Laparoscopy and Endometriosis: Preventing Complications and Improving Outcomes

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Assumptions

- Pelvic pain
  - Not desiring immediate fertility
- H & P suggest endometriosis
- OC/NSAID failures
- Endo visualized at surgery
## Endometriosis and Pelvic Pain Results With OCs

<table>
<thead>
<tr>
<th>Author</th>
<th>Rx,</th>
<th>Relief</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kistner, 1996</td>
<td>Norethynodrel 2.5 mg/mestranol 0.1 mg (Enovid E)</td>
<td>79%</td>
<td>110</td>
</tr>
<tr>
<td>Riva, 1961</td>
<td>Enovid E</td>
<td>90%</td>
<td>83</td>
</tr>
<tr>
<td>Riva, 1962</td>
<td>Enovid</td>
<td>69%</td>
<td>132</td>
</tr>
<tr>
<td>Kourides, 1968</td>
<td>Norgestrel 0.5 mg/EE 50µg</td>
<td>84%</td>
<td>19</td>
</tr>
<tr>
<td>Noble, 1979</td>
<td>Enovid E</td>
<td>30%</td>
<td>17</td>
</tr>
<tr>
<td>Kistner</td>
<td>Various pills</td>
<td>83%</td>
<td>110</td>
</tr>
</tbody>
</table>
Compared with Eutopic Endometrium

- In phase: 13%
- Synchronous proliferative vs secretory: 32%

Compared with Other Lesions in Same Patient

- In phase: 10%
- Synchronous proliferative vs secretory: 33%

Incidence of Endometriosis in Patients with Pelvic Pain

- 71% – Koninckx (1991)
- 82% – Cornillie (1990)
- 72% – Martin (1989)
- 74% – Koninckx (1992)
Staging and Pain Are Unrelated

**Incidence:**

- **Stage I:** 40%
- **Stage II:** 24%
- **Stage III:** 24%
- **Stage IV:** 12%

Endometriosis:
Types of Lesions and Pain

- Clear 76%
- Red 84%
- White 44%
- Black 22%
- Pain perception 1-27 mm from lesion

Possible Causes of Pelvic Pain From Endometriosis

- Location of lesion
- Depth of invasion
- Inflammation
- Stretching / scarring of tissue
Infiltrating Endometriosis

Type I

Type II

Type III

# Incidence of Infiltrating Endometriosis

Infiltrating endometriosis type I is suggested to be infiltration, type II retraction and type III possibly adenomyosis externa. The uterus (U), pouch of Douglas (D), vagina (V) and rectum (R) are indicated.

<table>
<thead>
<tr>
<th>Type</th>
<th>Stage</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td></td>
<td>20.2</td>
<td>56.0</td>
<td>19.1</td>
<td>4.8</td>
</tr>
<tr>
<td>(N=84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type II</td>
<td></td>
<td>10.3</td>
<td>34.5</td>
<td>34.5</td>
<td>20.7</td>
</tr>
<tr>
<td>(N=29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type III</td>
<td></td>
<td>39.1</td>
<td>26.1</td>
<td>26.1</td>
<td>4.3</td>
</tr>
<tr>
<td>(N=23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Preoperative Preparation

• Operate in proliferative phase or suppress ovaries
• Consider preoperative ultrasound to identify endometriomas
• Bowel prep
• Consent for possible laparotomy
Intraoperative Considerations

- Identify anatomy
  - Ureters
  - Bowel
  - Vessels
  - Diaphragm
  - Appendix
  - Bladder

- Excision vs ablation

- Adhesion prevention
Laparoscopic Endometriosis Ablation

• Superficial lesion
  – Destroy with:
    – Laser
    – Electrosurgery
    – Thermal
Laparoscopic Endometriosis Resection

• Deep lesion
  – Outline lesion
  – Resect
  – Check for hemostasis
Likely Areas of Complications

- Bowel injury
- Ureteral injury
- Vascular injury
  - Inferior epigastrics
  - Iliac vessels
  - Great vessels
- Bladder injury
Ancillary Surgery

- Presacral neurectomy and LUNA
- Uterine suspension
Presacral Neurectomy
Issues for Presacral Neurectomy

• Dysmenorrhea may be primary or secondary
• Treating endometriosis may not cure dysmenorrhea
• RCT studies confirm efficacy*
• Can be performed by laparoscopy

*Tjaden. 1990.
Laparoscopic Presacral Neurectomy

- Identify promontory
- Identify ureter
- Incise over promontory
- Identify middle sacral artery and vein
- Identify presacral nerve
- Grasp presacral nerve
- Cut nerve after cautery
- Cauterize base of nerve
- Check space for additional nerve
- Cauterize additional nerve
## Presacral Neurectomy

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of Patients</th>
<th>Relief</th>
<th>Years Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chen, et al, 1996</td>
<td>33 (l-scope)</td>
<td>81.8% PSN</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>35 (l-scope)</td>
<td>57.4% LUNA</td>
<td>1</td>
</tr>
<tr>
<td>Candiani, 1992</td>
<td>71 (lap)</td>
<td>PSN marked</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(controlled)</td>
<td>improvement</td>
<td></td>
</tr>
<tr>
<td>Tjaden, 1990</td>
<td>17 (lap)</td>
<td>88% PSN</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>9 (lap)</td>
<td>0% control</td>
<td>3.4</td>
</tr>
<tr>
<td>Perez, 1990)</td>
<td>25 (l-scope)</td>
<td>92%</td>
<td>1</td>
</tr>
<tr>
<td>Chen, et al, 1997</td>
<td>527</td>
<td>52% adeno</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>73% st 3 &amp; 4 endo</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>75% st 1 &amp; 2 endo</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>77% primary days</td>
<td></td>
</tr>
</tbody>
</table>
Laparoscopic Uterine Suspension
Issues for Uterine Suspension

- Dyspareunia can be caused by a symptomatic retroverted uterus or endometriosis
- Studies support the efficacy of uterine suspension (retrospective studies)
- Procedure easily performed by laparoscopy
Laparoscopic Uterine Suspension

- Retroverted uterus
- Identify round ligaments
- Divide into three segments
- Triple plicate the round
- Use three sutures
- Final appearance
## Laparoscopic Uterine Suspension

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of Patients</th>
<th>% Relief</th>
<th>Years Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gordon, 1992</td>
<td>80</td>
<td>90%</td>
<td>2</td>
</tr>
<tr>
<td>Casa, 1995</td>
<td>30</td>
<td>80%</td>
<td>1-5</td>
</tr>
<tr>
<td>Carter, 1999</td>
<td>55</td>
<td>84% pain</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>90% dyspareunia</td>
<td>2</td>
</tr>
<tr>
<td>Koh, 1996</td>
<td>25</td>
<td>88% dyspareunia</td>
<td>1-2</td>
</tr>
</tbody>
</table>
Outcomes
### Results Following Endometrioma Surgery

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of Patients</th>
<th>Failure/Recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saleh, 1999 (retrospect)</td>
<td>231</td>
<td>23.5% excision, 57.5% fenestration/ablation</td>
</tr>
<tr>
<td>Beretta, 1998 (RCT)</td>
<td>64</td>
<td>19-month reoperative cystectomy, 9.5 months in drainage/ablation</td>
</tr>
<tr>
<td>Winkel, 1992 (retrospect)</td>
<td>13</td>
<td>11 recurrences at 6 months no leuprolide acetate</td>
</tr>
<tr>
<td>(retrospect)</td>
<td>48</td>
<td>1 recurrence at 18 months with leuprolide acetate</td>
</tr>
<tr>
<td>Mais, 1996 (RCT)</td>
<td>32</td>
<td>Pain significantly less with 1-scope vs lap days 0-2</td>
</tr>
</tbody>
</table>
## Laparotomy vs Laparoscopy

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of Patients</th>
<th>Recurrence Rates Dysmenorrhea, Dyspareunia, Pelvic Pain</th>
<th>Years Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crosignani, 1998</td>
<td>155</td>
<td>no difference</td>
<td>2</td>
</tr>
<tr>
<td>Busacca, 1998</td>
<td>81</td>
<td>no difference</td>
<td>2</td>
</tr>
<tr>
<td>Catalano, 1996</td>
<td>132</td>
<td>no difference</td>
<td>2</td>
</tr>
<tr>
<td>Bateman, 1994</td>
<td>36</td>
<td>no difference</td>
<td>1</td>
</tr>
</tbody>
</table>
Pain Recurrence Following Surgical Therapy

<table>
<thead>
<tr>
<th>Year</th>
<th>Recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sutton 1994</td>
<td>37.5%</td>
</tr>
<tr>
<td>Hornstein 1993</td>
<td>51%</td>
</tr>
<tr>
<td>Redwine 1991</td>
<td>31%</td>
</tr>
<tr>
<td>Howard 1993</td>
<td>33%</td>
</tr>
<tr>
<td>Sutton 1990</td>
<td>30%</td>
</tr>
</tbody>
</table>
Endometriosis: Results With Surgery

Endometriosis and Surgery: Results by Stage of Disease

Reasons for Pain Recurrence

- Other causes of pain besides endometriosis
- Residual disease
  - Microscopic
  - Deep
  - Atypical
  - Missed
# Endometriosis: Microscopic Disease

<table>
<thead>
<tr>
<th>Author</th>
<th>Results</th>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murphy, 1986</td>
<td>25%</td>
<td>SEM</td>
</tr>
<tr>
<td>Vasquez, 1984</td>
<td>25%</td>
<td>LM and SEM</td>
</tr>
<tr>
<td>Nisole, 1990</td>
<td>13%</td>
<td>With endo</td>
</tr>
<tr>
<td></td>
<td>6%</td>
<td>Infertility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LM</td>
</tr>
<tr>
<td>Redwine, 1989</td>
<td>2%</td>
<td>LM</td>
</tr>
<tr>
<td></td>
<td>66%</td>
<td>Peritoneal pockets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LM</td>
</tr>
</tbody>
</table>
Incidence of Microscopic Disease

- Murphy (1986) - 25
- Vasquez (1984) - 25
- Nisole (1990) - 13
- Redwine (1989) - 2

Microscopic Lesions
Enhancing Outcomes

• Postoperative medical therapy
  – OCs
  – Progestins
  – Danazol
  – GnRH agonists
Postoperative Medical Therapy

Laparotomy randomized to:
- Placebo 20
- Danazol 200 mg 20
- MPA 100 mg 20

Scores of Symptoms

Placebo

MPA

Danazol

Months

1  3  6  12
Time to Symptom Recurrence Post-Ablation

Endometriosis: Postoperative Analog Therapy

* $P<.05$ compared to ablation
CPT Coding

- **Laparotomy**
  - Excision of endometriosis: 49200-22 (special report)
  - Vaporization of adhesions: 58740-22-51
  - PSN and uterine suspension: 58410-51
  - Enterolysis: 44005-59-51

- **Laparoscopy**
  - Vaporization of endometriosis: 56303-22 (special report)
  - Enterolysis: 56310-59-51
  - Vaporization of adhesions: 56304-22 (modifier instead)
  - PSN and uterine suspension: 58410-22-51
  - LUNA: 64999-51
Conclusions

• Laparotomy is not a failure!!
• Excision, ablation or both are effective
• The method(s) used should be chosen based upon operator preference and experience
• Surgery: cytoreductive rather than curative
• Postoperative medical therapy recommended for pelvic pain patients with endometriosis regardless of “stage”