Pan London Early Rectal Cancer Meeting
1st November 2018
Avoiding major surgery and improving quality of life in patients with early rectal cancer

TEM / TAMIS for Full Thickness Resection

Mr W F Anthony Miles, Consultant Surgeon, Brighton and Sussex University Hospital, England
BSUH School of Surgery

Disclosures

- Paid consultancy work, product development and evaluation and training for Applied Medical
- Paid training for Medtronic
- Paid training for Ethicon

Aims to review

- What is Full Thickness?
- The development of rectal access
- Full thickness resection techniques and devices
Aims to review

- What is Full Thickness?
- The development of rectal access
- Full thickness resection techniques and devices

What is a full thickness resection

- Full thickness is
- Mucosa, submucosa and muscle
- Not the mesorectal fat.
Full thickness resection

- Mucosa
- Submucosa
- Muscle
- No Fat

Aims to review

- What is Full Thickness?
- The development of rectal access
- Full thickness resection techniques and devices
Rectal access
11th century

Trans anal access
Parks anal retractor

Open Trans Anal Excision

Prof Waleed Omar Mansoura University Egypt
**Mid to low rectum**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>68</td>
</tr>
<tr>
<td>Mortality</td>
<td>1.5%</td>
</tr>
<tr>
<td>Morbidity</td>
<td>4.5%</td>
</tr>
<tr>
<td>Unexpected cancer rate</td>
<td>15%</td>
</tr>
<tr>
<td>Recurrence rate</td>
<td>20.9%</td>
</tr>
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</table>
Aims to review

- What is Full Thickness?
- The development of rectal access
- Full thickness resection techniques and devices
Better rectal access?

**Review: transanal endoscopic microsurgery (TEM).**

Buess G.¹

¹ Author Information

1. Abteilung für Allgemeinchirurgie, Eberhard-Karls-Universität, Tübingen, Germany.

- TEM
- Prof G Buess

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TEM telescope

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Wolf TEM equipment

Dr E Kanehira Sages 2011
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Trans anal excision compared to TEM

<table>
<thead>
<tr>
<th></th>
<th>Trans anal</th>
<th>TEM</th>
<th>P value</th>
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</thead>
<tbody>
<tr>
<td>Number</td>
<td>43</td>
<td>216</td>
<td></td>
</tr>
<tr>
<td>Morbidity</td>
<td>10%</td>
<td>5.3%</td>
<td>0.001</td>
</tr>
<tr>
<td>R0 resection</td>
<td>50%</td>
<td>88%</td>
<td>0.001</td>
</tr>
<tr>
<td>Complete</td>
<td>76.2%</td>
<td>98.6%</td>
<td>0.001</td>
</tr>
<tr>
<td>Recurrence</td>
<td>28.7%</td>
<td>6.1%</td>
<td>0.001</td>
</tr>
</tbody>
</table>

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Tem Surgery

- Long learning curve (50+ cases)
- Expensive initial set up
- Complex equipment especially the insufflator
- Low uptake internationally

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- 6 patients
- Average of 9.3 cm from anal verge
- Lesion diameter 2.9cm
- Operation time 86mins
- Previous TEM operating time 130mins

Glove port

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Gel Point Path

- Flexible access channel
- Multiple ports
- Reliable secure placement

Gel point path access channel

- Rapid and simple set up
- Patient always supine
- Standard instruments

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Equivalent access to TEM

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Full thickness dissection

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Trans Anal Minimally Invasive Surgery (TAMIS)

- Low capital cost
- Low equipment cost
- Rapid setup, shorter learning curve
- Equivalent outcome?

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TEM compared to TAMIS

<table>
<thead>
<tr>
<th></th>
<th>TEM</th>
<th>TAMIS</th>
<th>P value</th>
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</thead>
<tbody>
<tr>
<td>Morbidity</td>
<td>10%</td>
<td>5.3%</td>
<td>0.66</td>
</tr>
<tr>
<td>R0 resection</td>
<td>90%</td>
<td>79%</td>
<td>0.2</td>
</tr>
<tr>
<td>Time</td>
<td>53 min</td>
<td>53 min</td>
<td>0.6</td>
</tr>
<tr>
<td>Recurrence</td>
<td>7%</td>
<td>8%</td>
<td>0.62</td>
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</table>

NO Difference

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TEM compared to TAMIS

<table>
<thead>
<tr>
<th></th>
<th>TEM</th>
<th>TAMIS</th>
<th>Difference</th>
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</thead>
<tbody>
<tr>
<td>Capital Cost</td>
<td>£37,000</td>
<td>0</td>
<td>£37,000</td>
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<tr>
<td>Recurrent cost</td>
<td>£175</td>
<td>£325</td>
<td>£150</td>
</tr>
<tr>
<td>Set up time</td>
<td>30min</td>
<td>3min</td>
<td>27min</td>
</tr>
<tr>
<td>Learning curve</td>
<td>Long</td>
<td>Short</td>
<td>Significant</td>
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</table>

Other full thickness resection techniques

- ESD full thickness dissection
- Over Scope Full Thickness Resection Device. (Ovesco FTRD)
- Robotic
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Full thickness ESD
Dr Anish Mammen, River Edge, New Jersey, Youtube

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Ovesco FTRD
SynMed UK 2017

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Robotic full thickness dissection
Dr Sam Atallah, Orlando Florida.

Site

- Intra or extra peritoneal
- It’s the top edge that is important
- Colleagues are used to measuring to the bottom edge of a lesion
Summary

- The operation is more important than the equipment
- Full thickness of the rectal wall, clear lateral margins
- Leave the fat behind.

Questions
Site

- Intra or extra peritoneal
- It's the top edge that is important
- Colleagues are used to measuring to the bottom edge of a lesion
- 8cm

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Intra or extra peritoneal

It’s the top edge that is important

Colleagues are used to measuring to the bottom edge of a lesion

8 cm plus a 3 cm polyp plus 1 cm margin = 12 cm
Site

- Intra or extra peritoneal
- It’s the top edge that is important
- Be careful when polyps are on the side wall of the rectum especially in women.
- The peritoneal reflection may extend laterally

Site

- Very low polyps may also be outside the mesorectum and present their own problems when planning treatment.
Site investigations

- Digital rectal examination
- Flexible endoscopy by the operator including retroflexion and fluid level assessment; lots of photos
- MRI

MRI Site

- Intra or extra peritoneal
- Anterior, Posterior Right or left
- Lower margin, within the intersphincteric portion of the ano-rectal junction
- Thickness of the mesorectum, N stage
Rectal MRI scanning is between 84 and 93% accurate in determining the position of rectal tumours in relation to the Peritoneal reflection.
Insufficient mesorectum

Chris Cunningham
Oxford University Hospitals
NHS Trust

Oxford Colorectal

Impact of LE on Subsequent radical surgery

No distal margin remaining

Chris Cunningham
Oxford University Hospitals
NHS Trust

Oxford Colorectal

Committing patients to APER
Abutting prostate or vagina

Chris Cunningham
Oxford University Hospitals
NHS Trust

Peritoneal breach

Chris Cunningham
Oxford University Hospitals
NHS Trust
Randomised controlled trial of transanal endoscopic microsurgery versus endoscopic mucosal resection for large rectal adenomas (TREND Study).

- 209 polyps
- ≥3cm within 15cm of the dentate line
- Randomised to EMR / TEM
- 27 unexpected cancers (13%)
- EMR was safer but with more recurrence
- EMR was cheaper
- Non-inferiority was not demonstrated.