Distal TME/APR Technique and Tips
US Perspective

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Very Low Rectal Cancer

• Definition
  – located in the distal tail of the mesorectum
  – close to the levator muscle

• Pre-treatment Evaluation
  – detailed preoperative staging: DRE, ERUS, MRI
  – define the relationship with levator muscle and urogenital organs

• Neoadjuvant therapy
  – Particularly important to reduce the size (and stage) of the tumor

• Evaluation after neoadjuvant therapy
  – Assess relationship of the tumor to the levator muscle and sphincter complex
Low rectal cancer: Facts

- The risk of a positive circumferential margin is higher in lower tumors
- At the level of the anorectal ring, the rectal wall in in contact with the levators
- The rectum is very close to the prostate/vagina
- In distal rectal cancers the circumferential margin is usually the closest resection margin
- Surgeon “blind” about the location of the tumor when placing the TA stapler
### Positive CRM: impact of T stage and tumor distance from the anal verge

<table>
<thead>
<tr>
<th>Stage</th>
<th>&gt;10 cm</th>
<th>9.9-5 cm</th>
<th>&lt;5cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T2</td>
<td>2.9%</td>
<td>4.5%</td>
<td>11.4%</td>
</tr>
<tr>
<td>T3</td>
<td>18.9%</td>
<td>18.5%</td>
<td>35.2%</td>
</tr>
<tr>
<td>T4</td>
<td>46.7%</td>
<td>33.3%</td>
<td>69.2%</td>
</tr>
</tbody>
</table>

Nagtegaal et al, JCO 2005
Surgery for Low Rectal Cancer

- Be liberal with the use of neoadjuvant therapy
- Always TME
- Beyond TME if other organs potentially involved
- Alternatives:
  - Full-thickness local excision
  - LAR with double stapling
  - Intersphincteric resection
  - Abdominoperineal resection
Dissection Using the DaVinci Robot
Dissection Using the DaVinci Robot
Confusing Terminology

• Intersphincteric resection
  – Low anterior resection with double stapling
  – Parks-coloanal
  – True intersphincteric resection

• Coloanal anastomosis
  – All of the above
LAR with Double Stapling Technique
Transanal vs. Intersphincteric
Transanal-Transabdominal Resection

- Anterior tumors that do not infiltrate the prostate or vagina, levator or anal sphincter
- Have responded to neoadjuvant chemoradiation
- You are uncertain about being able to place the TA stapler and ensure adequate margin
- Allows to choose the distal resection margin under direct vision
Transanal – Transabdominal Resection

• Star with the patient prone
• Make a full-thickness circumferential incision in the bowel wall at or slightly above the dentate line – you should see the lower margin of the tumor (leave 1 cm margin)
• Dissect the rectal wall from the surrounding tissues – prostate anteriorly, puborectalis laterally, and levator posteriorly
• Carrie the dissection several centimeter proximally
• Close the lumen of the rectum with interrupted sutures
Transanal Dissection
• Transfer the patient to the lithotomy position
• Do your total mesorectal excision until you reach the dissected area down in the pelvis
• If you do it laparoscopically you could remove the specimen through the anus, and avoid an abdominal incision
• Do your hand-sewn colo-anal anastomosis
• Loop ileostomy
Transanal Removal of Specimen
Coloanal Anastomosis (a la Parks)
Intersphincteric Resection: Oncologic Outcomes

Akasu et al, J Am Coll Surg 2007
Intersphincteric Resection: Functional Outcomes

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>TABLE 3.</strong> Functional Results After ISR</td>
<td></td>
</tr>
<tr>
<td>Stool frequency per 24 h</td>
<td>2.3 ± 1.3</td>
</tr>
<tr>
<td>≤2</td>
<td>50 (60)</td>
</tr>
<tr>
<td>3–5</td>
<td>30 (36)</td>
</tr>
<tr>
<td>&gt;5</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Nocturnal defecation</td>
<td>24 (29)</td>
</tr>
<tr>
<td>Fecal urgency</td>
<td>16 (19)</td>
</tr>
<tr>
<td>Pad wearing</td>
<td>38 (46)</td>
</tr>
<tr>
<td>Intestinal transit regulators</td>
<td>22 (26.5)</td>
</tr>
<tr>
<td>Feces-flatus discrimination</td>
<td>21 (25.3)</td>
</tr>
<tr>
<td>Stool fragmentation</td>
<td>40 (41)</td>
</tr>
<tr>
<td>Low fiber diet</td>
<td>30 (36)</td>
</tr>
</tbody>
</table>

Values inside parentheses indicate percentages.

APR: Tumors Infiltrating the Levator or the Sphincter Before Neoadjuvant Therapy
Low Tumor Infiltrating the Levators
Cylindrical APR
Prone Position for the Transanal Dissection and APR
Abdominoperineal Excision in the Prone Position

Exposure

Assistance
Abdominoperineal Excision in the Prone Position
Cylindrical APR

From Marr et al, Ann Surg 242, 2005
Cylindrical APR: Positive CRM and Surgical Perforation

- CRM Positive: P = .013
- Surgical Perforation: P = .026

Circumferential Tumor Location

Lee et al, DCR 2005
Anterior Location: Worse Survival in Males

Females

Males

Lee et al, DCR 2005
# Tumor Location: Impact on CRM and Survival

<table>
<thead>
<tr>
<th>Location</th>
<th>Positive CRM</th>
<th>Survival (RR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior</td>
<td>44%</td>
<td>1.0</td>
</tr>
<tr>
<td>Lateral</td>
<td>21%</td>
<td>0.81</td>
</tr>
<tr>
<td>Posterior</td>
<td>23%</td>
<td>0.88</td>
</tr>
<tr>
<td>Circular</td>
<td>17%</td>
<td>0.63</td>
</tr>
<tr>
<td>Unspecified</td>
<td>17%</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Anterior Distal Rectal Cancer

- Mesorectum thinner in the front
- Prognosis worse in anterior tumors
- Stay anterior to Denonvillier’s
- Consider extended resection if fat plane not seen
- Males less likely to have an “extended” resection
Summary

• Distal rectal cancer represents a surgical challenge

• Treatment requires expertise and judgment
  – Preoperative tumor staging
  – Assessment of anorectal function
  – Use of neoadjuvant therapy
  – Selection of surgical procedure
  – Precise surgical technique