Objectives:

❖ Review modifications needed for high-BMI patients.
❖ Discuss surgical strategies for the >250g uterus and show videos of TLH, uterine artery ligation at origin, morcellation, and removal.
❖ Review same-day discharge: what is required.
Disclosure

* Consultant: Medtronic.

Advisory board Truclear Medtronic

http://4.bp.blogspot.com/_ZiPiXEv_Q_g/S_PZTS7nqI/AAAAAAAADAM/UIPSa7liHHe/s1600

http://pakmed.net/college/forum/?p=71336
The Endemic of Obesity

Laparoscopy in Obese

- Significant change in outcome from OPEN to MIS
- Very important skills to develop.
- More challenging in Obese, but less challenging and less morbid MIS compared to open
Prior studies (1970-1980s):
- 15-40 % undergoing GYN surgery are obese.

Recent prospective studies (1990-2000s):
- 40 – 90 % are obese.

Own data, endometrial Ca 55.5 % are obese


Own data

Nahas, 2012-2015

118 endometrial cancer surgeries (TH, BSO, staging)

6 open (4 stage 4 disease for debulking, 2 conjunction with other surgeries)

1/112 convert to open BMI 51

Conversion due to obesity: 1/112 (0.9 %)
### WHO Obese classification

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal, (BMI &lt;25)</td>
<td>16</td>
<td>14.5%</td>
</tr>
<tr>
<td>Overweight, (BMI 25-29.9)</td>
<td>33</td>
<td>30%</td>
</tr>
<tr>
<td>Obese, (BMI 30-34.9) Class I</td>
<td>26</td>
<td>23.6%</td>
</tr>
<tr>
<td>Sever Obese, (BMI 35-39.9)</td>
<td>14</td>
<td>12.7%</td>
</tr>
<tr>
<td>Morbid Obese, (BMI 40-44.9)</td>
<td>10</td>
<td>9%</td>
</tr>
<tr>
<td>Super Obese, (BMI &gt;45) Class III</td>
<td>11</td>
<td>10%</td>
</tr>
</tbody>
</table>

**BMI Distribution**

- **Normal**: 16 patients (14.5%)
- **Overweight**: 33 patients (30%)
- **Obese Class I**: 26 patients (23.6%)
- **Sever Obese Class II**: 14 patients (12.7%)
- **Morbid Obese Class III**: 10 patients (9%)
- **Super Obese**: 11 patients (10%)
Hysterectomy in obese and non-obese for benign causes

- 2 studies (1200 cases), and review of the literature comparing abdominal, laparoscopic and vaginal.
- Showed Vaginal rout had the shortest OR time, but similar EBL, LOS, complication to laparoscopy.
- OR time Laparoscopic = open.

Hysterectomy in obese and non-obese for benign causes

- Complication increased with obesity in all rout hysterectomy with no statically significant difference when comparing the different rout of the hysterectomy.
- Both laparoscopic and vaginal should be preferred than open Hysterectomy due to less EBL, and LOS.

**Laparoscopic Hysterectomy in obese and non-obese for benign causes**

- Study 1460 cases
  - 6.9% Obese
  - 23.2% over weight
- French study 2271 cases 1995-2008
  - Comparing obese to non-obese

- **No difference in ORT, LOS, EBL, and complication.**

  Chopin N et al, Human reproduction 2009
  Kondo W. et al, J L and AST 2012

**Laparoscopic Hysterectomy and BMI**

- 330 pt from 9/96 - 7/02
- 7 converted (2%), one in obese
- OR time - 156 min, EBL - 160 cc
- Complications
  - Major - 5.5%, Minor - 3.4%
  - Urologic - 3.1%, 2/3 in the first 1/3
- **Complications similar by BMI**

**Laparoscopic Hysterectomy and BMI**

- TLH for uterine pathology, impact of BMI
- 9 years, retrospective
- 90/702 of TLH had uterine neoplasia.

![Bar chart showing uterine pathology](image1)

O’Hanlan KA,. Gynecol Oncol. 2006

**Laparoscopic Hysterectomy and BMI**

- **No difference** in OT, EBL, LOS, uterine weight, number of nodes, and complication

![Bar chart showing BMI groups](image2)

O’Hanlan KA,. Gynecol Oncol. 2006
Laparoscopic hysterectomy in early endometrial cancer

- Review article 47 studies including the biggest RCT LAP2
- Laparoscopic surgery had increased ORT, but significant reduction in EBL, LOS, and complication compared to open
- Similar OS, DFS
- It should be the recommended route

Acholonu UC et al. JMIG 2012

Laparoscopic hysterectomy in early endometrial cancer

- LACE RCT 2005-2010, 760 patient compared TAH to TLH for OS, DFS

Janda et al, laparoscopic vs abdominal hysterectomy for stage I endo ca, JAMA 2017
Laparotomy VS laparoscopy in extremely obese patients with early endometrial cancer

- Italian study 75 patients BMI > 35.
- Laparoscopy was superior with less complication, surgical site infection, and post operative hospitalization.

Tinelli R et al, anticancer research, 2014

Laparoscopic hysterectomy in early endometrial cancer in obese and non-obese

- Increase ORT, similar EBL, LOS, and complication.
- Similar OS

Rabischong B et al, JMIG, 2011
Farthing A et al, J obs and Gyn 2012
Don’t worry!! It’s just like Scuba Diving

Which one is better?

BMI is not everything

What matters is central obesity.

Waist-hip ratio (WHR) > 0.85 indicate central obesity.

I usually eyeball it

Central obesity more prevalent and challenging (be ready for the BATTLE)

Mokdad JAMA 2001

Go in it as a warrior, well prepared (tactics, and tools).
This is how I go

Light at the end of the tunnel

- Be PATIENT
- The patient’s outcome is worth it
Tips no one tells you about

Plan
Prepare
Execute

Prior to surgery

- Anesthesia consult.
- IM, and Bariatric consult.
- Sleep apnea clinic.
- Full counseling with the patient, diagnosis, management option, recommendation, risk and benefits (most important risk is convert open and wound infection, prolong healing and care)
- Make sure you have a good setup, MIS and bariatric equipment (you can't ask for it the same day)
MIS room and equipment might be expensive to setup $$ (most equipment are one time fee)

But cost-effective compare to open $$$

LOS, wound infection and home care, reoperation for hernia
Alternatives
Positioning

The Attending surgeon is responsible and no one else
Danger fold
Thick fold of tissue
Interferes with trocar movements

Some will tape the abdomen up to the table.
Flatten the abdomen down and put the trocar Enter

ASI

LANDMARKS
1. Xiphoid process.
2. Costal margin.
3. Tip of the ninth costal cartilage.
4. Tendinous intersections.
5. Umbilicus.
6. Iliac crest.
7. Anterior superior iliac spine.
8. Linea semilunaris.
9. Linea alba.
10. Inguinal ligament.
11. Pubic tubercle.
More ports if needed, patient can still go home same day or the next
Methods for safe entry

- Veress needle
- Open laparoscopy (Hassan)
- Direct trocar entry
- Optical trocar system
- Alternate entry site (palmer's point)

Plan the trocar
Energy source

Get comfortable with instruments
Retractors

Uterine manipulator
Vault closure

- You can close vaginally, difficult
- Best to do it laparoscopically

Monitor Intra-op CO2 and O2

- If CO2 rises, check abdominal pressure < 15 mmHg.
- Flatten the table and deflate abdomen, short break until CO2 normalize < 35
- Repeat if needed
- Good assist to shorten the length of the case
- It is not the time to train anyone when the patient is not safe.
- Meet with anesthesia and explain how important is MIS for better patients outcome (less bleeding, shorter LOS, less wound infection)
Different way of doing it

In the OR

- Team approach
- Surgeon must guide and supervise everything
- The surgeon is the team leader, So be a True one
TLH Massive uterus

Original Article

Laparoscopic Hysterectomy: Impact of Uterine Size

Katherine A. O’Hanlon, MD, Stacey Paris McCutcheon, BA, and John G. McCutcheon, MBA

From the Gynecologic Oncology Associates, Pomona Valley, California (all authors).
Table 2
Baseline characteristics stratified by uterine weight

<table>
<thead>
<tr>
<th></th>
<th>Total (n = 983)</th>
<th>&lt;250 g (n = 229)</th>
<th>≥250 g (n = 264)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y) (median [range])</td>
<td>49 (15-90)</td>
<td>49 (15-90)</td>
<td>49 (34-77)</td>
<td>0.033</td>
</tr>
<tr>
<td>Height (in) (median [range])</td>
<td>85 (56-71)</td>
<td>65 (56-71)</td>
<td>85 (56-71)</td>
<td>0.545</td>
</tr>
<tr>
<td>Weight (lb) (median [range])</td>
<td>157 (86-315)</td>
<td>155 (90-306)</td>
<td>160 (86-338)</td>
<td>0.167</td>
</tr>
<tr>
<td>BMI (kg/m²) (median [range])</td>
<td>26.3 (12.2-70.4)</td>
<td>26.2 (12.2-70.4)</td>
<td>26.6 (18.1-52.6)</td>
<td>0.146</td>
</tr>
<tr>
<td>Uterine weight (cm) (median [range])</td>
<td>146 (114-138)</td>
<td>114 (114-138)</td>
<td>147 (120-138)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Parity (no. delivered)</td>
<td>1 (0-9)</td>
<td>1 (0-9)</td>
<td>1 (0-6)</td>
<td>0.357</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>25 (10-36)</td>
<td>30 (10-36)</td>
<td>25 (10-36)</td>
<td>0.307</td>
</tr>
<tr>
<td>Parity (no. delivered)</td>
<td>1 (0-9)</td>
<td>1 (0-9)</td>
<td>1 (0-6)</td>
<td>0.854</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>25 (10-36)</td>
<td>30 (10-36)</td>
<td>25 (10-36)</td>
<td>0.307</td>
</tr>
</tbody>
</table>

Table 3
Intraoperative and postoperative data stratified by uterine weight

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Total (n = 983)</th>
<th>&lt;250 g (n = 229)</th>
<th>≥250 g (n = 264)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>LHR</td>
<td>62 (6.3%)</td>
<td>21 (2.9%)</td>
<td>41 (15.6%)</td>
<td></td>
</tr>
<tr>
<td>LHR + VSQ</td>
<td>891 (91.4%)</td>
<td>656 (55.0%)</td>
<td>244 (9.0%)</td>
<td></td>
</tr>
<tr>
<td>LHR + VSQ</td>
<td>33 (3.4%)</td>
<td>15 (2.1%)</td>
<td>8 (3.1%)</td>
<td></td>
</tr>
<tr>
<td>Incision type</td>
<td></td>
<td></td>
<td></td>
<td>0.781</td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>803 (68.5%)</td>
<td>597 (49.9%)</td>
<td>135 (50.7%)</td>
<td>0.833</td>
</tr>
<tr>
<td>Open procedure</td>
<td>279 (28.4%)</td>
<td>141 (24.5%)</td>
<td>134 (26.1%)</td>
<td>0.001</td>
</tr>
<tr>
<td>Estimated blood loss (ml)</td>
<td>50 (6-1200)</td>
<td>50 (6-1200)</td>
<td>50 (6-1200)</td>
<td>0.001</td>
</tr>
<tr>
<td>Length of stay (d) (median [range])</td>
<td>1 (0-13)</td>
<td>1 (0-13)</td>
<td>1 (1-12)</td>
<td>0.962</td>
</tr>
</tbody>
</table>

Fig. 2. Operative time, measured in minutes, increases with increasing uterine weight (p < 0.001).
No difference in complication and LOS

OR, EBL, LOS, decreased with the surgeon's increasing experience

Table 1  Surgical outcomes

<table>
<thead>
<tr>
<th>Surgical outcomes</th>
<th>Group A n = 149</th>
<th>Group B n = 100</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)*</td>
<td>46.3 ± 5.8 (45.4-47.2)</td>
<td>46.4 ± 6.2 (45.2-47.6)</td>
<td>.89 (NS)</td>
</tr>
<tr>
<td>Uterine weight (g)*</td>
<td>206.8 ± 79.4 (195.4-218.2)</td>
<td>205.3 ± 79.3 (197.3-216.7)</td>
<td>.99 (NS)</td>
</tr>
<tr>
<td>Operative time (min)*</td>
<td>101.3 ± 34.3 (85.7-106.9)</td>
<td>146.1 ± 34.3 (137.8-160.4)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Blood loss (ml)*</td>
<td>109.3 ± 65.7 (86.7-119.9)</td>
<td>181.0 ± 104.4 (154.3-207.7)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Hospital stay (days)*</td>
<td>4.4 ± 5.7 (2.7-2.9)</td>
<td>3.5 ± 6.7 (3.2-3.8)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Time to well being (days)*</td>
<td>10 (7-15)</td>
<td>10 (4-18.8)</td>
<td>.86 (NS)</td>
</tr>
<tr>
<td>Intraoperative complications, No, (%)</td>
<td>0 (0)</td>
<td>2 (2)</td>
<td>.06 (NS)</td>
</tr>
<tr>
<td>Early minor complications, No, (%)</td>
<td>13 (8.7)</td>
<td>18 (18.0)</td>
<td>.05</td>
</tr>
<tr>
<td>Late complications, No, (%)</td>
<td>12 (7.4)</td>
<td>8 (8)</td>
<td>.06 (NS)</td>
</tr>
</tbody>
</table>

Group A: sterile weight < 150 g; Group B: sterile weight > 500 g.

*Data are mean ± SD (95% CI).

Data are median (interquartile range).
TLH Massive uterus

Golden surgical principles

- Knowledge of anatomy
- Adherence to surgical technique
- Strategies for preventing complications are the same
Pre-operative consideration

- Port Placement
- Laparoscope Selection
- Instrumentation
- Pre-treatment

Set your self for success

- Port placement (everything moves higher)
  - Umbilical port higher (at least 5-8 from the fundus)
  - Identify the inferior epigastrics and place ports lateral to vessels
  - Place your lateral Higher, at the level of the umbilicus
TLH Massive uterus

Proper port placement according to the size of the uterus.

TLH for large uterus
How to plan the trocar

J Minim Invasive Gynecol 2006 Jul-Aug
Equipment

- Uterine manipulators
  - Transvaginal
  - Laparoscopic
- Hemostatic devices
- Graspers
- Needle driver
Intra-operative strategies

- Isolate and ligate main blood vessels first (IP, UA from the origin if possible)
- Minimize back bleeding and keep the field clean.
- Skeletonization and gentle dissection
- Strong uterine manipulator; colpoprop, Rumi. Uterus is heavy and hard to move. First assistance is the best manipulator
Laparoscopic Hysterectomy of Large Uteri With Uterine Artery Coagulation at Its Origin

Harare Ramesh, MD, Joel Zuzu, MD, Lukas Friederich, MD, Benoît Riche, MD, Eric Lena, MD, Laëc Morpeau, MD, PhD

ABSTRACT

Background: To assess the usefulness of performing total laparoscopic hysterectomy with primary uterine artery coagulation at its origin for a series of women presenting with an enlarged fibroid uterus.

Methods: Twenty-seven women having undergone the procedure consecutively during a period of 17 months were studied retrospectively. The inclusion criteria were an enlarged fibroid uterus weighing more than 200 g, managed by total laparoscopic hysterectomy with primary uterine artery coagulation at its origin.

Results: The median values (range) for age, body mass index, parity were: 54 years (38 to 65), 25 kg/m² (15 to 45), and 2 (0 to 5). The median value for maximum weight (mg); 90.0 (20 to 1,099), and the median duration for the surgical procedure was 105 minutes (range: 90 to 260). The longest procedure being due to associated deep vein thrombosis and adnexal adhesions. The division of the uterine artery was not significantly correlated with uterine weight (correlation coefficient r = 0.03, p > 0.05), and incidence or postoperative complications were recorded.

Conclusions: The selective coagulation of the uterine artery at its origin is a reproducible technique that allows total laparoscopic hysterectomy in small women. This procedure avoids unsightly transverse incisions preserving a cosmetic scar and provides optimal protection for the patient.

INTRODUCTION

Hysterectomy remains the most common major gynecological operation and may be carried out by 3 different routes: vaginal, abdominal, and laparoscopic. Clearly, the decision for these 3 routes should differ, but they can be overlapped. Although the abdominal route is unanimously considered the most reliable hysterectomy procedure, the vaginal route appears to be the fastest and the least capricious when it can be safely tolerated. However, with increases in uterine weight the vaginal route becomes more difficult, especially in multiparas, and in these patients, the laparoscopic route may allow for a laparoscopy to be avoided. Nevertheless, it should be noted that it is more than 1,000 publications on laparoscopic hysterectomy, opinion assessing its role is greatly divided.

Although many ovarian cysts can be drained safely by skilled surgeons, the procedure intraperitoneal and peritoneal bleeding is not insignificant, especially when extended time is required to complete the median. Thus, laparoscopic hysterectomy can be a valid surgical approach in these cases. Although it offers useful to operate, several stages of the clinical procedure, to make it safer. The transperitoneal approach allows the improvement of blood supply, before uterine procedure and the beginning of uterine contraction. The aim of our study was to describe the total laparoscopic hysterectomy technique with primary uterine artery coagulation and to report outcomes for a series of women who
All uteruses with possible pathology; endometrial cancer, fibroids, sarcomas… best delivered intact in one piece.

- if morcellation is needed, the uterus needs to be put in a bag

- Pre-operative medication to shrink the fibroid is optional, BUT don’t if you are suspecting malignancy (to avoid delaying the surgery)
Preoperative medication

- Higher pre-op Hgb, improving symptoms, smaller uterus, higher success rate TLH, shorter OT, LOS, EBL.

- Options:
  - **Fibristal** (ulipristal acetate), SPRM*, 5mg tablet OD, 13 weeks, improve all symptoms, 47% reduction in fibroid size. 2 RCT, SE: hot flashes
  - **Depot lupon** 11.25/3 month injection +/- concurrent raloxifene: 50-60% shrinkage, many with HF, insomnia. 2 (not if postmenopausal, not for uteri larger than 18 weeks size... not work)
  - **Mifepristone** 5mg/d/6 months: 47% (most reduction in first 3 months). Well tolerated.
  - **Anastrazole** 1mg/day/3 months. 56% shrinkage if over age 40.


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**GnRH Agonist Treatment before Total Laparoscopic Hysterectomy for Large Uteri**

R. Seracchioli, M.D., S. Verrini, M.D., F. M. Colombo, M.D., A. Ragnoli, M.D., F. V. V. V. M. D.

Abstract

**TABLE 1. Operative and Postoperative Values in the Two Groups**

<table>
<thead>
<tr>
<th></th>
<th>Group A (Tx group)</th>
<th>Group B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative hemoglobin g/dl</td>
<td>12.3 ± 1.4</td>
<td>11.4 ± 1.4</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>Preoperative uterine volume (ml)</td>
<td>388 ± 130</td>
<td>587 ± 341</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>Uterine weight (g)</td>
<td>328 ± 165</td>
<td>462 ± 226</td>
<td>&lt;0.002</td>
</tr>
<tr>
<td>Mean operating time (min)</td>
<td>85.3 ± 29.1</td>
<td>115.1 ± 30.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Drop in hemoglobin g/dl</td>
<td>1.2 ± 0.8</td>
<td>1.9 ± 1.0</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>Transfusion in (x)</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mean hospital stay (hrs)</td>
<td>76.3 ± 24.4</td>
<td>80.4 ± 26.5</td>
<td>N/S</td>
</tr>
</tbody>
</table>

*J Am Assoc Gynecol Laparosc. 2003 Aug*
Suspecting a sarcoma, LMS

- Older age 45 and older
- Rapidly growing fibroid, new fibroid
- Singular, poor margins.
- MRI (not typical findings); necrosis, increase vascularity, irregular ill-defined margins
- Elevated total LDH, especially isoenzyme 3.

Goto et al, Int J Gynecol cancer, 2002
Largest Uterus
4321 KG
Delivered a baby boy!!

Same day discharge SDD

Reduce risk of hospital acquired infection

Patient will have at least 1:1 care compare to hospital 1:4 -1:5 nurse to patient care.

Patient in her own bed, bathroom, comfort.
SDD=ERAS

The ERAS Society was officially founded in 2010. The mission of the Society is perioperative care and to improve recovery through research, audit education implementation of evidence-based practice.

http://erassociety.org/about/history/

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G. Nelson \textsuperscript{a,}, A.D. Altman \textsuperscript{a,}, A. Nick \textsuperscript{c}, L.A. Meyer \textsuperscript{d}, P.T. Ramirez \textsuperscript{e}, C. Achtari \textsuperscript{f}, J. Antrobus \textsuperscript{g}, J. Huang \textsuperscript{h}, M. Scott \textsuperscript{b,}, L. Wijk \textsuperscript{i}, N. Acheson \textsuperscript{j}, O. Ljungqvist \textsuperscript{k}, S.C. Dowdy \textsuperscript{l}

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\textsuperscript{k}Department of Anesthesiology, University of Kentucky, Lexington, USA
\textsuperscript{l}Department of Obstetrics and Gynecology, Karolinska University Hospital, Stockholm, Sweden
Enhanced Recovery in Gynecologic Surgery

Eleftheria Kalogeris, MD, Jamie N. Baklam-Gomez, MD, Christopher J. Jekelova, MD, Emmanuel Tryphon, MD, Jenna K. Lowery, DNP, Sarah Damariki, Pamela L. Grubbs, RN, CNS, Amy L. Weaver, Lindsey R. Haas, Bijan J. Borah, MD, April A. Burns, RN, Michael T. Walsh, MD, William A. Ciby, MD, and Sean C. Donohoe, MD

OBJECTIVE: To investigate the effects of enhanced recovery (a multimodal perioperative care enhancement protocol) in patients undergoing gynecologic surgery.

METHODS: Consecutive patients managed under an enhanced recovery pathway and undergoing surgery between June 26, 2011, and December 18, 2011, were compared with consecutive historical controls (March to December 2010). Matched by procedure, Wilcoxon rank-sum, $\chi^2$, and Fisher's exact tests were used for comparisons. Direct and indirect costs incurred in the first 30 days were obtained from the Cleveland County Healthcare Expenditure and Utilization Database and standardized to 2011 Medicare dollars.

RESULTS: A total of 241 enhanced recovery women in the case group (181 cytoreduction, 84 staging, and 76 recovery resulted in a 4-day reduction in hospital stay with stable readmission rates (0.9% of women in the control group compared with 17.9% of women in the case group) and 30-day cost savings of more than $7,000 per patient (18.8% reduction). No differences were observed in rate (63% compared with 71.8%) or severity of postoperative complications (grade 3 or more: 25% compared with 20.5%). Similarly, both less dramatic improvements were observed in the other two cohorts. Ninety-five percent of patients rated satisfaction with perioperative care as excellent or very good.

CONCLUSION: Implementation of enhanced recovery was associated with acceptable pain management with reduced opioids, reduced length of stay with stable readmission and morbidity rates, good patient satisfaction, and substantial cost reductions.

Key components of an enhanced recovery pathway

drawn
Starve
**SDD Vaginal hysterectomy**

- Started as few pilot studies in the late 1980’s
- Many small studies for vaginal hysterectomy showed that its safe and feasible
- The important key is proper **counseling, good selection** criteria, patient agreement, communication

Moore J. RN, 1986
Powers TW et al, Am j obstet gyn 1993
Stovall TG et al, 1992
Bran. Spellman, Aorn journal 1995

**SDD Laparoscopic hysterectomy**

- Large retrospective observational study (ACS-NSQIP) > 250 US hospital, 8846 lapx hysterectomy
- 3564 SDD (40%), trend overtime toward SDD.
- Lower over all morbidity, complication, DVT

ACS-NSQIP: American college of surgeons national surgical quality improvement program
Khavanin N et al, JMIG 2013
SDD Laparoscopic hysterectomy

Similar trend and safety was concluded by a large data review of 128,634 laparoscopic hysterectomy cases from 2000 to 2010.

SDD increased from 11.3% in 2000 to 46% in 2010.

Schiavone MB et al, AJOG, 2012
SDD Laparoscopic hysterectomy

Schiavone MB et al, AJOG, 2012

SDD Laparoscopic hysterectomy + Staging for gynecological malignancies

- Gien, 303 mixed malignancy cases, 2006-2009
- SDD 48.5%
- 4.8 % readmission
- 6.9% convert to laparotomy
- 5 more retrospective studies with similar results

Gien LT et al, gyn onc 2011
Feasibility and safety of same-day discharge after minimally invasive hysterectomy in gynecologic oncology: A systematic review of the literature

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* Corresponding author.

Table 1: Eligibility criteria and success rate for SDD.

<table>
<thead>
<tr>
<th>Source</th>
<th>Eligibility criteria</th>
<th>Success rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gien et al. [22]</td>
<td>535</td>
<td>269</td>
</tr>
<tr>
<td>Rettenmaier et al. [23]</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Lee et al. [24]</td>
<td>100</td>
<td>91</td>
</tr>
<tr>
<td>Penner et al. [25]</td>
<td>140</td>
<td>141</td>
</tr>
<tr>
<td>Rivard et al. [26]</td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td>Melamed et al. [27]</td>
<td>896</td>
<td>583</td>
</tr>
</tbody>
</table>

Table 2: Redundancy rate, ER visits, and unscheduled visits in SDD compared to admission.

<table>
<thead>
<tr>
<th>Source</th>
<th>Redundancy rate</th>
<th>ER visits</th>
<th>Unscheduled visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gien et al. [22]</td>
<td>4.8</td>
<td>5.6</td>
<td>12.0</td>
</tr>
<tr>
<td>Rettenmaier et al. [23]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lee et al. [24]</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Penner et al. [25]</td>
<td>11</td>
<td>17</td>
<td>9.3</td>
</tr>
<tr>
<td>Rivard et al. [26]</td>
<td>1.4</td>
<td>1.4</td>
<td>9.2</td>
</tr>
<tr>
<td>Melamed et al. [27]</td>
<td>3.1</td>
<td>5.7</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Table 4: Complication.

<table>
<thead>
<tr>
<th>Source</th>
<th>Complication</th>
<th>SDD %</th>
<th>Admission %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gien et al. [22]</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Rettenmaier et al. [23]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lee et al. [24]</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Penner et al. [25]</td>
<td>12.7</td>
<td>8.7</td>
<td>8.7</td>
</tr>
<tr>
<td>1 week</td>
<td>5.9</td>
<td>8.7</td>
<td>8.7</td>
</tr>
<tr>
<td>2 weeks</td>
<td>5.8</td>
<td>10.2</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Table 2: Significant risk factors for admission (P < 0.05).

<table>
<thead>
<tr>
<th>Source</th>
<th>Time procedure ended after 1-6 pm</th>
<th>Age (older patients)</th>
<th>Longer operative time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gien et al. [22]</td>
<td>+</td>
<td>NA</td>
<td>+</td>
</tr>
<tr>
<td>Rettenmaier et al. [23]</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Lee et al. [24]</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Penner et al. [25]</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rivard et al. [26]</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Melamed et al. [27]</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Successful SDD

- Surgeons agreeing to try it!!
  - Discussion with chairman, Anesthesia, and PACU nurses.
  - Pre-op patient selection and counseling.
  - Handout and FU.
  - Discuss expectation and pain control (prescription prior to surgery)

Successful SDD

- Proper counseling
- Patient selection:
  - Age <75
  - Within an hour from the hospital,
  - Transportation
  - Support at home at least first 24 h
  - Agreeing for SSD
  - Start with healthier and younger patient, then expand the selection criteria to your comfort level.
Successful SDD

- PACU discharge criteria:
- Fully awake, ambulating
- Tolerating CF
- Void before discharge
- Good pain control, limited nausea if any.
- Stable VS, and good O2 saturation

Same Day Discharge Protocols for Minimally Invasive Hysterectomies

(Can be applied to other operations as well.)

Pre-Operative
1. Counsel patient for a same day discharge hysterectomy during the consultation.
2. Set expectations that patient will go home the same day. Advise patient that if she is unable to urinate post-op, she may be sent home with a catheter.
3. Make sure the patient will have appropriate family support at home.
4. Order/arrange pick-up of Discharge Meds in advance of surgery date:
   - Preventative: ibuprofen and acetaminophen
   - Narcotic: e.g. hydrocodone
   - Antiemetic: e.g. ondansetron, promethazine, or a transdermal scop patch
   - Stool softener: e.g. docusate
5. Provide handouts about what to expect with same day discharge.
6. Pre-op IV ibuprofen and acetaminophen.

Anesthesia:
1. Request anesthetic to use the following:
   - Decadron 8mg, and zofran 8mg, at the beginning of the case, and
   - Ibuprofen 800mg near the end of the case if not given pre-op.
   - Propofol to decrease gas use, reduce nausea and vomiting (NEJM 2004)
2. When removing the last ports have anesthesia give 3 positive pressure breaths to help push any addition gas out, keep in Trendelenberg. (Green Journal 5/08)

Surgical Technique:
1. Decrease Bleeding: Vasopressin injection of cervix 20 ml of 4 units in 80mls of saline (max 4u)
2. Decrease Pain:
   - Inject trocar sites with 10cc of 0.25% marcaine + epi before incision and at time of closing the incision. (Maximum of 10cc/kg).
   - Gentle tissue manipulation.

Post-operative
1. H&H is not required prior to discharge
2. Discharge the patient at around 3 hours post-op; any earlier may increase failure in same day discharge
3. Consider sending home with abdominal binder for comfort
4. Urinary catheter:
   a. Instill 200cc prior to removing urinary catheter in OR to improve voiding trial completed in PACU.
   b. If patient fails voiding trial at time of discharge, either:
      - send home with urinary catheter to leg bag or
      - Send home with catheter, but void 30 hours x 12.
5. Include excellent post op instruction handouts for patient and family.
Summary

- Modifying techniques for Obese will make TLH feasible, safe and more successful.

- TLH for large > 250 uterus is feasible and safe as long as we are performing safe morcellation and removal.

- Uterine artery ligation is feasible and effective.

- Feasibility of same day discharge.

Remember!!

It's not the Wand,

....It’s the Wizard