Management of Rectal Prolapse Syndromes

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The pelvic diaphragm consists of myofascial structures supported by osteo-ligamentous attachments.

- It is pierced by urogenital and anorectal hiatures.
- The levator ani is tonically contracted to support the viscera during straining.
Mechanism of pelvic support

- It is not just the muscles, tendons, and ligaments that provide support
- The quality of the connective tissue fascia that envelops and suspend visceral organs
- Cross-linkage between fibrin and elastin developing many types of collagen
- Collagen type I provides tensile strength while Collagen type III provides more elastic support
Factors affecting pelvic support

- Pregnancy-related hormonal changes result in decreased collagen levels with subsequent softening of connective tissue

- Vaginal delivery can tear the fascia, avulse the levator tendons, and can cause a stretch neuropathy of the pudendal nerve
Factors affecting pelvic support

- Aging can disrupt the tissue matrix and decrease the muscular hypertrophy in response to stress.

- Nulliparous women and men (20% of prolapses): have genetically poor quality of the connective tissue + habitual chronic straining.

- Histologically the ligaments of prolapsed tissue have lower concentration of collagen I : III ratio, and greater concentration of lytic proteases.
Spectrum of Rectal Prolapse

Umbrella of full-thickness rectal prolapse:
- External rectal prolapse (complete/overt)
- Internal prolapse (internal intussusception/occult)
- Complex prolapses: + rectocele, enterocele, sigmoidocele, cystocele, uterine/vaginal prolapse (colpocele)
- Recurrent rectal prolapse

Associated anatomical & functional disorders: Constipation/OD, incontinence, perineal descent / SRUS
Spectrum of pelvic organs descent

- **Anterior compartment descent/prolapse**: cystocele, urethrocele
- **Middle compartment descent/prolapse**: uterine/vaginal procidentia, colpocele, enterocoele, sigmoidocele
- **Posterior compartment descent/prolapse**: recto-rectal / recto-anal intussusception
- **Perineal descent syndromes**: combind prolapses, SRUS
Pathophysiology

- Genital prolapse (uterine/vaginal) is almost always associated with internal or external rectal prolapse & rectocele

- While rectal prolapse may be 1ry or 2ry to genital prolapse

- Secondary rectal prolapse may be partially or completely reducible by reduction of the genital prolapse

- The ligaments and supporting structures of the pelvic organs consent a rectal prolapse without genital prolapse but never vise versa
Pathophysiology

- 1stry rectal prolapse starts as intussusception ==> imp def ==> excess straining ==> perineal descent

- Progressive mechanical stretching of the pelvic floor ms & internal and external sphincters ==> Anatomic defect + functional deficit

- Association of uterine prolapse: 10-25% and cystocele 35%

- Associated constipation/OD: 15-65%

- Associated Fecal incontinence: 30-80%

- Traumatic proctitis and rectal bleeding / SRUS
• Female: Male = 6 : 1

• Female patients (90% of cases):

  Two peaks
  • 20 Y: congenital weakness of rectal support and /or chronic straining disorder (primary rectal prolapse)
  • 40-70 Y: weak denervated pelvic floor (secondary rectal prolapse)

combined prolapses of middle and anterior pelvic compartments
Pathophysiology

Constant anatomical findings in complete rectal prolapse

- intussusception
- Deep pouch of Douglass
- Absent fixation of rectum
- Elongation of the sub-peritoneal rectum & redundant sigmoid
- Weakness of pelvic floor and anal sphincter muscles
Incontinence in rectal prolapse (multifactorial)

- Rectoanal inhibition
- Mechanical stretching of sphincter complex
- Pudendal neuropathy
- Impaired rectal adaptation to distention
- Impaired rectoanal motility
- The irritated mucosa of the prolapsed rectum constantly secretes mucus, making the patient feel to be chronically wet and incontinent.
Symptomatology

Symptoms

- Asymptomatic
- Tissue protruding from the anus
- A sensation of incomplete evacuation
- Mucus discharge and soiling
- Functional complaints, ranging from incontinence and diarrhea to constipation and OD
**URINARY DYSFUNCTION**
- Lower urinary tract symptoms
- Incontinence
- Voiding difficulties

**VAGINAL DYSFUNCTION**
- Protrusion symptoms
- Sexual dysfunction

**DEFECATORY DYSFUNCTION**
- Incontinence
- Defecatory disorders
Assessment

Three Axes Perineal Evaluation (TAPE)
Perineology

Three Axis Perineal Evaluation (TAPE)

- **Sexual troubles**: Standard (1/2)
- **Dyschezia**: Wexner's score (3/30)
- **Dysuria**: Standard (1/2)
- **Urinary Incontinence**: ICIQ-SF (12/21)
- **Anal Incontinence**: St Mark’s Hospital score (10/24)
- **Prolapse**: Standard (0/2)

Perineodynia: moderate pain
Clinical assessment of perineum
Assessment (workup)

Triple Assessment
- Defecography
- Colon transit time
- Manometry

- Dynamic MRI defecography
- Colonoscopy / Ba enema
- Endoanal U/S
- Balloon expulsion test
- Perineometry
- Pudendal N terminal latency
- EMG
Defecography: straining
Right-sided avulsion injury of the puborectalis muscle insertion

Translabial 3D U/S
Rectal Prolapse: Treatment

Lines of treatment

- Surgical intervention
- Biofeedback physical therapy (in pelvic floor dyssynergia)
- Sacral nerve stimulation (in pudendal nerve neuropathy)
Goal of surgery

- Restore anatomy
- Improve anorectal function
- Avoid recurrence & post-operative functional complications
- Avoid operative mortality / morbidity
Selection of surgical approach

Factors

- Age / associated co-morbidities
- Incontinence (continence scoring)
- Constipation / OD (OD scoring)
- Internal / external prolapse
- 1ry or 2ry rectal prolapse
- Combined prolapses: Uterine prolapse. Rectocele Cystocele Enterocele sigmoidocele
- Redundant hypotonic colon
- Pelvic dyssynergia
- Recurrent prolapse
Surgery for overt rectal prolapse

Abdominal procedures: open, laparoscopic, robotic
- Suture rectopexy
- Resection rectopexy (Frykman-Goldberg procedure)
- Anterior resection (Muir-Mayo clinic)
- Posterior mesh rectopexy
- Ventral mesh rectopexy (D’Hoor)
- Pelvic Organ Prolapse Suspension (POPS)
- Soft-tissue Intraperitoneal Rectopexy (SIR)
Surgery for overt rectal prolapse

Perineal procedure
- Delorme's procedure
- Altemeier rectosigmoidectomy
- Levatorplasty (post-anal repair)

Disadvantages
- Significant recurrence rate
- Anal incontinence (reduced rectal reservoir; plication/resection)
Surgery for occult (internal) rectal prolapse

Perineal approach
- STARR
- Transtar
- Delorme’s procedure

Abdominal approach
- Mesh rectopexy
- Suture rectopexy
- Resection rectopexy (Frykman-Goldberg procedure)
- Anterior resection (Muir-Mayo clinic)
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Recurrence</th>
<th>Morbidity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ant resection</td>
<td>10-29%</td>
<td>15-29%</td>
<td>high recurrence</td>
</tr>
<tr>
<td>Mesh rectopexy</td>
<td>2-10%</td>
<td>3-29%</td>
<td>imp incontin, worsen const</td>
</tr>
<tr>
<td>Resection rectopexy</td>
<td>2-5%</td>
<td>4-23%</td>
<td>imp incontin, imp constip</td>
</tr>
<tr>
<td>Suture rectopexy</td>
<td>10%</td>
<td>3-9%</td>
<td>worsen const</td>
</tr>
<tr>
<td>LVR</td>
<td>2-8%</td>
<td>8%</td>
<td>imp conten, imp constip</td>
</tr>
<tr>
<td>Delorme</td>
<td>5-26%</td>
<td>0-38%</td>
<td>imp incontin, imp constip</td>
</tr>
<tr>
<td>Altemeier</td>
<td>0-50%</td>
<td>0-13%</td>
<td>levatorplasty added</td>
</tr>
</tbody>
</table>
### Perineal procedures

#### Table 7. Results of the Delorme Procedure for Rectal Prolapse

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Design</th>
<th>Mortality, No. (%)</th>
<th>Continence, %</th>
<th>Constipation, %</th>
<th>Recurrence, No. (%)</th>
<th>Follow-up, mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piscatal et al. 1998</td>
<td>32</td>
<td>Retrospective</td>
<td>0</td>
<td>(+)</td>
<td>44 (+)</td>
<td>6 (18)</td>
<td>39</td>
</tr>
<tr>
<td>Leclaux et al. 1995</td>
<td>85</td>
<td>Retrospective</td>
<td>1 (1.2)</td>
<td>45 (+)</td>
<td>100 (+)</td>
<td>11 (14)</td>
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<tr>
<td>Agachan et al. 1997</td>
<td>8</td>
<td>Retrospective</td>
<td>0</td>
<td>(+)</td>
<td>NS</td>
<td>3 (38)</td>
<td>24</td>
</tr>
<tr>
<td>Oliver et al. 1994</td>
<td>41</td>
<td>Retrospective</td>
<td>2 (4.4)</td>
<td>56 (+)</td>
<td>NS</td>
<td>8 (22)</td>
<td>47</td>
</tr>
<tr>
<td>Yakut et al. 1996</td>
<td>27</td>
<td>Retrospective</td>
<td>0</td>
<td>NS</td>
<td>NS</td>
<td>4 (4.2)</td>
<td>38</td>
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<tr>
<td>Kling et al. 1996</td>
<td>6</td>
<td>Retrospective</td>
<td>0</td>
<td>67 (+)</td>
<td>100 (+)</td>
<td>1 (17)</td>
<td>11</td>
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<tr>
<td>Watts and Thompson 1994</td>
<td>101</td>
<td>Retrospective</td>
<td>4 (4)</td>
<td>25 (+)</td>
<td>13 (+)</td>
<td>30 (27)</td>
<td>36</td>
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<td>Semapati et al. 1994</td>
<td>32</td>
<td>NS</td>
<td>0</td>
<td>46 (+)</td>
<td>50 (+)</td>
<td>4 (12.5)</td>
<td>21</td>
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<tr>
<td>Liberman et al. 2000</td>
<td>32</td>
<td>Retrospective</td>
<td>0</td>
<td>22 (+)</td>
<td>88 (+)</td>
<td>0</td>
<td>43</td>
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<tr>
<td>Tobin and Scott 1994</td>
<td>43</td>
<td>Prospective</td>
<td>0</td>
<td>50 (+)</td>
<td>NA</td>
<td>11 (26)</td>
<td>20</td>
</tr>
</tbody>
</table>

#### Table 8. Results of Perineal Rectosigmoidectomy for Rectal Prolapse

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Design</th>
<th>Levatorplasty</th>
<th>Mortality, No. (%)</th>
<th>Continence, %</th>
<th>Constipation, %</th>
<th>Recurrence, No. (%)</th>
<th>Follow-up, mo</th>
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<tbody>
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<td>Takasui et al. 1999</td>
<td>10</td>
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<td>Ramanujam et al. 1994</td>
<td>72</td>
<td>NS</td>
<td>No</td>
<td>0</td>
<td>67 (+)</td>
<td>NS</td>
<td>4 (6)</td>
<td>120</td>
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<tr>
<td>Deen et al. 1994</td>
<td>10</td>
<td>Prospective</td>
<td>No</td>
<td>0</td>
<td>80</td>
<td>NS</td>
<td>1 (10)</td>
<td>18</td>
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<tr>
<td>Watts et al. 1985</td>
<td>33</td>
<td>Retrospective</td>
<td>No</td>
<td>0</td>
<td>6 (+)</td>
<td>NS</td>
<td>0</td>
<td>23</td>
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<tr>
<td>Williams et al. 1992</td>
<td>56</td>
<td>Retrospective</td>
<td>No</td>
<td>0</td>
<td>22 (+)</td>
<td>NS</td>
<td>6 (6)</td>
<td>12</td>
</tr>
<tr>
<td>Johansen et al. 1993</td>
<td>20</td>
<td>NS</td>
<td>No</td>
<td>1 (5)</td>
<td>21 (+)</td>
<td>NS</td>
<td>0</td>
<td>26</td>
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<tr>
<td>Agachan et al. 1997</td>
<td>32</td>
<td>Retrospective</td>
<td>No</td>
<td>0</td>
<td>(+)</td>
<td>NC</td>
<td>4 (13)</td>
<td>30</td>
</tr>
<tr>
<td>Altemeier et al. 1971</td>
<td>106</td>
<td>Retrospective</td>
<td>No</td>
<td>0</td>
<td>91 (+)</td>
<td>NS</td>
<td>3 (3)</td>
<td>228</td>
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<tr>
<td>Kim et al. 1999</td>
<td>163</td>
<td>Retrospective</td>
<td>No</td>
<td>NS</td>
<td>53 (+)</td>
<td>61 (+)</td>
<td>29 (16)</td>
<td>47</td>
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<tr>
<td>Williams et al. 1992</td>
<td>11</td>
<td>Retrospective</td>
<td>Yes</td>
<td>Ns</td>
<td>91 (+)</td>
<td>NS</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Agachan et al. 1997</td>
<td>21</td>
<td>Retrospective</td>
<td>Yes</td>
<td>0</td>
<td>(+)</td>
<td>NC</td>
<td>1 (5)</td>
<td>30</td>
</tr>
<tr>
<td>Prasad et al. 1986</td>
<td>25</td>
<td>NS</td>
<td>Yes</td>
<td>0</td>
<td>88 (+)</td>
<td>NS</td>
<td>0</td>
<td>NS</td>
</tr>
</tbody>
</table>

**Delorme’s**

0-38%

**Altemeier’s**

0-16%
Surgical treatment

- LVR: most popular in Europe
- Lap resection rectopexy: most popular in USA
- Perineal technique: mainly for old/frail patients
- STARR, Transstar: for occult prolapses &/or rectocele: mainly in Europe
- POPS and SIR are relatively new techniques of Longo
Resection rectopexy

- A sigmoid resection can be added to suture rectopexy in patients with constipation.

- Resection rectopexy has become a popular technique in the United States in the past 30 years.

- Recurrence rates are low, ranging from 2% to 5%, and major complication rates range from 0% to 20%.
Lap Ventral Mesh Rectopexy (LVR)

Advantages
- Correct the leading cause (full thickness intussusception)
- Correct concomitant middle pelvic compartment prolapse
- Preserve rectal ampulla
- Avoid autonomic nerve damage
- Mini invasive
Lap Ventral Mesh Rectopexy (LVR)

Indications
- External rectal prolapse
- High grade intussusception with incontinence
- High grade intussusception with rectocele
- High grade intussusception with enterocele
## Treatment of Overt Rectal Prolapse (Longo)

<table>
<thead>
<tr>
<th>Type of Rectal Prolapse</th>
<th>Description</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary rectal prolapse</td>
<td>Rectal prolapse without failure of the muscle layer or elongation of the rectum</td>
<td>SIR</td>
</tr>
<tr>
<td>Primary rectal prolapse</td>
<td>Rectal prolapse with rectal elongation and failure of the muscle layer</td>
<td>Altimeier Anterior resection SIR + ATARR</td>
</tr>
<tr>
<td>Secondary rectal prolapse</td>
<td>Totally reducible by vaginal suspension</td>
<td>POPS</td>
</tr>
<tr>
<td>Secondary rectal prolapse</td>
<td>Partially reducible by vaginal suspension</td>
<td>POPS + STARR</td>
</tr>
</tbody>
</table>
Conclusion

Rectal Prolapse Treatment

- **Transabdominal approach**
  - Lap veteral mesh rectopexy for female patients ± concomitant prolapses
  - Resection rectopexy for constipated patients
  - Mesh rectopexy / suture rectopexy for incontinent patients
  - POPS and SIR are promising new techniques

- **Transanal approach**
  - Altemeier’s procedure for strangulated prolapse
  - Delorme’s procedure ± levatorplasty for old frail constipated patients
  - STARR for small occult (internal) rectal prolapse
  - Transtar for large internal rectal prolapse or recctocele
Conclusion

Biofeedback rehabilitation

- A Course of pelvic floor training may help patients with pelvic floor dysfunction
- Teaches the patient to relax the pelvic floor muscles during straining at defecation
- Trains patients to suppress the non-relaxing activity of pelvic floor & to coordinate relaxation with pushing during defecation
Thanks
Thanks
Thanks