Surgery for Deep Endometriosis

In favor of less aggressive surgery

Horace ROMAN, MD PhD
Rouen University Hospital, France
horace.roman@gmail.com
Radical or less aggressive surgery?

- More or less aggressive approach in deep infiltrating endometriosis (DIE)?
- 2 major concerns
  1. Rectal endometriosis
  2. Ureteral endometriosis

Why this debate specifically concerns the 2 localizations?

1. **Specific complications and functional troubles related to radical surgery**
2. **Availability of conservative procedures**
Rectal endometriosis
Radical or conservative rectal surgery?

Objective answer requires:

1. **DIRECT COMPARISON** of two approaches
   (retrospective case-series cannot answer the question but only provide an hypothesis)

2. **MAIN OUTCOMES**: related to the rectum:
   1. Rectal function
   2. Rectal recurrences
   (improvement of dysmenorrhea, dyspareunia, SF36 are not strong arguments supporting RECTAL surgery, but rather overall ENDOMETRIOSIS surgery)

3. **RANDOMIZED TRIAL**: ENDORE trial (inclusions: 2011/13; follow up 2013/15)
Personal clinical practice (June 2006-May 2015)

345 rectal nodules ≥ muscular layer

136 colorectal resections 39.4%

146 shavings 42.3%

63 disc excisions 18.3%
Personal clinical practice (June 2006-May 2015)

345 rectal nodules ≥ muscular layer

136 colorectal resections 39.4%

146 shavings 42.3%

63 disc excisions 18.3%

61% conservative surgery
A. Conservative surgical approach

Conservative surgery = philosophy opposed to that of the Radical approach

Aim: To avoid rectal resection, by **selective excision** of macroscopic digestive lesions + continuous hormonal therapy to **prevent symptoms/lesions recurrences**

Shaving or full thickness disc excision
B. Available data regarding postoperative digestive function support conservative over radical surgery
B.1. Radical surgery does not solve all digestive complaints

Incomplete relief of several preoperative symptoms:

- Constipation
- Tenesmus
- Dyschezia

Postoperative constipation:
- Without nerve sparing: 50%
- With nerve sparing: 20%

Benbara et al, Gynecol Obstet Fertil 2008
Dubernard et al, Hum Reprod 2006
B.2. Digestive function seems being worse after radical rectal surgery

Conservative approach (shaving/disc excision):
- Better **KESS and Bristol scores** = lower risk of **postoperative constipation**
- Better **GIQLI score** = improvement of **digestive well being**

Attempting **rectal conservation** may be associated with **less unfavorable functional digestive outcomes**
B.3. Would the radical rectal surgery result in more new digestive complaints?

- Comparison colorectal resection vs. conservative approach
  
  Roman, Milles et al, SEUD 2015

- Follow up: 80 ± 19 months (range 60-116)

<table>
<thead>
<tr>
<th></th>
<th>Conservative N=51 (%)</th>
<th>Radical N=24 (%)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrointestinal QoL index (total value)</td>
<td>101±31.4</td>
<td>83.7±37.7</td>
<td>0.04</td>
</tr>
<tr>
<td>KESS constipation score (normal &lt;7)</td>
<td>10±6</td>
<td>15±8</td>
<td>0.006</td>
</tr>
<tr>
<td>Wexner 1 (gas incontinence)</td>
<td></td>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td>Never</td>
<td>28 (56)</td>
<td>6 (27)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1/month</td>
<td>11 (22)</td>
<td>4 (18)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1/wk</td>
<td>3 (6)</td>
<td>5 (23)</td>
<td></td>
</tr>
<tr>
<td>&gt; 1 wk</td>
<td>4 (8)</td>
<td>3 (14)</td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>4 (8)</td>
<td>4 (18)</td>
<td></td>
</tr>
<tr>
<td>Wexner 3 (solid stools incontinence)</td>
<td></td>
<td></td>
<td>0.025</td>
</tr>
<tr>
<td>Never</td>
<td>48 (96)</td>
<td>17 (77.3)</td>
<td></td>
</tr>
<tr>
<td>&lt;1/month</td>
<td>2 (4)</td>
<td>4 (18.2)</td>
<td></td>
</tr>
<tr>
<td>&gt; 1/wk</td>
<td></td>
<td>1 (4.6)</td>
<td></td>
</tr>
</tbody>
</table>
Postoperative bowel dysfunction

Colorectal resection results in:
1. Rectal denervation: due to the section of the mesocolon
2. Stenosis of the colorectal anastomosis: up to 15-19%
   - Maytham et al, Colorectal Dis 2010
   - Roman et al, ENDORE randomized trial, SEUD 2015
3. Removal of rectal reservoir
4. Risk for faecal incontinence and urgency - high intracolic pressures
   - Herbst et al, GUT 1997
   - Bridoux et al, Colorectal Dis 2012

Avoiding postoperative rectal dysfunction = challenging, because multifactorial

- Debeir, Roman et al, Hum Reprod 2011
Shaving / Disc excision

- Disc excision: using transanal staplers but **no circular rectal suture**
- Mesorectum sectioning not required: **no denervation**
- No reduction of **rectal overall length**

C. Arguments supporting systematic colorectal resection: inconsistent evidence

1. Women not benefiting from radical resection are at higher risk of recurrences.
2. The conservation of the rectum is impossible in nodules responsible for rectal stenosis.
3. The conservation of the rectum is impossible in multiple nodules involving the colon and rectum.
4. The conservation of the rectum is impossible in nodules involving more than 50% of the rectal circumference.
**C1: Higher risk of recurrences in the absence of radical surgery**

This claim is not substantiated: **lack of comparative studies**

Although the removing of endometriotic implants may not be complete with shaving or disc excision (40%)...  

Remorgida et al, Hum Reprod 2006  
Roman et al, SEUD meeting 2015

...radical surgery provides specimen with non in sano limits in 15% of cases

Nirgianakis, Mueller et al, AOGS 2014  
Hennetier, Roman et al, SEUD meeting 2015

Does un excess of 25% incomplete removal of microscopic implants justify performing 100% colorectal resections?  
4 colorectal resection to treat 1 non in sano excision
Argument 1. Higher risk of recurrences (cont.)

Large retrospective review:
Colorectal resection vs. mixed surgeries:

- 812 vs. 865 women, provided from 49 retrospective series
- **Recurrences 2.5% vs. 5.7%**

...3% excess of recurrences risk...?

Is it clinically relevant ???

33 colorectal resections to avoid 1 recurrence in a benign disease

Rectal recurrences in our experience in 75 patients whose follow up 5-10 years:

- 8% in conservative approach vs. 0% in radical approach groups (P=0.30)
- But second colorectal resection 4% vs. 0%

25 colorectal resections to avoid 1 second colorectal resection

No definitive conclusion can be drawn
C2. Conservative surgery : impossible in rectal stenosis

ENDORE randomized trial:
- rectal stenosis in 73%
- 93% of feasibility of conservative surgery

Roman H. Colorectal Disease 2014
C 3. Conservative surgery is impossible in multiple colorectal nodules

Case study: 32 year-old nullipara, 3 digestive nodules:

1. Low rectum, Ø 42mm, distance from 4 to 8 cm from the anus, infiltrating submucosa, responsible for rectal stenosis and right ureteral involvement
2. Sigmoid colon, Ø 15mm, height 16 cm, indentation
3. Transverse colon, Ø 18 mm, indentation

Surgical options

Radical low coloproctectomy of 20 cm sigmoid colon + rectum? + segmental resection of transverse colon?

Conservative approach = selective disc excisions
C 3. Conservative surgery is impossible in multiple colorectal nodules

Enrolled in ENDORE randomized trial (N°5)
Laparoscopic-transanal-transvaginal approach

**Conservative arm** = 3 disc excisions + transvers colostoma:

1. Low rectum: **shaving + disc excision** of the nodule (The Rouen technique)
2. Sigmoid colon: **disc excision** of the nodule
3. Transverse colon: **disc excision + stoma**
   + **right cysto-ureterostomy**, Plasma ablation of ovarian endometriomas, large vaginal excision, omentoplasty

**Follow up**

- 48 months: **normal rectal function** + 1 delivery
E. Evidence based data.
Preliminary results of ENDORE randomized trial:
feasibility of conservative surgery
Aim: To determine whether performing colorectal resection in rectal endometriosis is responsible for a higher rate of postoperative digestive and urinary dysfunction when compared to rectal nodules excision: shaving or disc excision.

Inclusion criteria:
• ≥1 nodule infiltrating the rectum
• Length of the involvement ≥20 mm
• Distance ≤15 cm from the anus
• Depth ≥ muscular layer
• ≤50% of rectal circumference

Population:
27 patients in Conservative surgery arm
33 patients in Colorectal resection arm
Results: Conservative arm feasibility

- 2 conversions (7.4%) from arm A to arm B: large nodules of the high rectum
- 10 Shaving - more depth in young women, less depth in women undergoing BSO/definitive medical treatment
- 8 Shaving + transanal disc excision using Contour Transtar (Rouen technique)
- 6 Shaving + transanal disc excision using EEA 31

Roman H. Fertil Steril 2013
### Complications Clavien 3 related to rectal surgery only

Direct comparison between the two approaches Fistulae, stenosis, abscess, rectorrhage

<table>
<thead>
<tr>
<th>Number of complications/patient</th>
<th>Rectal nodule excision N=25 (%)</th>
<th>Colorectal resection N=35 (%) Arm A+B</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>No complications</td>
<td>24 (96)</td>
<td>29 (83)*</td>
<td>0.22</td>
</tr>
<tr>
<td>Complications</td>
<td>1 (4)</td>
<td>6 (17)*</td>
<td></td>
</tr>
</tbody>
</table>

* One patient with conversion from the Arm A in each subgroup
ENDORE full report

Last follow up visit: September 2015
Data analysis: Oct 2015-March 2016

ENDORE FINAL REPORT (main outcome “digestive function”): March 2016

Ancillary study: follow up extended up to 10 years
“Is there a difference between colorectal recurrences risks?”
Ancillary study full report: 2023
Ureteral endometriosis
Personal clinical practice (June 2006-May 2015)

35 nodules responsible for ureteral stenosis

7 resections
20%

28 ureterolysis
80%

1 ureteral fistula

1 ureteral fistula
Personal clinical practice (June 2006-May 2015)

35 nodules responsible for ureteral stenosis

7 resections 20%

28 ureterolysis 80%

1 ureteral fistula

80% conservative surgery
Ureteral resection: should it be systematic? Intrinsic or extrinsic endometriosis?

Rate of ureterolysis:
- 80% in our series
- 89% (16/18) in 18 women with hydronephrosis managed by Donnez et al, 2002

Intrinsic endometriosis: up to 50% of ureteral specimen following resections:
- 43% (9/21) Mereu et al, Fertil Steril 2010
- 40% (2/5) Rozsnyai, Roman et al, JSLS 2011
- 52% (11/21) Chapron et al, Fertil Steril 2010

➔ In more than 1 patient out of 2, the resection would not have been necessary
Complications rate

Complications of ureteral resection + reimplantation:
- Ureteral reflux
- Ureteral stenosis: up to 16%
- Anastomotic leakage or fistula:
- Bladder denervation: ?

• **Recurrences of ureteral lesions?** - no long-term data with and without amenorrhea

• Postoperative ureteral recurrence leading to kidney atrophy: **failure** of postoperative follow up
F. Conclusions

- There is **no solid evidence** supporting the systematic choice of radical instead conservative surgery of rectal and ureteral DIE
- **No data unequivocally shows an increase in recurrence rate** following conservative surgery, with or without medical treatment
- Rectal **conservative surgery is feasible** in a majority of cases
- **Delayed rectal functional outcomes** might be worse when colorectal resection is performed
- **Immediate complications** might be less frequent when rectal conservative surgery is employed
- **Rigorous long term follow up** is justified by the uncertain risk of recurrences and functional outcomes
Thank you.
THANK YOU

• **OBGYN department**: Professor Loïc Marpeau, surgical and anesthesia teams

• **SURGERY department**: Professor Jean Jacques TUECH, Doctors Emmanuel HUET, Valerie BRIDOUX, Haitham KHALIL, Rachid CHATI, Julien COGET

• **ROUENDOMETRIOSE** multidisciplinary team: radiologists, gastroenterologists, urologists...

• Miss Amélie Breant and “CIREndo” endometriosis cohort team

OUR WONDERFUL PATIENTS!
Occult microscopic endometriosis (OME)

Khan et al, Hum Reprod 2014

15% of OME on the limits of colorectal resection specimen

Nirgianakis, Mueller et al, AOGS 2014
Hennetier, Roman et al, SEUD meeting 2015

Could colorectal resection always be efficient on OME?

Roman H. Letter Hum Reprod 2014

3mm consecutive sections:

- 1-5mm
- 0.5-1mm
- 0.1-0.5mm
D. Adjuvant medical treatment: could it allow a more conservative surgery?

Continuous hormonal treatment = prolonged amenorrhea

3 goals:
1. Decrease of deep nodules size: by 15 to 66%
   Fedele et al, Am J Obstet Gynecol 200
   Darwish, Roman et al, in review 2015

2. Prevention of recurrences: 3 fold decrease in ovarian localizations
   Seracchioli et al, Fertil Steril 2010

3. Relief of cyclic digestive symptoms and endometriosis pain
   Vercellini et al, Hum Reprod 2012
   Angioni et al, Arch Gynecol Obstet 2015
   Ferrero et al, Hum Reprod 2010
   Roman et al, in review 2015

Does adjuvant postoperative amenorrhea improve the results of conservative surgery?
Further evidence-based data

Upcoming randomized trial MESURE
MEDical versus SURgical treatments of Rectal Endometriosis

- Rectal endometriosis in women over 35 yrs, without pregnancy intention
- **Arm A:** GnRHa followed by continuous progestins (curative)
- **Arm B:** Surgery followed by continuous progestins (prophylactic)
- **Main outcome:** Digestive function 24 months after
- **Hypothesis:** Rectal function is better when rectum is not operated
- **N=78 women**
- **Public funding:** 425,000 €

- **Goals:**
  - Assessing the efficiency of medical treatment
  - Arguments for most conservative rectal surgery, providing adjuvant medical treatment is administered
“The surgeons who had so painstakingly created the world of radical surgery had absolutely no incentive to revolutionize it.”

Siddhartha Mukherjee, The Emperor of All Maladies

This statement concerns Halsted’s school impact on breast cancer surgery

It only depends on us that deep endometriosis surgery does not follow the same path
“The surgeons who had so painstakingly created the world of radical surgery had no incentive to change it.”

Siddhartha Mukherjee

This statement concerns Halsted’s school impact on breast cancer surgery

It only depends on us that deep endometriosis surgery does not follow the same path