Transanal Minimally Invasive Surgery (TAMIS)

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Disclosures

- None
Goals & Objectives

- Review patient selection, optimal setup and common pitfalls encountered in TAMIS
Why local excision?
Why TAMIS?

**TEM/TAMIS**
- ~15cm from anal verge
- Larger lesions
- Increased size/circumference
- Intraperitoneal?

**Transanal Excision**
- Within 8cm of anal verge
- At or below distal valve
- <40% circumference
- <3cm size

Pathologies / patient selection

- Benign polyp
- GIST
  - Size < 5cm\(^1\)
- Carcinoid\(^2\)
  - Size < 2cm, no muscularis invasion, low grade
- Selected T1 rectal adenocarcinoma

2. Byrne RH. Clin Colon Rectal Surg. 2018
Local excision for rectal cancer

- **Selected T1 rectal adenocarcinoma**

  - Positive margin
  - LVI
  - Poorly differentiated
  - sm3 invasion

*Tumor budding, sm2*

Preoperative workup

- Document continence (*all anorectal procedures*)
- ALWAYS do your own DRE, proctoscopy, flexible sigmoidoscopy
- Imaging ?

### TABLE 3: Diagnostic characteristics of TRUS and MRI in the whole cohort

<table>
<thead>
<tr>
<th>Variable</th>
<th>Benign pathology</th>
<th>Malignant pathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUS, N = 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imaging benign</td>
<td>202 (89%, 95%)</td>
<td>26 (11%, 70%)</td>
</tr>
<tr>
<td>Imaging malignant</td>
<td>11 (50%, 5%)</td>
<td>11 (50%, 30%)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>95%</td>
<td>Specificity = 30%</td>
</tr>
<tr>
<td>MRI, N = 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imaging benign</td>
<td>6 (100%, 38%)</td>
<td>0 (0%, 0%)</td>
</tr>
<tr>
<td>Imaging malignant</td>
<td>10 (56%, 62%)</td>
<td>8 (44%, 100%)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>38%</td>
<td>Specificity = 100%</td>
</tr>
</tbody>
</table>

The values in parentheses report the row and column percentages. TRUS = transrectal ultrasound.
Access platform (TAMIS)

- Length
  - 4cm, 5.5cm, 9cm

- Insufflation stabilization bag
  - If no Airseal

www.appliedmedical.com
Insufflation (Airseal)

- 8mm bariatric length (120mm)
- Smoke evacuation
- Stable pneumorectum
Access platform (TEM)

Figure 1. Surgical instruments. TEO - Karl Storz®.
Prep & positioning

- Bowel prep
- Prophylactic IV abx
- General anesthesia
- Position with lesion “down”
Resection

- Needle tip cautery to demarcate boundaries
- Initiate full thickness dissection (beware anterior!)
- Energy device to facilitate dissection
Specimen

- Orient specimen for pathologist
  - Cork or foam needle tray
  - Fine gauge hypodermic needles
# Defect closure

## Outcomes of Closed Versus Open Defects After Local Excision of Rectal Neoplasms: A Multi-institutional Matched Analysis

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Matthew R. Albert, M.D.¹ · Sam B. Atallah, M.D.¹ · Iain A. Hunter, M.D.²  
James Hill M.D.³ · John R.T. Monson, M.D.¹

## TABLE 3. Postoperative outcomes of unmatched and matched of open versus closed defects in patients undergoing full-thickness local excision

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Unmatched cohort</th>
<th>Matched cohort</th>
<th>p</th>
<th>Unmatched cohort</th>
<th>Matched cohort</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open defect</td>
<td>Closed defect</td>
<td></td>
<td>Open defect</td>
<td>Closed defect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n=114</td>
<td>n=479</td>
<td></td>
<td>n=110</td>
<td>n=110</td>
<td></td>
</tr>
<tr>
<td>Mean length of stay, days (SD)</td>
<td>2.3 (4.6)</td>
<td>1.3 (1.8)</td>
<td>&lt;0.001</td>
<td>2.4 (4.6)</td>
<td>1.3 (1.6)</td>
<td>0.020</td>
</tr>
<tr>
<td>Readmissions, n (%)</td>
<td>3 (3)</td>
<td>10 (2)</td>
<td>0.722</td>
<td>3 (3)</td>
<td>1 (1)</td>
<td>0.313</td>
</tr>
<tr>
<td>Incidence of postoperative complications, n (%)a</td>
<td>18 (16)</td>
<td>39 (8)</td>
<td>0.013</td>
<td>17 (15)</td>
<td>13 (12)</td>
<td>0.432</td>
</tr>
<tr>
<td>Local infection</td>
<td>3 (3)</td>
<td>12 (3)</td>
<td>0.938</td>
<td>3 (3)</td>
<td>5 (5)</td>
<td>0.471</td>
</tr>
<tr>
<td>Bleeding</td>
<td>10 (9)</td>
<td>10 (2)</td>
<td>&lt;0.001</td>
<td>10 (9)</td>
<td>3 (3)</td>
<td>0.045</td>
</tr>
<tr>
<td>Urinary retention</td>
<td>7 (6)</td>
<td>13 (3)</td>
<td>0.069</td>
<td>6 (5)</td>
<td>4 (4)</td>
<td>0.517</td>
</tr>
<tr>
<td>Other complications</td>
<td>3 (4)</td>
<td>9 (2)</td>
<td>0.608</td>
<td>3 (3)</td>
<td>3 (3)</td>
<td>1.000</td>
</tr>
<tr>
<td>Reoperation</td>
<td>2 (2)</td>
<td>4 (1)</td>
<td>0.378</td>
<td>2 (2)</td>
<td>3 (3)</td>
<td>0.651</td>
</tr>
<tr>
<td>Total number of complications, n</td>
<td>28</td>
<td>57</td>
<td>0.002</td>
<td>27</td>
<td>21</td>
<td>0.431</td>
</tr>
<tr>
<td>Clavien I</td>
<td>14</td>
<td>30</td>
<td>0.029</td>
<td>13</td>
<td>13</td>
<td>1.000</td>
</tr>
<tr>
<td>Clavien II</td>
<td>12</td>
<td>23</td>
<td>0.069</td>
<td>12</td>
<td>5</td>
<td>0.292</td>
</tr>
<tr>
<td>Clavien III+</td>
<td>2</td>
<td>4</td>
<td>0.965</td>
<td>2</td>
<td>3</td>
<td>0.997</td>
</tr>
</tbody>
</table>

*Incidence of postoperative complications, and not total number of complications (patients could have experienced more than 1 complication).*
Postoperative care

- Ambulatory procedure
- Pneumoretroperitoneum, pneumomediastinum, subcutaneous emphysema
Complications & Results

- **Mortality 0.3-0.6%**
- **Morbidity 5-25%**
  - Urinary retention (11%)
  - Bleeding (<5%)
  - Infection (<5%)
  - Incontinence (self-limited)

- **Oncologic results for T1N0 (vs. radical resection)**
  - Local recurrence: 12.5% vs. 6.9% (p<0.01)
  - 5 year DSS: 93.2% vs. 97.2% (p<0.01)
  - 5 year OSS: 77.4% vs. 81.7% (p=0.09)

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Conclusions

- Indicated for local excision of rectal polyps and *highly selected* rectal cancers
  - Favorable T1 only

- TEM/TAMIS safely extend the application of transanal excision
  - Faster recovery and decreased morbidity vs. radical resection

- Technically demanding
Thank you!

- Questions?
Q & A

Which of the following lesions is appropriate for TAMIS resection?

a. 1.5cm rectal adenocarcinoma invading into muscularis propria at 5cm from anal verge
b. 6cm GIST invading submucosa at 3cm from anal verge
c. 3cm tubular adenoma occupying 25% circumference at 17cm from anal verge
d. 6cm tubular adenoma occupying 40% circumference at 10cm from anal verge
Video

- https://www.websurg.com/doi/vd01en5214/