Perineal stapled proctectomy: minimize the cost

By

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Definition

Rectal prolapse or rectal procidentia is the protrusion of the entire thickness of the rectal wall through the anal canal. It was one of the earliest surgical problems recognized by the medical profession.
Etiology and pathophysiology

There are two theories concerning the etiology of rectal procidentia, but these two processes are the same.

(Broden B, Snellman B. Procidentia of the rectum studied with cineradiography: a contribution to the discussion of causative mechanism. Dis Colon Rectum 1968)
Sliding hernia theory

Intussusception theory

Clinical features

- Rectal prolapse initially occurs with defecation and straining
- Tenesmus, bleeding and mucus discharge
- Chronic constipation and straining
- Incontinence (mucus leakage to complete fecal incontinence)

physical examination

- The anus may be patulous and everted bowel with concentric folds
- If the prolapse is not obvious?
- The prolapse may be incarcerated

Investigations

• Anorectal physiological testing.
• Defecography.
• Pudendal nerve terminal motor latency.
• Colonic transit time.
• Dynamic endorectal Ultrasound
• MRI defecography

**Differential diagnosis**

- Hemorrhoids, prolapsing polyps and anorectal neoplasia.

Preoperative considerations

• Rectal prolapse aggravates surgeons because of the proliferation of operative techniques that can be used for treatment.
• To choose the operative procedure for prolapse of the rectum, a surgeon must consider the mortality and morbidity rates

Surgical treatment

What are the goals of the surgical treatment of rectal prolapse?
Surgical treatment

• Prolapse repair may be:
  1. perineal
  2. abdominal

• The abdominal approach may be:
  1. open
  2. laparoscopic
  3. SILS
  4. Robotic
Established techniques

1. Anal encirclement (Thiersch procedure)
   high failure rate.

2. Altemeier procedure
   - perineal rectosigmoidectomy
   - unfit patient
   - incarcerated or strangulated
Altemeier procedure (kasr Alainy case)
Established techniques

3. Delorme operation
Rectal mucosa stripping + rectal muscle plication

4. Posterior rectopexy (Wells technique)
Established techniques

5. Ripstein Procedure..............

6. Perineal Proctectomy, Posterior Rectopexy, and Levator Ani Muscle Repair

7. Stapled transanal rectal resection (STARR)
   Double stapling using PPH stapler
Modern techniques in treatment of rectal prolapse

1. Laparoscopic ventral mesh rectopexy:

It is accepted treatment for external and internal rectal prolapse. It is also effective in managing recurrent obstructed defecation following STARR

2. A novel technique of laparoscopic ventral mesh rectopexy

(Tsunoda, T. Takahashi, T. Ohta and H. Kusanagi, A novel technique of introducing the mesh at the distal dissection while performing laparoscopic ventral rectopexy. Colorectal Disease, 2016: 18, O334–O336.)
3. Single-port laparoscopic mesh rectopexy (SILS)

4. **Laparoscopic Protack rectopexy**

- The growing concern about mesh complications.
- posterior rectal mobilization.
- The rectum is then retracted to reduce the prolapse.
- The peritoneal attachments on either side of the rectum are protacked to the sacral promontory.

(Karim A, Cubas V, McArthur D. PTU-220 Laparoscopic protack rectopexy for the management of full thickness rectal prolapse. Gut} 2015;64. A159-A160)
5. *Robotic ventral mesh rectopexy*

- Feasible and safe.
- Time consuming and expensive.
- The short term results are comparable with those of laparoscopy.

5. **Robotic ventral mesh rectopexy**

<table>
<thead>
<tr>
<th>Patients</th>
<th>Laparoscopic surgery</th>
<th>Robotic surgery</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N = 20$</td>
<td>10</td>
<td>10</td>
<td>0.001</td>
</tr>
<tr>
<td>Median operative time (range)</td>
<td>52.5 (38–103)</td>
<td>94 (78–150)</td>
<td></td>
</tr>
<tr>
<td>Median room occupancy (range)</td>
<td>144.5 (123–169)</td>
<td>254 (222–339)</td>
<td>0.001</td>
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<tr>
<td>Surgical complications</td>
<td>1 (bleeding)</td>
<td>0</td>
<td>$&gt;0.999$</td>
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<tr>
<td>Conversion</td>
<td>0</td>
<td>0</td>
<td>NS</td>
</tr>
<tr>
<td>Reoperation</td>
<td>0</td>
<td>0</td>
<td>NS</td>
</tr>
<tr>
<td>Median LOS (range)</td>
<td>11 (7.75–79.5)</td>
<td>11 (8.15–32.2)</td>
<td>0.967</td>
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<tr>
<td>Median maximal pain day 1 (range)</td>
<td>3.5 (2–7)</td>
<td>2 (0–6)</td>
<td>0.045</td>
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<tr>
<td>Hospital admission</td>
<td>4$^a$</td>
<td>2$^b$</td>
<td>0.628</td>
</tr>
<tr>
<td>Postoperative complications</td>
<td>0</td>
<td>0</td>
<td>NS</td>
</tr>
</tbody>
</table>

*LOS* length of stay, in hours

$^a$ Pain ($n = 3$) and urinary retention ($n = 1$) in the laparoscopic group

$^b$ Pain ($n = 1$) and urinary retention and vomiting ($n = 1$) in the robotic group
5. Robotic ventral mesh rectopexy

<table>
<thead>
<tr>
<th>Items</th>
<th>Laparoscopic surgery</th>
<th>Robotic surgery</th>
<th>$p$</th>
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</thead>
<tbody>
<tr>
<td>Instruments and disposables</td>
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<tr>
<td>Ports</td>
<td>90.00</td>
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<tr>
<td>Endo universal 65®</td>
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<tr>
<td>Protack®</td>
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<tr>
<td>Meshes</td>
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<tr>
<td>Stitches</td>
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<tr>
<td>Intuitive instruments® 0.00</td>
<td>1275.00</td>
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</tr>
<tr>
<td>Miscellaneous</td>
<td>29.00</td>
<td>37.00</td>
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<tr>
<td>Total</td>
<td>630.00</td>
<td>1945.00</td>
<td>&lt;0.001</td>
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<tr>
<td>Median cost of room occupancy (range)</td>
<td>1014 (863–1186)</td>
<td>1783 (1558–2380)</td>
<td>&lt;0.001</td>
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<tr>
<td>Median human resources (range)</td>
<td>1113 (947–1301)</td>
<td>2261 (1976–2314)</td>
<td>&lt;0.001</td>
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<tr>
<td>Robotic maintenance</td>
<td>0.00</td>
<td>2127</td>
<td>&lt;0.001</td>
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<tr>
<td>Admission</td>
<td>972</td>
<td>972</td>
<td>NS</td>
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<tr>
<td>Postoperative complications</td>
<td>0</td>
<td>0</td>
<td>NS</td>
</tr>
<tr>
<td>Total cost per procedure</td>
<td>3729</td>
<td>9088</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*a* Cost for using the operating room at our institution: 7.02 € per minute

*b* Cost for operating room human resources: 7.70 € per minute including one surgeon, one anesthetist, two nurses, one registrar

*c* Not included: amortization, in disfavor of the robot (laparoscopic column around 150,000 €—Da Vinci robot around 2,500,000 €)

*d* Cost for the hospital stay (11 h in both groups). Pain killers and other medications (for example laxatives, enemas, suppositories) costs to treat patients “on demand” were not included
6. Laparoscopic Resection

Rectopexy

• Several studies have compared long-term outcome after laparoscopic or open rectopexy with or without resection

• In those studies, functional outcome and recurrence rates were similar between laparoscopic abdominal surgery and open surgery

7. Pelvic organ prolapse suspension (POPS)
8. **Stapled transanal rectal resection (STARR) (Trans STARR technique)**

9. **Perineal Stapled Prolapse Resection**

[kasr Alainy cases]
Summary

Guidelines for treatment of rectal prolapse include the preoperative evaluation, The nonsurgical and surgical techniques, all these items were graded according to the grades of recommendations.

Summary

Rectal Prolapse

(Evaluating the many Choices)

MDT Management

Evaluation for Functional disorders and TAPE

Behavioral treatment (Urge Defecation & treatment of proctitis)

Success

Perineal Repair

Failure

High Operative Risk, Complete procendia or Good Experience in Perineal approach in absence of Vaginal Prolapse or bladder Neck Prolapse

Abdominal Approach (laparoscopy)

Ventral cysto-vaginal rectopexy for 2 or 3 Axis Prolapse

Resection rectopexy for constipated patients

Mesh Rectopexy for incontinent patients
Conclusion

There are multiple procedures and approaches for surgical treatment of rectal prolapse, and the choice between them is regulated by multiple factors such as internal or external prolapse, bowel function, general condition of the patient and associated comorbidities.
Thank you