Rectal Cancer & Transanal Excision: Quandaries and Quagmires

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St. Paul’s Hospital and UBC
SON Fall Update 2015
Disclosures

• No relevant disclosures

• No financial interests in any products being discussed in this presentation
  – No honoraria
  – No research grants
  – No speaking engagements
  – No industry donation of equipment
What will we cover?

• How did we get to where we are?
• Techniques (brief)
• Where do these newer techniques fit in rectal cancer management?
  – Simple excision of a favourable T1 cancer and beyond
• What do the guidelines say?
• Followup after TEM resection of rectal cancer
• TEM in BC
• The Future
• Not an exhaustive review
Conventional transanal excision
Difficulties with TAE

- Poor visibility
- Inconsistent deep and lateral margins
- Imprecise dissection
- High recurrence rate
  - Adenomas up to 34%
  - Adenocarcinoma up to 50%
- Limited lesion size
- Limited height
A BRIEF HISTORY OF TIME
FROM THE BIG BANG TO BLACK HOLES
Beginnings of TEM

• Gerhard Buess
• adapted a gastroscope for transanal video-assisted resection 1981
• Introduced TEM apparatus 1983
• Trials 1983-1989
• 25 years, 100 sites worldwide
• +5 years, +100 sites
Transanal endoscopic surgery

Appropriate instruments

Rectoscope Tubes

Transanal access port

Appropriate insufflation

BC Cancer Agency
Care & Research
An agency of the Provincial Health Services Authority
Transanal endoscopic surgery
TEO Setup (Karl Storz)
WHERE DO THESE TECHNIQUES FIT IN RECTAL CANCER MANAGEMENT?
A BRIEF HISTORY OF TIME
FROM THE BIG BANG TO BLACK HOLES
Adenocarcinomas

• Gold standard = TME radical resection
  – <3% local recurrence for T1
• Potentially massive benefits of TEM
  – Avoidance permanent or temporary stoma
  – Avoidance of bladder, bowel, sexual dysfunction
  – No hospital stay
  – Lower complication rate
  – Better alternative in patients with major comorbidity? Oncologic risk vs. major surgery risk
Faith Versus Facts

WE HAVE TWO OPTIONS. EITHER AN EVIDENCE-BASED TREATMENT OR AN EXCITING, RISKY ALTERNATIVE.
What do we want to know?

• Adenocarcinoma
  – Better than conventional TAE? - **YES**
  – *Compared to gold standard TME for T1?*
  – Are all T1’s equal? subset more appropriate for TEM?
  – T1 vs T2+
  – Does neo/adjuvant therapy make it just as good as radical resection?
  – What about downstaged tumours post neoadj CRTx?
  – How good is salvage TME after TEM with unexpected bad cancers?
  – Can TEM techniques be **better** than open or MIS?
Rectal Cancer Management 2015

CAUTION
YOU’RE DOING IT WRONG

THE UNIVERSITY OF BRITISH COLUMBIA

ST. PAUL'S HOSPITAL
PROVIDENCE HEALTH CARE
CASES
CASE 1
Case 1

- 65M FIT+ ordered by new GP
- BRBPR 5 yrs ago – hemorrhoids Dx – banded, no scope
- Currently asymptomatic
- Otherwise healthy
- Scope – 3 cm sessile polyp posterior rectal wall 10cm from dentate, tubulovillous adenoma on Bx
Case 1

- TEM resection
  - Full thickness, Primary closure
  - DC home POD 0
- Pathology
  - T1 cancer
  - Margins negative, well differentiated, LVI-
- CT
  - No metastatic disease
Case 1

- Is TEM oncologically definitive therapy?
  - What is the likelihood of lymph node mets?
  - What is the recurrence risk?
  - What are the patterns of recurrence?
  - How to followup if the answer is YES?
TEM for T1 Cancer

• Most series show acceptable local recurrence and overall survival

• What do the TEM vs. TME comparative studies show for T1 cancer?
Comparison of Transanal Endoscopic Microsurgery and Total Mesorectal Excision in the Treatment of T1 Rectal Cancer: A Meta-Analysis


PLOS ONE | DOI:10.1371/journal.pone.0141427  October 27, 2015

Heterogeneity: Chi² = 2.08, df = 4 (P = 0.72); I² = 0%
Test for overall effect: Z = 0.69 (P = 0.49)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>TEM Events</th>
<th>Total</th>
<th>TEM Events</th>
<th>Total</th>
<th>Weight</th>
<th>Odds Ratio M-H. Fixed, 95% CI</th>
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<td>60</td>
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<td>58</td>
<td>75</td>
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<td>52</td>
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<td>17</td>
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<td>9.55 [0.37, 245.70]</td>
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<tr>
<td>Palma 2009</td>
<td>30</td>
<td>34</td>
<td>14</td>
<td>17</td>
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<tr>
<td>Ptok 2007</td>
<td>29</td>
<td>35</td>
<td>328</td>
<td>359</td>
<td>26.4%</td>
<td>0.46 [0.18, 1.18]</td>
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<tr>
<td>Winde 1996</td>
<td>23</td>
<td>24</td>
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<td>26</td>
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<td>0.92 [0.05, 15.58]</td>
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<tr>
<td>Total (95% CI)</td>
<td>283</td>
<td>539</td>
<td>100.0%</td>
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<td>0.87 [0.55, 1.38]</td>
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Comparison of Transanal Endoscopic Microsurgery and Total Mesorectal Excision in the Treatment of T1 Rectal Cancer: A Meta-Analysis


Distant Recurrence
Comparison of Transanal Endoscopic Microsurgery and Total Mesorectal Excision in the Treatment of T1 Rectal Cancer: A Meta-Analysis


<table>
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<th>Study or Subgroup</th>
<th>TEM Events</th>
<th>TEM Total</th>
<th>TME Events</th>
<th>TME Total</th>
<th>Weight</th>
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<tbody>
<tr>
<td>De Graaf 2009</td>
<td>15</td>
<td>80</td>
<td>0</td>
<td>75</td>
<td>6.4%</td>
<td>35.73 [2.10, 608.87]</td>
</tr>
<tr>
<td>Heintz 1998</td>
<td>6</td>
<td>58</td>
<td>3</td>
<td>45</td>
<td>46.4%</td>
<td>1.62 [0.38, 6.85]</td>
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<td>Langer 2003</td>
<td>2</td>
<td>20</td>
<td>0</td>
<td>18</td>
<td>7.1%</td>
<td>5.00 [0.22, 111.43]</td>
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<td>Lee 2003</td>
<td>2</td>
<td>52</td>
<td>0</td>
<td>17</td>
<td>10.9%</td>
<td>1.73 [0.08, 37.88]</td>
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<tr>
<td>Ptok 2007</td>
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<td>35</td>
<td>5</td>
<td>359</td>
<td>12.8%</td>
<td>4.29 [0.80, 22.98]</td>
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<td>24</td>
<td>0</td>
<td>26</td>
<td>6.9%</td>
<td>3.38 [0.13, 87.11]</td>
</tr>
</tbody>
</table>

Total (95% CI) 303 | 557 100.0% | 4.62 [2.03, 10.53] |
Total events 30 / 8

Heterogeneity: Chi² = 4.58, df = 6 (P = 0.60); I² = 0%
Test for overall effect: Z = 3.64 (P = 0.0003)

Overall Survival
Comparison of Transanal Endoscopic Microsurgery and Total Mesorectal Excision in the Treatment of T1 Rectal Cancer: A Meta-Analysis


<table>
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<tr>
<th>Study or Subgroup</th>
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<th>TME Total</th>
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<td>26</td>
<td>6.9%</td>
<td>3.38 [0.13, 87.11]</td>
<td></td>
</tr>
</tbody>
</table>

Total (95% CI)     | 203        | 557       | 400.0%     | 1.62 [0.93, 40.53]   |

Disease-free Survival
Selecting the ‘right’ T1 patients?

• What are ‘low risk’ T1 patients?
  – Lowest risk of recurring and lymph node metastases

• Low/moderate grade
• No lymphovascular invasion
• Size?
• Sm1 vs. sm2/3?
Sm1 vs. Sm 2/3

Risk of Lymph Node Metastases

- Sm1: 1-3%
- Sm2: 8-15%
- Sm3: 20-25%
How to stratify T1’s?


S. P. Bach¹, J. Hill², J. R. T. Monson³, J. N. L. Simson⁴, L. Lane⁵, A. Merrie⁷, B. Warren⁶ and N. J. McC. Mortensen⁵, on behalf of the Association of Coloproctology of Great Britain and Ireland Transanal Endoscopic Microsurgery (TEM) Collaboration

![Graph showing local recurrence-free survival over time after surgery for T1 grades.](image)

- **Favourable T1** (pT1 G1–2 R0 LyV0)
- **Unfavourable T1** (remainder)

Time after surgery (months)
How to stratify T1’s?


S. P. Bach¹, J. Hill², J. R. T. Monson³, J. N. L. Simson⁴, L. Lane⁵, A. Merrie⁶, B. Warren⁶ and N. J. McC. Mortensen⁵, on behalf of the Association of Coloproctology of Great Britain and Ireland Transanal Endoscopic Microsurgery (TEM) Collaboration

<table>
<thead>
<tr>
<th>Depth of invasion</th>
<th>Lymphatic invasion</th>
<th>Maximum tumour diameter (cm)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>≤ 1</td>
<td>1.1–2</td>
</tr>
<tr>
<td>pT1 sm1</td>
<td>No</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>5.2</td>
</tr>
<tr>
<td>pT1 sm2–3</td>
<td>No</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>17.8</td>
</tr>
<tr>
<td>pT2</td>
<td>No</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>16.7</td>
</tr>
<tr>
<td>pT3</td>
<td>No</td>
<td>19.7</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>32.2</td>
</tr>
</tbody>
</table>

Local recurrence @ 36 months with TEM

Well-mod diff

Take Home: APPROPRIATE & CAREFUL Selection
ST. PAUL’S HOSPITAL
St. Paul’s Experience

• 488 to January 27, 2015

<table>
<thead>
<tr>
<th>Age</th>
<th>67 years (17 – 99)</th>
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<tbody>
<tr>
<td><strong>Gender (M:F)</strong></td>
<td>293 : 195</td>
</tr>
<tr>
<td>Surgeon: Brown</td>
<td>295</td>
</tr>
<tr>
<td>Raval</td>
<td>155</td>
</tr>
<tr>
<td>Phang</td>
<td>36</td>
</tr>
<tr>
<td>Karimuddin</td>
<td>2</td>
</tr>
<tr>
<td><strong>Tumor Height</strong></td>
<td>7.86 cm (1 – 20)</td>
</tr>
<tr>
<td><strong>Adenoma: Carcinoma: Other</strong></td>
<td>281 : 135 : 72</td>
</tr>
<tr>
<td>Median Hospital Stay</td>
<td>0 days</td>
</tr>
</tbody>
</table>
St. Paul’s Experience


# of Procedures

Year

0 20 40 60 80 100 120 140

(Jan. 27)
**St. Paul’s Experience**

- T1 Cancers – TEM vs. TME (RR)

<table>
<thead>
<tr>
<th>Recsky et al., 2014</th>
<th>TEM</th>
<th>TME</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n</strong></td>
<td>32</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td><strong>Length of Stay</strong></td>
<td>0.5</td>
<td>7.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>OR Time (mins)</strong></td>
<td>56</td>
<td>180</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Post-op Bleeding</strong></td>
<td>2 (6.2%)</td>
<td>0 (0%)</td>
<td>0.52</td>
</tr>
<tr>
<td><strong>Readmission</strong></td>
<td>1 (3.1%)</td>
<td>0 (0%)</td>
<td>0.63</td>
</tr>
<tr>
<td><strong>Cancer Recurrence</strong></td>
<td>4 (12.5%)</td>
<td>0 (0%)</td>
<td>0.28</td>
</tr>
<tr>
<td><strong>Overall Survival</strong></td>
<td>31 (97%)</td>
<td>19 (100%)</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Recsky et al., 2014
St. Paul’s Experience

2 yr predicted recurrence = 23.9%!
BUT... 95% CI is 2.8, 44.9
St. Paul’s Indications

• Adenomas not amenable to endoscopic removal

• T1 Cancer
  – Low risk
  – Patients who accept higher local recurrence

• Other Cancers
  – Patients unfit for radical resection
GUIDELINES
Transanal Excision Criteria (NCCN)

- <30% circumference
- <3 cm in size
- Margin clear (>3 mm)
- Mobile, nonfixed
- Within 8 cm of anal verge
- T1 only
- Endoscopically removed polyp with cancer or indeterminate pathology
- No lymphovascular invasion

- Well to moderately differentiated
- No evidence of lymphadenopathy on pretreatment imaging
- When the lesion can be adequately identified in the rectum, transanal endoscopic microsurgery (TEM) may be used. TEM for more proximal lesions may be technically feasible.
NCCN Guidelines

• If pathologic examination reveals adverse features such as positive margins, LVI, poor differentiation, or invasion into the lower third of the submucosa (sm3 level), a more radical resection is recommended.

• Problem: TAE and TEM are lumped together!
Practice Parameters for the Management of Rectal Cancer (Revised)

A. Surgical Techniques and Operative Considerations

Local Excision

1. Local excision is an appropriate treatment modality for carefully selected T1 rectal cancers without high-risk features. Grade of Recommendation: Weak recommendation based on moderate quality evidence, 2B.

No distinction between TAE and TEM!
Quandaries...Quagmires...

• Getting back to our patient (T1, well diff, LVI-), what if....
  – T1sm3, margins negative, poorly differentiated, LVI+
  – T1sm2, margins negative, well differentiated, in a patient with CAD and COPD
  – T1sm3, margins negative, well differentiated, healthy patient, 2cm from dentate line

• Comparative studies re addition of RT?
FOLLOWUP AFTER TEM FOR CANCER
Followup after TEM for Cancer

• Without radical resection, patient and surgeon must commit to rigorous surveillance.

• What are the patterns of recurrence?
  – Temporal
  – Anatomic – Luminal, nodal, distant

• How often to do surveillance?

• What modalities to use?
Followup after TEM for Cancer

• The problem: pT1Nx
• <100% ability to identify N+ disease on MRI & ERUS preop
• Use surrogate markers for risk of N+ disease and recurrence
  – Grade
  – LVI
  – Tumour budding
  – Sm1 vs. Sm2/3
• Poor features favour proceeding to TME
• More patients, in more communities, who have NOT had TME for Stage I rectal cancer
  – Higher recurrence risk = Need surveillance
# Recurrence Risk Post-TEM for T1

Table 2

<table>
<thead>
<tr>
<th>Primary surgery</th>
<th>LR</th>
<th>Interval (months)</th>
<th>Salvage therapy</th>
<th>TNM</th>
<th>Margins</th>
<th>Distant recurrences</th>
<th>Interval (months)</th>
<th>Follow-up (months)</th>
<th>Survival status</th>
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<tr>
<td>TEM</td>
<td>Yes</td>
<td>5</td>
<td>LAR</td>
<td>pT3N0</td>
<td>R0</td>
<td>–</td>
<td>–</td>
<td>16</td>
<td>A</td>
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<td>5</td>
<td>APR</td>
<td>pT2N0</td>
<td>R0</td>
<td>–</td>
<td>–</td>
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<td>6</td>
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<td>R0</td>
<td>–</td>
<td>–</td>
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<td>7</td>
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<td>R0</td>
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<td>–</td>
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<td>APR</td>
<td>pT3N0</td>
<td>R0</td>
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<td>pT3N0</td>
<td>R0</td>
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<td>pT3N0</td>
<td>R0</td>
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<td>–</td>
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<td>pT0N0</td>
<td>R0</td>
<td>–</td>
<td>–</td>
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<td>LAR</td>
<td>pT3N0</td>
<td>R0</td>
<td>Liver, lung</td>
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<td>12</td>
<td>LAR, CTh</td>
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<td>Liver</td>
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<td>Liver</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>Skin</td>
<td>5</td>
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<td>DCR</td>
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<tr>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>Peritonitis carcinoma</td>
<td>0</td>
<td>20</td>
<td>DCR</td>
</tr>
<tr>
<td>TME</td>
<td>No</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Liver, bone</td>
<td>28</td>
<td>29</td>
<td>DCR</td>
</tr>
<tr>
<td>TME</td>
<td>No</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Liver, lung, brain</td>
<td>29</td>
<td>34</td>
<td>DCR</td>
</tr>
<tr>
<td>TME</td>
<td>No</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Liver</td>
<td>23</td>
<td>39</td>
<td>DCR</td>
</tr>
<tr>
<td>TME</td>
<td>No</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Lung</td>
<td>16</td>
<td>57</td>
<td>DCR</td>
</tr>
</tbody>
</table>

APR = abdomino-perineal resection; AR = anterior resection; Cth = chemotherapy; Hp = Hartmann’s procedure; – = not applicable; p = pathological; c = clinical; R0 = microscopically radical; R1 = microscopically radical; A = Alive; DCR = died cancer-related; DNCR = died not cancer-related.
Protocols – What Can Guide Us?

• Largest series have frequent followup
• Most recurrences are luminal
• Recurrence “events” can happen early or late
  – Start following early, frequently, and for a long time
• Isolated distant recurrences can occur
• Nodal recurrences rarely specified in series or occur rarely
• “Guidelines” vs “advice” – evidence to guide surveillance is low level
8. Surveillance proctosigmoidoscopy with or without endorectal ultrasound is recommended every 6 months for 3 to 5 years for all patients who have undergone transanal local excision of rectal cancer. Grade of Recommendation: Strong recommendation based on low-quality evidence, 1C.

Unfortunately, there are also no randomized trials of surveillance protocols for patients treated with transanal local excision, whether by traditional local excision, transanal endoscopic microsurgery, or transanal minimally invasive surgery.
Proposed Surveillance Protocol

- Endorsed by BC Network of Colorectal Surgeons, BCCA GI Tumour Group, BCCA Surgical Oncology Network
- Hx, PE, rigid/flex sig, CEA
  - Q4-6months x2 years, then Q6months x3 years
- MRI or ERUS for nodal recurrence
  - Not needed
- CT CAP
  - Q6-12months x2 years, then annually x3 years
  - CXR & liver US instead?
    - Not preferred option – no assessment of perirectal tissues
- Full Colonoscopy
  - As per usual guidelines
- Should surveillance be longer for TEM than for TME?
Issues in Intensive Followup

• Will patients adhere?
• Will we and our colleagues adhere?
• Will everyone with adverse path features be offered TME post-TEM?
• Costs and resources increasing over time?
• How do we monitor how we are doing?
• Should patients in communities where intensive followup is unavailable even be offered TEM? Or get TME only?
Salvage after Recurrence

• Stay tuned...Case 3
CASE 2
Case 2

- 67M presents with mucous discharge with BM
  - No BRBPR
  - BM 2/day – no changes
  - No wt loss, no abd pain, no perineal pain
  - PMHx – healthy  Meds – None  All – None

- Colonoscopy – large villous adenoma – 1/3 circ
  - Multiple biopsies - adenoma
Case 2

• June 2015 - TEM Procedure
  – Path – T2 adenocarcinoma – mod diff
• CT
  – no metastatic disease
• MRI
  – defect from TEM seen
  – no other abn
**TEM for T2 Rectal Cancer?**

  - April 1997 – April 2004, 2 Hospitals in Italy
  - Low rectal tumours limited to T2N0M0
  - All received neoadjuvant long-course chemo (5-FU) and radiotherapy (four-field, 50.4Gy over 5 weeks)
  - Restaged post-chemoradiation
  - Randomized to TEM vs laparoscopic TME
TEM for T2 Rectal CA?

Cancer Specific Survival – TEM 89% vs. TME 94% (ns)

Local Recurrence – TEM 11% vs. TME 10% (ns)

Lezoche, BJS, 2012
Multicentre phase II trial of neoCRT + TEM for T1-3N0M0 lesions

Select patients who respond

Early outcomes favourable
- 21 ypT0 - no recurrence at 1 year
- 9 ypT1 – 1 recurrence at 1 year (salvage APE)
# TEM for T2 Cancer?

<table>
<thead>
<tr>
<th>Series</th>
<th>Surgery performed</th>
<th>N</th>
<th>High grade (%)</th>
<th>LR (%)</th>
<th>DR (%)</th>
<th>OS (%)</th>
<th>DFS (%)</th>
<th>Median F/U (mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local excision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garcia-Aguilar et al., 1999</td>
<td>TAE</td>
<td>27</td>
<td>0</td>
<td>30.0</td>
<td>7.0</td>
<td>63</td>
<td>55</td>
<td>58</td>
</tr>
<tr>
<td>Paty et al., 2002</td>
<td>TAE</td>
<td>51</td>
<td>-</td>
<td>28.0</td>
<td>-</td>
<td>75</td>
<td>-</td>
<td>120</td>
</tr>
<tr>
<td>Gopaul et al., 2004</td>
<td>TAE</td>
<td>25</td>
<td>-</td>
<td>24.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>37</td>
</tr>
<tr>
<td>You et al., 2007</td>
<td>LE-ANS</td>
<td>164</td>
<td>13.4</td>
<td>13.0</td>
<td>5.0</td>
<td>68</td>
<td>90</td>
<td>60</td>
</tr>
<tr>
<td><strong>Radical resection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You et al., 2007</td>
<td>RR-NOS</td>
<td>866</td>
<td>7.9</td>
<td>7.2</td>
<td>7.7</td>
<td>77</td>
<td>92</td>
<td>60</td>
</tr>
</tbody>
</table>

Heaffner, J GI Onc, 2014
TEM for T2 Rectal CA?

A predictive model for local recurrence after transanal endoscopic microsurgery for rectal cancer

S. P. Bach¹, J. Hill², J. R. T. Monson³, J. N. L. Simson⁴, L. Lane⁵, A. Merrie⁶, B. Warren⁶ and N. J. McC. Mortensen⁵, on behalf of the Association of Coloproctology of Great Britain and Ireland Transanal Endoscopic Microsurgery (TEM) Collaboration

---

**Local recurrence-free survival**

<table>
<thead>
<tr>
<th>Time after surgery (months)</th>
<th>pT1</th>
<th>pT2</th>
<th>pT3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>230</td>
<td>107</td>
<td>24</td>
</tr>
<tr>
<td>12</td>
<td>180</td>
<td>84</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>142</td>
<td>49</td>
<td>6</td>
</tr>
<tr>
<td>36</td>
<td>94</td>
<td>34</td>
<td>4</td>
</tr>
<tr>
<td>48</td>
<td>65</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>60</td>
<td>50</td>
<td>17</td>
<td>0</td>
</tr>
</tbody>
</table>

---

*British Journal of Surgery 2009; 96: 280–290*
Case 2

• Discussion with pt
• Agreed to radical resection

• Challenge
  – TEM – lesion just above anorectal jxn
    • Scarring
    • ? Bowel wall integrity for stapler
Transanal Total Mesorectal Excision (TaTME)
**TaTME**

- Similes, Colorect Dis 2015
  - Systematic review of TaTME
  - 510 cases reported in the literature since 2010
  - Mean OR time – 143-450 minutes
  - Anast leak – 6.1%
  - CRM +ve – 5%
  - 3 Urethral injuries reported in entire cohort
• Video
Case 2

• Unveventful recovery
  – LOS – 8 days

• Pathology
  – TME grade – good
  – 0/17 LN+ve
  – T2N0M0
CASE 3
Case 3

- 46 woman with family hx colon cancer
  - Colonoscopy
    - Multiple adenoma – removed
    - Large rectal adenoma – biopsies show adenoma
  - Healthy
  - Dec 2012 – TEM
    - Path
      - T1 cancer
      - Margins – widely clear
      - Perineural/Lymphovascular Invasion - negative
Case 3

• Office discussion
  – CT Chest/Abd/Pelvis - normal

• Referral to BCCA – recommended APR
  – Pt opted for close follow up

• November 2013
  – CT Chest Abd Pelvis – Normal
  – Cscope – suspicious for recurrent CA
Recurrence Post TEM
Surgical Salvage of Recurrent Rectal Cancer After Transanal Excision

Martin R. Weiser, M.D., 1 Ron G. Landmann, M.D., 1 W. Douglas Wong, M.D., 1 Jinru Shia, M.D., 2 José G. Guillem, M.D., M.P.H., 1 Larissa K. Temple, M.D., 1 Bruce D. Minsky, M.D., 3 Alfred M. Cohen, M.D., 4 Philip B. Paty, M.D. 1

1 Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, New York
2 Department of Pathology, Memorial Sloan-Kettering Cancer Center, New York, New York
3 Department of Radiation Oncology, Memorial Sloan-Kettering Cancer Center, New York, New York
4 Department of Surgery, Lucille Markey Cancer Center, University of Kentucky, Lexington, Kentucky

- 1970-2003
- 50 pts with recurrent CA after TAE for T1 or T2 CA
  - 31 APR
  - 11 LAR
  - 4 Pelvic exeunt
  - 3 repeat TAE
  - 1 Palliative diversion
- 47 R0 resection
Salvage after local recurrence

~50% 5yr Survival

Weiser, DCR, 2005
Case 3

• Preop Chemoradtx
• MIS assisted APR
  – Path – T3N0, 0/17 LN +ve, CRM 5mm

• 6 months postop – Recurrence free
CASE 4
Case 4

- 63M obese male, cirrhosis Child’s C
- Change in bowel habit
- C scope – bulky rectal cancer 4 cm from dentate line, anterior
- CT – no mets
- MRI cT3N0

- Long course chemoradiation
Case 4

• Death in family overseas 7 weeks after completing chemorads – patient postpones followup & possible surgery

• Flex sig at 11 weeks post chemorads
  – Ulcer only anteriorly – Bx query adenoca

• Restaging MRI possible ycT1N0

• Patient refuses LAR/APR

• Accepts TEM
  – ypT1N0, no LVI, clear margins, well diff
Chemoradiation therapy for rectal cancer in the distal rectum followed by organ-sparing transanal endoscopic microsurgery (CARTS study)

M. Verseveld¹,², E. J. R. de Graaf³, C. Verhoef², E. van Meerten³, C. J. A. Punt⁵, I. H. J. T. de Hingh⁶, I. D. Nagtegaal⁷, J. J. M. E. Nuyttens⁴, C. A. M. Marijnen⁹ and J. H. W. de Wilt⁸, on behalf of the CARTS Study Group

BJS 2015; 102: 853–860

• TEM used for accurate pathological response in complete clinical response post-CRTx
Patients with cT1–3 N0 M0 distal rectal cancer who had CRT  
\( n = 55 \)

Evaluation after CRT  
\( n = 51 \)

Died  
\( n = 2 \)
Stopped CRT  \( n = 1 \)
Lost to follow-up  \( n = 1 \)

TEM  
\( n = 47 \)

Near complete response  \( n = 30 \)  
ypT0  \( n = 21 \)  
ypT1  \( n = 9 \)

Incomplete response  \( n = 17 \)  
ypT0 N1  \( n = 1 \)  
ypT2  \( n = 15 \)  
ypT3  \( n = 1 \)

Completion major surgery  \( n = 8 \)  
All no residual disease

No additional surgery  \( n = 9 \)  
All ypT2
Oncologic Outcomes

• Median followup 17 mos (Early only)
• No local recurrence in ypT0 patients (n=22)
• 4 local recurrence
  – 3 ypT2 (1 also liver mets) after TEM – refused radical resection initially
  • 2 APR after recurrence
  – 1 ypT1 after TEM – APR, NED at 22 mos
**Complications (Chemo – 42%)**

**Table 2** Adverse events during chemoradiotherapy

<table>
<thead>
<tr>
<th></th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac (arrhythmia)</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Constitutional</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dermatological</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>19</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Genitourinary</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Infectious</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pain</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>36</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

5% mortality
Complications (Surgery)

Table 4 Postoperative complications according to the Dindo–Demartines–Clavien classification

<table>
<thead>
<tr>
<th>Grade</th>
<th>TEM (n = 47)</th>
<th>Major surgery (n = 4)</th>
<th>Completion surgery (n = 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Grade II</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Grade IIIa</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Grade IIIb</td>
<td>4*</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Grade IV–V</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

*One rectovaginal fistula requiring colostomy, one haemorrhage requiring reoperation, two presacral abscesses requiring stoma. TEM, transanal endoscopic microsurgery.

**TEM Complications 28% (5-15% without CRT)**
Conclusions (CARTS Study)

• Organ preservation occurred in 55%

• TEM after CRTx “may be a worthy equivalent to mesorectal excision in selected patients with early distal rectal cancer.”

• Complications to be weighed against those of radical resection (including functional)
TEM IN BC
TEM in BC

• Development of regional expertise
  – There is a learning curve
    • 3 papers published
      – 26-40 cases to establish technical expertise
      – 20/year to maintain
    • Study at SPH (n=500)
      – Significant $$$

• St. Paul’s Hospital (C. Brown, M. Raval)
• Royal Columbian Hospital (E. Vikis)
• Kelowna General Hospital (M. Recsky)
TEM in BC – Regional Approach

• St. Paul’s Hospital
  – Acquisition of equipment
  – Dedicated nursing teams
  – Interested pathologists & radiologists
  – Familiarity of TEM amongst local rad onc, med onc
  – Streamlined process for out-of-town patients
    • Review and triage of referral
    • Consult, flex sig, OR all in one visit
    • D/C from hospital POD-0, suggest hotel stay 1-2 days
PARTING THOUGHTS
TEM for Rectal Cancer

- Careful, informed consent
- Choose patients carefully
- Weigh oncologic risk vs. operative/functional risks
- Prepare patient early (if cancer) that immediate post-TEM radical resection may be recommended (poor prognostic features)
- Careful followup post-TEM

- There is a standard of care (TME)
  - Everything else is (semi) experimental
TEM for Rectal Cancer

Just because you can...
...doesn't mean you should.

UBC UNIVERSITY OF BRITISH COLUMBIA

BC Cancer Agency
CARE & RESEARCH
An agency of the Provincial Health Services Authority

ST. PAUL'S HOSPITAL
PROVIDENCE HEALTH CARE
The Future

• Rectal cancer treatment is in flux
  – More radiation for more complete response?
  – More selective radiation?
• Radiation + TEM = TME?
Neoadjuvant Radiotherapy Followed by Transanal Endoscopic Microsurgery for T1-T2 Extraperitoneal Rectal Cancer (NERATEM)

This study is currently recruiting participants. (see Contacts and Locations)

Verified April 2014 by European Association for Endoscopic Surgery

Sponsor:
European Association for Endoscopic Surgery

Information provided by ( Responsible Party):
Alberto Arezzo, European Association for Endoscopic Surgery

ClinicalTrials.gov Identifier:
NCT02127645

First received: April 26, 2014
Last updated: April 28, 2014
Last verified: April 2014
History of Changes
The Future

• Rectal cancer treatment is in flux
  – More radiation for more complete response?
  – More selective radiation?
• Radiation + TEM = TME?
• TEM as a bridge to NOTES/NOSE
• Transanal TEM (taTME) combined with MIS LAR
COLOR III Trial

COLOR III Trial: A randomized clinical trial comparing transanal and traditional laparoscopic TME for rectal cancer.

Patients with rectal cancer
cT1-3N0-2
mri-CRM >1mm
Intent for curative surgery

Eligibility Check
Centralised MRI review

Randomisation

Transanal TME
Laparoscopic TME

Primary Outcome; pCRM

Secondary Outcomes;
quality of specimen, morbidity & mortality, LR, DFS, OS, sphincter saving procedures, functional outcome, HRQoL
Acknowledgements

- Jacek Murawski
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- Jennifer Lee
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- Magda Recsky
- Devang Raval
- Juliana Kowal
- Sina Kalikias
- Behrouz Heidary
- Anneke Planting
- Palak Bawa
- Phoebe Ng
- Hong Li
- Chad Brown
- OR Nurses

- **General Surgeons of BC (and beyond)**

Generous Donors: Cullen, Carrier, Pedersen, Price families
Can you repeat the part of the stuff where you said all about the things?