of uterine vessels in ascendant part
- Intrafascial Hysterectomy
Pelvic ureter and laparoscopic hysterectomy left side
Safety rules
Prevention of hemorrhage

Vessels treatment

- Dissection
- Knowledge of the hemostasis techniques

At the end of the surgery

- Check of the hemostasis (specially the uterine vessel if clips or sutures have been used and the IP ligaments in all cases)
- Low pressure
Large Uterus Hysterectomy
Large Uterus Hysterectomy

Get it smaller!
Large Uterus Hysterectomy

Difficulties virtualisation
Large Uterus Hysterectomy
Large Uterus Hysterectomy

Get it out

- Laparoscopic morcellation
  - Hemisection with the blade
  - Myomectomy
- Vaginal morcellation
Large Uterus Hysterectomy morcellation
Large Uterus Hysterectomy extraction
**Total laparoscopic hysterectomy for very enlarged uteri.**


<table>
<thead>
<tr>
<th></th>
<th>TLH</th>
<th>TLH</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Uterus (\geq 500) g</td>
<td>Uterus (\geq 300) g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=34)</td>
<td>(n=68)</td>
<td></td>
</tr>
<tr>
<td>Uterine weight (g)</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(500-1230)</td>
<td>(80-300)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>617.2 ± 177.8</td>
<td>178.9 ± 66.7</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

**Operation by:**

<table>
<thead>
<tr>
<th></th>
<th>Exper t</th>
<th>Fellow</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27/34 (79.4%)</td>
<td>54/68 (79.4%)</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>7/34 (20.6%)</td>
<td>14/68 (20.6%)</td>
<td></td>
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</table>

**Controlling uterine vessels:**

<table>
<thead>
<tr>
<th></th>
<th>Bipolar coagulation</th>
<th>Ligation /suturing</th>
<th>Uterine morcellation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28/34 (82.4%)</td>
<td>66/68 (97.1%)</td>
<td>19/34</td>
</tr>
<tr>
<td></td>
<td>6/34 (17.6%)</td>
<td>2/68 (2.9%)</td>
<td>11/68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Vag inal</th>
<th>Laparoscopic cold knife</th>
<th>Laparoscopic morcellator</th>
<th>No need for morcellation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15/34</td>
<td>3/68</td>
<td>0/34</td>
<td>0/34</td>
</tr>
</tbody>
</table>

Operative time and recovery data in women with and without very enlarged uteri undergoing total laparoscopic hysterectomy.

<table>
<thead>
<tr>
<th></th>
<th>TLH Uterus ≥500 (n=34)</th>
<th>TLH Uterus ≤300 (n=68)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative time (min)</td>
<td>159.8 ± 59.3</td>
<td>107.9 ± 36.7</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hemoglobin drop 1st day</td>
<td>1.8 ± 0.5</td>
<td>1.3 ± 0.8</td>
<td>0.42</td>
</tr>
<tr>
<td>Oral analgesia (mg)</td>
<td>57.7 ± 18.4</td>
<td>62.5 ± 37.2</td>
<td>0.53</td>
</tr>
<tr>
<td>Opioid (mg)</td>
<td>23.2 ± 4.9</td>
<td>25.8 ± 12.9</td>
<td>0.30</td>
</tr>
<tr>
<td>Gas and stool# (d)</td>
<td>1.4 ± 0.5</td>
<td>1.5 ± 0.6</td>
<td>0.39</td>
</tr>
<tr>
<td>Hospital stay (d)</td>
<td>3.6 ± 1.1</td>
<td>3.5 ± 0.9</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Total laparoscopic hysterectomy for very enlarged uteri.
RESULTS
Total laparoscopic hysterectomies for benign diseases
1989-2003
2244 patients

Three periods
1989-95
1996-99
2000-03
## Global results

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<tr>
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<tbody>
<tr>
<td><strong>TLH/ all hysterectomies (%)</strong></td>
<td>68</td>
<td>94*</td>
<td>93</td>
</tr>
<tr>
<td><strong>Number of surgeons</strong></td>
<td>9</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td><strong>Major complications (%)</strong></td>
<td>5.6</td>
<td>1.3*</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Conversion in laparotomy(%)</strong></td>
<td>4.7</td>
<td>1.4*</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Mean uterine weight (g)</strong></td>
<td>179.5</td>
<td>292* (40-980)</td>
<td>249 (40-1500)</td>
</tr>
<tr>
<td><strong>Mean surgery (min)</strong></td>
<td>115</td>
<td>90*</td>
<td>92</td>
</tr>
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</table>
## Major complications

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Blood transfusion</td>
<td>15 (2.2%)</td>
<td>1 (0.1%)*</td>
<td>0</td>
</tr>
<tr>
<td>Major vessel injury</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Urinary tract injury</strong></td>
<td><strong>16 (2.3%)</strong></td>
<td><strong>9 (0.9%)</strong>*</td>
<td><strong>6 (1%)</strong></td>
</tr>
<tr>
<td>Bladder laceration</td>
<td>11 (1.6%)</td>
<td>6 (0.6%)</td>
<td>3 (0.5%)</td>
</tr>
<tr>
<td>Ureter injury</td>
<td>4 (0.6%)</td>
<td>2 (0.2%)</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Vesicovag. fistula</td>
<td>1 (0.1%)</td>
<td>1 (0.1%)</td>
<td>1 (0.1%)</td>
</tr>
<tr>
<td>Bowel injury</td>
<td>1 (0.1%)</td>
<td>0</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Neurologic injury</td>
<td>1 (0.1%)</td>
<td>0</td>
<td>1 (0.1%)</td>
</tr>
<tr>
<td>Thromboembolism</td>
<td>2 (0.3%)</td>
<td>2 (0.2%)</td>
<td>0</td>
</tr>
</tbody>
</table>

*P<0.05
When is Laparotomy Needed in Hysterectomy for Benign Uterine Disease?

Michel Canis, MD, PhD*, Revaz Botchorishvili, MD, Catarina Ang, MD, Benoît Rabischong, MD, Kris Jardon, MD, Arnaud Wattiez, MD, and Gérard Mage, MD

CHU Clermont-Ferrand, Department of Obstetrics Gynecology and Reproductive Medicine Polyclinique de l’Hôtel Dieu, Clermont-Ferrand, France (Drs. Canis, Botchorishvili, Rabischong, Jardon, and Mage); Royal Women’s Hospital, Victoria, Australia (Dr. Ang); and CHU Strasbourg France Department of Obstetrics and Gynecology, Centre Medico-chirurgical et Obstétrical-les syndicats interhospitalier de la communauté urbaine de Strasbourg, Hautepierre Hospital, Strasbourg, France (Dr. Canis and Wattiez).

ABSTRACT

**Study Objective:** We sought to study laparotomy (conversion and initial) and complication rates among patients who underwent hysterectomy initially performed laparoscopically whenever feasible.

**Design:** A retrospective cohort study (Canadian Task Force classification II-3).

**Setting:** University hospital.

**Patients:** A continuous series of 680 patients, operated on between January 1, 2000, and December 31, 2003, was analyzed. Patients with malignancy and prolapse were excluded.

**Interventions:** Hysterectomy.

**Measurements and Main Results:** Overall, 7.2% of patients underwent laparotomy. In all, 27 (3.9%) patients were treated by initial laparotomy and 22 procedures were converted to laparotomy, 13 to laparoscopic-assisted vaginal hysterectomy (1.9%). Intraoperative and postoperative bladder complication rates were 0.8% and 0.4%, respectively. Ureteric complications were 0.3% and 0.4%, respectively, and bowel complications (bowel occlusion, peritonitis) were 0.4% and 0.4%, respectively. Three patients received blood transfusion. Of 19 patients who had repeated surgery for early or late postoperative complications, 13 were treated by laparoscopy and/or vaginally.

**Conclusion:** Including management of complications, laparotomy was necessary in 8.1% of cases. Laparoscopic hysterectomy may be safely used in most patients. Journal of Minimally Invasive Gynecology (2008) 15, 38–43 © 2008 AAGL.
Total Laparoscopic Hysterectomy and Early Discharge: Satisfaction and Feasibility Study

Constance de Lapasse, MD, Benoît Rabischong, MD, Frank Bolandard, MD, Michel Canis, MD*, Revaz Botchorischvili, MD, Kris Jardon, MD, and Gérard Mage, MD

From the CHU de Clermont-Ferrand, Fédération de Gynécologie Obstétrique, Polyclinique (Drs. de Lapasse, Rabischong, Canis, Botchorischvili, Jardon, and Mage) and Service d’Anesthésie Réanimation (Dr. Bolandard), Hôtel Dieu, Clermont-Ferrand, France.

ABSTRACT

Objective: Whether, after laparoscopic hysterectomy (LH), selected patients may be safely and comfortably discharged on postoperative day 1 (day after surgery) using specific anesthesia and analgesia protocols that included Post Anesthetic Discharge Scoring System.

Design: A prospective feasibility pilot study (Canadian Task Force classification II-3).

Setting: A French tertiary care hospital.

Patients: A total of 35 patients who underwent total LH were selected using preestablished criteria based on age, surgical history, place of residence, and capacity to follow instructions.

Interventions: All patients had a telephone call the second and seventh day after surgery.

Measurements and Main Results: Of 35 patients, 34 (97.1%) left the hospital the day after surgery. One patient was not discharged on surgeon’s instructions, because of technical difficulties during the procedure. Two patients (6.7%) required readmission because of complications. The first patient required hospitalization for vesicovaginal fistula at day 10 and had to undergo laparoscopic treatment of the fistula. The second consulted for hyperthermia at day 4 with suggestion of cuff cellulitis, and was discharged after 2 days of antibiotic treatment. Of 35 women, 34 (97.1%) were satisfied with the procedure and all would recommend it to other patients.

Conclusion: Using our protocol for analgesia, anesthesia, and early discharge (24 hours after surgery) may be safely proposed after total LH in selected patients. Satisfaction rate of patients on postoperative days 7 and 30 was very high. Journal of Minimally Invasive Gynecology (2008) 15, 20–25 © 2008 AAGL. All rights reserved.
Total laparoscopic hysterectomy is:

- Effective, safe, and reproducible
- Easier than hysterectomy by laparotomy
- Conceivable in ambulatory approach for simple indications
- Essential to the development and the training in laparoscopic surgery