Surgical Management of Endometriosis

Assoc. Prof. Gazi YILDIRIM, M. D.
Yeditepe University Medical Faculty Hospital, Department of Ob & Gyn
Chair of the Turkish Society of Gynecology and Obstetrics- Istanbul Anatolian Division
Secretariat of TSGE (Turkish Society for Gynecological Endoscopy)
Editor of the J Turk German Gynecol Assoc (formerly known as JTGGA)
Disclosure

• None
The impact of endometriosis in women’s health

- **Infertility**
- **Dysmenorrhea**
- **Dyspareunia**
- **Reduction of libido**
- **Irregular bleeding**
- **Pregnancy at risk**

- **Chronic pelvic pain**
- **Dysuria**
- **Dyschezia**
- **Headache**
- **Abdominal bloating**
- **Diarrhea**
- **Stress and depression**
- **Chronic fatigue**
- **Risk of cancer**
Tanıda Gecikme!!!!

Semptomların ortaya çıkması
İlk Muayene
Tanı

1 yıl
6 yıl

7 yıl

Tanıda Gecikme!!!!

Ortalama hastayı gören doktor sayısı

7

Endometrioszis Tedavisi
2017#

Medikal
- Lezyonları tahrip etmek veya önlemek

Cerrahi
- Lezyonları çıkarmak
- Adezyolizis
Gerçekten endometriozisi tedavi edebiliyor muyuz?
Guidelines for endometriosis management


Endometriosis
Building a Multidisciplinary Team

- Gynecologist
- Radiologist
- Colorectal Surgeon
- Urologist
- Pain Specialists
- Psychologist
- Physiotherapist
Gynecologist
Role of Each Surgeon

- **Gynecologist (Primary)**
  - Initial evaluation and management
  - Role of medical vs surgical therapy
  - Long term follow up

- **Colorectal Surgeon**
  - Evaluate intestinal involvement
  - Determine appropriate procedure for each patient
  - Management of intestinal function (short and long term)

- **Urologist**
  - Ureteral stent placement
  - Determine appropriate procedure for each patient
  - Management of complications
Pain Specialists, Psychologist, physiotherapist
Endometriosis: Multidisciplinary team

Diagram showing a multidisciplinary teamcomposition with:
- Gynecologist: Team Leader
- Pelvic Pain Specialist
- Radiologist
- Physiotherapist
- REI
- Colorectal Surgeon
- Urologist
- Psychologist

Research Team
Understanding the Disease

• Recognizing different types of endometriosis

• Understand excision techniques and indications

• Understand symptoms related to deep infiltrative endometriosis

• Ability to work within a multidisciplinary team
Future:
New Speciality: The Pelvic Surgeon

- Background/Training
  - Gynecology
- Colon and Rectal Surgery
- Urology
Cerrahi
Ağrı
Endometriosis-Associated Pain

Young women continued to be seen as especially susceptible, as these 17th century paintings on the subjects show.
INDICATIONS

Surgical management of endometriosis is indicated in the following groups.

1. Patients with pelvic pain
   a. who do not respond to, decline, or have contraindications to medical therapy
   b. who have an acute adnexal event (adnexal torsion or ovarian cyst rupture)
   c. who have severe invasive disease involving the bowel, bladder, ureters, or pelvic nerves

2. Patients who have or are suspected to have an ovarian endometrioma
   a. Patients for whom the uncertainty of the diagnosis affects management (as with chronic pelvic pain)
   b. Patients with infertility and associated factors (i.e. pain or a pelvic mass)
Is surgery effective for painful symptoms associated with endometriosis?

When endometriosis is identified at laparoscopy, clinicians are recommended to surgically treat endometriosis, as this is effective for reducing endometriosis-associated pain, i.e. ‘see and treat’ (Jacobson et al., 2009).

Clinicians may consider both ablation and excision of peritoneal endometriosis to reduce endometriosis-associated pain (Wright et al., 2005; Healey et al., 2010).
Is surgery effective for painful symptoms associated with endometrioma?

When performing surgery in women with ovarian endometrioma, clinicians should perform cystectomy instead of drainage and coagulation, as cystectomy reduces endometriosis-associated pain (Hart et al., 2008). Clinicians can consider performing cystectomy rather than CO₂ laser vaporization in women with ovarian endometrioma, because of a lower recurrence rate of the endometrioma (Carmona et al., 2011).
Clinicians can consider performing surgical removal of deep endometriosis, as it reduces endometriosis-associated pain and improves quality of life (De Cicco et al., 2011; Meuleman et al., 2011a, b). The GDG recommends that clinicians refer women with suspected or diagnosed deep endometriosis to a centre of expertise that offers all available treatments in a multidisciplinary context.
Endometriozisin Cerrahi Tedavisinde Yöntemler

- Eksizyon/ Fulgurasyon
- Endometrioma rezeksiyonu
- Adezyolizis
- Cul-de-sac Rekonstruksiyonu
- LUNA
- Presakral Nörektomi
- Appendektomi
- Uterin Suspansiyon (?)
- Histerektomi +/- BSO
Endometriozis: pelvik ağrı 
LUNA + ablasyon

Sutton, 1997
Endometrikozis: pelvik ağrı
LUNA + ablasyon

Sutton, 1997
LUNA

Konservatif Cerrahi + LUNA

Konservatif Cerrahi

(n:78) (n:78)

Dismenore kür oranı

- 12 ay izlem..............................................%29.................................%27
- 24 ay izlem..............................................%36.................................%32

Vercellini P et al
Presakral Nörektomi

Conservative surgery          Conservative 
plus PSN                            surgery 
\( (n:63) \)                    \( (n:63) \)

Dismenore kür oranı

- 6-ay izlemde (%) .......................... 87 ........................................ 57
- 12-ay izlemde (%) .......................... 60 ........................................ 86
- 24-ay izlemde (%) .......................... 83 ........................................ 53

At the end of the study period, the frequency and severity of deep dyspareunia and non-menstrual pain were also significantly lower in women from the PSN those in conservative.

11 women who underwent PSN referred long-term complaints such as de-novo constipation \((n = 9, 15\%)\) and urinary urgency \((n = 3, 5\%)\).

Presacral Neurectomy (PSN)

- PSN is the interruption of the superior hypogastric plexus
- Technique first described by Jaboulay and Ruggi at the end of the 19th century
Who is going to benefit form PSN?

Careful selection of patients with severe central pelvic pain is one of the prerequisites for successful presacral neurectomy.
• Minimal-moderate hastalıktaki ablasyon ve LUNA yapılması, diagnostik laparoskopi yapılanlara göre ağrıyi daha az altır, minimal hastalıktaki bu etki daha az görülür. (Jacobson et al., 2004a).

• Ancak, LUNA'nın gerekliğini gösterebilen bir çalışma yoktur.
• LUNA yalnız başına dismenore tedavisinde etkili değildir (Vercellini et al., 2003a).
**Uterosakral ligament rezeksiyonu (LUNA)**

Presakral Nörektomi (PSN)

- **LUNA** sekonder dismenoreyi azaltmaz  
  - OR 0.77 (95% CI, 0.43–1.39)

- **PSN** sekonder dismenoreyi azaltır  
  - OR 3.14 (95% CI, 1.59–6.21)
Surgical interruption of pelvic nerve pathways for Pain

Clinicians should not perform laparoscopic uterosacral nerve ablation (LUNA) as an additional procedure to conservative surgery to reduce endometriosis-associated pain (Proctor et al., 2005).

Clinicians should be aware that presacral neurectomy (PSN) is effective as an additional procedure to conservative surgery to reduce endometriosis-associated midline pain, but it requires a high degree of skill and is a potentially hazardous procedure (Proctor et al., 2005).
Histerektomi

- Genç hasta?

- Overler?

Semptomatik endometriozisli kadınlar

<table>
<thead>
<tr>
<th></th>
<th>Overler korunmuş</th>
<th>Overler alınmış</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n: 29</td>
<td>n: 109</td>
</tr>
<tr>
<td>Rekürren ağrı</td>
<td>18 (%62)</td>
<td>11 (%10)</td>
</tr>
<tr>
<td>Re-operasyon</td>
<td>9 (%31)</td>
<td>4 (%3.7)</td>
</tr>
</tbody>
</table>

Overi korunan kadınlarda;
- 6.1 kat daha fazla rekurrent ağrı gelişme riski vardır
- 8.1 kat daha fazla re-operasyon gelişme riski vardır

Namnoun AB et al.
<table>
<thead>
<tr>
<th>Source, year</th>
<th>Ovaries removed observation/total</th>
<th>Ovaries preserved observation/total</th>
<th>O.R. (95% C.I.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Namnoum et al., 1995</td>
<td>4/109</td>
<td>9/29</td>
<td>0.08 (0.02-0.30)</td>
</tr>
<tr>
<td>Shakiba et al., 2008</td>
<td>4/50</td>
<td>9/47</td>
<td>0.37 (0.16-1.29)</td>
</tr>
<tr>
<td>Combined (Mantel-Haenszel estimate)</td>
<td></td>
<td></td>
<td>0.19 (0.08-0.47)</td>
</tr>
</tbody>
</table>
Laparoskopi sırasında derin infiltran endometriozis minimal hastalıkmış gibi gözükebilir ve endometriozisin evresinin yanlış tahmin edilmesine neden olabilir (Koninckx et al., 1994).

ESHRE guideline for the diagnosis and treatment of endometriosis

Stephen Kennedy, Agneta Bergqvist, Charles Chapron, Thomas D’Hooghe, Gerard Duseliman, Robert Greil, Lone Hummelshoj, Andrew Prentice and Erkan Sarıoğan on behalf of the ESHRE Special Interest Group for Endometriosis and Endometrium Guideline Development Group
Rektovajinal Endometriosis Cerrahisi

• Ağrı sonuçları
  – Kısa sürede ağrıda azalma %70-80
  – 1. yılda analjezik/hormonal tedavi ihtiyacı %50
  – Tekrar cerrahi ihtiyacı %25

• Komplikasyon
  – Nörojenik mesane disfonksiyonu %4-10
  – Rektovajinal fistül oluşumu %2-10
  – Rektal Perforasyon %1-3

Vercellini P. Hum. Reprod Update 2009
• İleri ve DIE de Endometriozis ilişkili ağrı ancak tüm lezyonların yok edilmesiyle azaltılabilir.

• Eğer Histerektomi yapılacaksa BSO da önerilmelidir. (Namnoum et al., 1995, Lefebvre et al., 2002).
Case#
Rektovaginal Endometriosis

- 25 years old nulligravid

- Hypermenerorhea and new onset cyclic pelvic pain for three months. She had severe disparonia.

- At the initial assessment on transvaginal ultrasonography endometrial line was irregularly thickened and centrally located hyperechoic polypoid mass could be seen.

- Vaginal examination was very painful and irritating. Speculum can not proceed due to severe discomfort.

Under General Anesthesia
Posterior Nodules
H/S-Polypectomy

Rectovaginal Nodule Resection
Case #
Endometrioma + Surrenal Endometriozis


• 7.9.2013: CA199:25, CA125:38, CEA:0.5, AFP:1.9, CA153:13, L/S OVER KİSTEKTOMİ PLANLAYACAĞIM. TSH:0.2, ENDOKRİNCİYE DE DANIŞACAĞIZ.

• 07.10.2013:L/S BİLATERAL KİSTEKTOMİ BY GY + SAĞ ADRENELKTOMİ BY TUNÇ
### Table IV. Studies comparing the number of follicles in the operated and in the contralateral non-operated ovary during IVF techniques

<table>
<thead>
<tr>
<th>Reference</th>
<th>Surgical technique</th>
<th>No. of cycles</th>
<th>Control ovary&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Operated ovary&lt;sup&gt;a&lt;/sup&gt;</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nargund &lt;em&gt;et al.&lt;/em&gt; (1996)</td>
<td>Not reported</td>
<td>90</td>
<td>8.9 ± 5.1</td>
<td>6.3 ± 5.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Loh &lt;em&gt;et al.&lt;/em&gt; (1999)</td>
<td>Cyst enucleation</td>
<td>12</td>
<td>3.6&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.6&lt;sup&gt;b&lt;/sup&gt;</td>
<td>NS</td>
</tr>
<tr>
<td>Donnez &lt;em&gt;et al.&lt;/em&gt; (2001)</td>
<td>Cyst wall vaporization</td>
<td>87</td>
<td>6.6 ± 3.5</td>
<td>5.2 ± 3.0</td>
<td>NS</td>
</tr>
<tr>
<td>Ho &lt;em&gt;et al.&lt;/em&gt; (2002)</td>
<td>Cyst enucleation</td>
<td>38</td>
<td>3.3 ± 2.1</td>
<td>1.9 ± 1.5</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

<sup>a</sup>Values are mean ± SD.

<sup>b</sup>SD not reported.

NS = not significant.
### Comparison of the sonographic and serum indicators of ovarian reserve of groups 1 and 2 patients before and 6 months after laparoscopy.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group 1 one-step stripping (n = 10)</th>
<th>Group 2 three-step laser vaporization (n = 10)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Follow-up</td>
<td></td>
</tr>
<tr>
<td>AFC</td>
<td>2.0 ± 1</td>
<td>2.4 ± 0.8</td>
<td>NS</td>
</tr>
<tr>
<td>Mean (±SE) ovarian volume (mL)</td>
<td>89.7 ± 29.63</td>
<td>11.5 ± 4.8</td>
<td>NS</td>
</tr>
<tr>
<td>FSH (mIU/mL)</td>
<td>7.2 ± 0.8</td>
<td>16.3 ± 3.8</td>
<td>NS</td>
</tr>
<tr>
<td>LH (mIU/mL)</td>
<td>4.45 ± 0.8</td>
<td>6.5 ± 0.9</td>
<td>NS</td>
</tr>
<tr>
<td>E₂ (pg/mL)</td>
<td>97.8 ± 25.9</td>
<td>74.9 ± 22.5</td>
<td>NS</td>
</tr>
<tr>
<td>Inhibin B (pg/mL)</td>
<td>107.5 ± 13.9</td>
<td>122.5 ± 22</td>
<td>NS</td>
</tr>
<tr>
<td>AMH (ng/mL)</td>
<td>3.9 ± 0.4</td>
<td>2.9 ± 0.2</td>
<td>.026</td>
</tr>
</tbody>
</table>

Note: Values are means ± SE.
NS = not significant; AFC = antral follicle count; AMH = anti-Müllerian hormone.


---

**The impact on ovarian reserve after laparoscopic ovarian cystectomy versus three-stage management in patients with endometriomas: a prospective randomized study**

Dimitrios Tsolakidis, Ph.D., George Pados, Ph.D., Dimitrios Vavilis, Ph.D., Dimitrios Athanatos, M.D., Tryfon Tsolakis, Ph.D., Anastasia Giamakou, M.D., and Basil C. Tarlatzis, Ph.D.
No statistically significant differences were present as to the rate of presence of ovarian tissue in the endometrioma wall specimens from the different groups.

A statistically significant difference was present in the thickness of the tissue specimens (1.51 ± 0.37 mm vs. 1.91 ± 0.44 mm, \(P < 0.005\)) and in the thickness of ovarian tissue inadvertently excised (0.49 ± 0.30 mm vs. 0.97 ± 0.29 mm, \(P < 0.002\)) when considering groups A + B + C + D together versus group E.
Ağrıda İyileşme

Abbott et al, 2004
F&S 82: 878-84
NNT

- Absolute Risk (AR) = (number of events (good or bad) in treated or control group) / (number of people in that group)
  - ARC = AR of events in the control group
  - ART = AR of events in the treatment group

- Absolute Risk Reduction (ARR) = ARC - ART
  - Relative Risk (RR) = ART/ARC = 1 - RRR where RRR is Relative Risk reduction

- RRR = (ARC - ART)/ARC = 1 - RR
- NNT = 1/ARR

- if there was an increase in risk of events in the treatment group compared to the placebo group then:
  - Absolute Risk Increase (ARI) = ART - ARC
  - Relative Risk Increase (RRI) = ARI / (number of events divided by number of patients receiving active treatment)
### NNT

**Number Needed to Treat**

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerrahi: ağrında düzelme</td>
<td>36/52</td>
<td>69 %</td>
</tr>
<tr>
<td>Kontrol: ağrında düzelme</td>
<td>13/50</td>
<td>26 %</td>
</tr>
<tr>
<td>ARI</td>
<td></td>
<td>43 %</td>
</tr>
<tr>
<td>NNT</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>95 % Confidence Interval</td>
<td></td>
<td>2 – 6</td>
</tr>
</tbody>
</table>

Sutton, 1997
Abbott, 2004
Endometriozisi Tedavisi Edebiliyor muyuz?

- **Medikal**
  - Ağrı: Ovulasyon baskılanması işe yarar
  - Subfertilitete: etki yok

- **Cerrahi**
  - Ağrı: NNT 3 (95% CI: 2 – 6)
  - Subfertilitete: NNT 12 (95% CI: 6 – 111)
Ağrı
Sonuç

• Cerrahi tedavi işe yarar

• Medical treatment will only suppress endometriosis temporarily
  • Surgical treatment will only remove visible lesions
Re-Excision

Recurrence rate (5-year cumulative pain)

- After the first surgical procedure 20%
- After the second procedure 17%

1106 cases of conservative surgery for endometriosis

<table>
<thead>
<tr>
<th></th>
<th>Ovarian</th>
<th>Pelvic</th>
<th>Deep</th>
<th>Ovarian And Deep</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4 years Recurrence</strong></td>
<td>24.6%</td>
<td>17.8%</td>
<td>30.6%</td>
<td>23.7%</td>
</tr>
<tr>
<td><strong>8 years recurrence</strong></td>
<td>42%</td>
<td>24.1%</td>
<td>43.4%</td>
<td>30.9%</td>
</tr>
</tbody>
</table>

Busacca et al, 2005
Surgery alone is not the answer

There is a definite need for adjuvant therapy – there is currently NO CURE for endometriosis and surgery alone is not an adequate solution,

- A substantial proportion of women (20% to 40%) do not show improvement following conservative surgery
- Conservative surgical treatment is frequently associated with recurrence: 40–45% of patients have a relapse within five years
- Removal of lesions may be incomplete and success depends on surgeon experience
- Surgical treatment has risks and, in ovarian endometriosis, is associated with damage to the ovarian reserve.

“Endometriosis should be viewed as a chronic disease that requires a life-long management plan with the goal of maximizing the use of medical treatment and avoiding repeated surgical procedures”

Who prefer surgery for endometrioma?

Table 2  Current practice in the management of endometrioma (>3 cm) prior to IVF in women without previous ovarian surgery (results stratified by hospital setting).

<table>
<thead>
<tr>
<th>Hospital setting</th>
<th>Expectant</th>
<th>Medical</th>
<th>Surgical</th>
<th>Medical followed by surgical</th>
<th>Surgical followed by medical</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>District general hospital</td>
<td>3 (10.7)</td>
<td>2 (7.1)</td>
<td>14 (50.0)</td>
<td>1 (3.6)</td>
<td>8 (28.6)</td>
<td>28 (100)</td>
</tr>
<tr>
<td>University teaching hospital with IVF set-up</td>
<td>10 (14.3)</td>
<td>3 (4.3)</td>
<td>38 (54.3)</td>
<td>5 (7.1)</td>
<td>14 (20.0)</td>
<td>70 (100)</td>
</tr>
<tr>
<td>University teaching hospital with no IVF set-up</td>
<td>1 (11.1)</td>
<td>0</td>
<td>7 (77.8)</td>
<td>0</td>
<td>1 (11.1)</td>
<td>9 (100)</td>
</tr>
<tr>
<td>Total</td>
<td>14 (13.1)</td>
<td>5 (4.7)</td>
<td>59 (55.1)</td>
<td>6 (5.6)</td>
<td>23 (21.5)</td>
<td>107 (100)</td>
</tr>
</tbody>
</table>

Currently there are no clear guidelines regarding

– who should perform endometriosis surgery
– where patients should be treated
– what criteria should one use to determine
  • which case to see-and-treat
  • which to see-and-discuss
  • which to see-and-refer to a tertiary centre.
Cerrahi Risk

- Normal over korteksinin eksizyonu
- Rekürrens
**Kombine Teknik:**
- Eksizyonla başla
- Ablasyonla bitir
If surgery is incomplete subsequent surgery will be more difficult

Incomplete surgery & repetitive surgery seems to lead to massive adhesions

Strategy

To respect patient’s requirements

Tailor the surgery

CONSERVATIVE towards the FUNCTION

RADICAL towards the DISEASE
Sonuç olarak;

- Endometriozisin ideal tedavisi hala bulunamamıştır!
- Cerrahi ideal bir tedavi yöntemi değildir!!!
Teşekkürler