Management of Early Stage Rectal Cancer

Disclosures

• none
Objectives

• Define goals of local excision techniques in early stage rectal cancer
• Identify patients who may be candidates for local excision with early stage rectal cancer
• Review guidelines and define indications for rectal resection in patients with early stage rectal cancer
How do cancers develop in colon and rectum

Staging of rectal cancer

Definitions

Primary Tumor (Tx)
- Primary tumor cannot be assessed
- M0: No evidence of distant metastasis
- M1: Metastases to other organs

Regional Lymph Nodes (N)
- N0: No regional lymph node metastasis
- N1: Metastasis in 1-3 regional lymph nodes
- N2: Metastasis in 4-6 regional lymph nodes
- N3: Metastasis in 7 or more regional lymph nodes

Distant Metastasis (M)
- M0: No distant metastasis
- M1: Distant metastasis

Tumor in colon wall
- Stage 0
- Stage I
- Stage II
- Stage III
- Stage IV

Metastases to other organs

Staging of rectal cancer
Abdominoperineal resection

- 1908 – William Earnest Miles
Anterior resection

- Claude Ernst 1948
- Upper rectal cancers
- 64% 5-year survival

Surgical Stapler

- Moscow Scientific Research Institute: Surgical stapler
- Mark Ravitch 1958
- 1980: Double stapling technique
Importance of Mesorectum

• 1982 RJ (Bill) Heald: Total Mesorectal Excision
• 80% 5-year disease free survival
• Local recurrence < 10%
• Lower rate of Bladder and sexual dysfunction

Other Advances in Rectal Cancer Treatment

• 1985-86: Post-op chemo and radiation improved survival
• 2001 Dutch TME trial: TME+ Radiation improved local recurrence
• 2004: German Rectal Cancer trial: pre-operative chemoradiation is better than post-op
• 2004-2019:
  • Laparoscopic and Robotic Platforms
  • PROSPECT trial, RAPIDO trial, TNT: evaluating chemotherapy and radiation
  • CLASSIC, COLOR II, ACOSOG Z6051: Assessing surgical techniques

Goals of Rectal Cancer Treatment

- Improve survival
- Decrease cancer recurrence
- Preserve function
- Prevent ostomy if possible

Management of Rectal cancer

- Colonoscopy
- CBC CMP
- CEA
- CT chest/abdomen/pelvis
- MRI pelvis
- Endorectal ultrasound T1/T2

Multidisciplinary team → Individualized treatment plan
Locally advanced rectal cancers

Multimodality therapy
• Chemotherapy
• Radiation
• Radical resection
  • LAR
  • APR

What about the early rectal cancers

• Radical resection
  • APR
  • LAR
• Complications: 30%
  • Post-op: Infection, bleeding, leak, re-operation, DVT/PE, pneumonia, MI, stroke
  • Late: Sexual dysfunction, bladder dysfunction, bowel dysfunction, permanent ostomy

Is there a less invasive option?
How do cancers develop in colon and rectum

Adenoma carcinoma sequence in CRC

How do we manage polyps

- Colonoscopy
  - Small polyps: Forceps
  - Large polyps: snare polypectomy, endoscopic mucosal resection, endoscopic submucosal dissection
- Surgery
  - Large
  - Malignant
    - Positive margin
    - Fragmented
Can we use the same techniques for cancer

- Challenges
  - Staging
    - T stage
    - Lymph nodes
Local excision
Attractive alternative to radical rectal resection

Principles

- Removal of tumor off the wall of rectum
- Full thickness
- 1cm margin
- Closure of the wall
Who can get a local excision

• Benign lesions or Favorable T1 rectal cancers
• If they have no
  • Lymphatic invasion
  • Submucosal invasion in lower third (sm3)
  • Poorly differentiated
  • Size > 3 cm
  • > 1/3 of diameter

Imaging

• MRI
• Transrectal US #
Tools and Techniques of local excision

Open Trans-anal Excision (TAE)

- Sir Alan Parks Popularized in 1960s
  - Self Retaining rectal retractor
  - Use of epinephrine injection
  - Closure of primary defect

Open Transanal excision

- Technical limitations of Anus, Rectum and Instruments
  - Limited to lesions 8cm from verge
  - <3cm lesions
  - <30% of circumference

Transanal Endoscopic Microsurgery (TEM)

- Invented in early 1980s, Prof. Gerhard Buess – Germany
- Metal Rectoscope
- Stereoscopic camera - 3D vision
- Stable pneumo-rectum

Transanal Endoscopic Microsurgery (TEM)

TEM
12-15 cm

Open
4-6 cm
Transanal Endoscopic Microsurgery (TEM)

- Advantages
  - Larger lesions
  - Higher lesion
  - Less fragmentation
  - Negative resection margin
  - Lower recurrence rates

- Disadvantages
  - Expensive
  - Special equipment and insufflation
  - Steep learning curve
  - Set up time

Transanal Minimally Invasive Surgery

- First described in 2010
- Smaller profile
- Flexible platform
- Disposable
- Cost-effective
Complications of local excision (TAE, TEM, TAMIS)

- Lower than radical surgery
  - Bleeding
  - Infection
  - Urinary retention
  - Fistulae
  - Pelvic sepsis
  - Peritoneal violation

What are the outcomes?
Transanal excision vs. Radical resection

• Local recurrence
  • 5% to 28% with LE of T1 lesions
  • 13% to 37% for T2 lesions.

• Disease-free survival at 5 years
  • 64% to 93% for T1 lesions
  • 63% to 90% for T2 lesions

• No difference with radical resection for T1 lesions, inferior outcomes for T2 lesions

Kim E. Clin Colorectal Cancer 2008; 7: pp. 376-385

TAE vs TEM

• Improved margins
• Less fragmentation and recurrence

TAMIS vs. TEM

- Single institution
- Equivalent quality of excision (8% vs. 11% poor quality)
- No difference in complications, local recurrence or survival

Dis Colon Rectum. 2017 Sep;60(9):928-935.

Unfavorable pathology post local excision

- Proceed to radical resection
- No difference in oncologic outcomes if performed within 30 days of local excision
- Post-treatment surveillance

Future directions

- Neoadjuvant therapy prior to local excision
- Adjuvant therapy after local excision
- Robotic platform

Summary

- Local excision for rectal cancer offers decreased morbidity and mortality as compared with radical surgery
- Best used in highly selected patients who have early-stage cancers with favorable histology after multidisciplinary discussion
- Oncologic outcomes of traditional LE are inferior to radical surgery
- TEM and TAMIS may partially bridge the outcomes gap due to improved visibility and lower margin positivity.
- Meticulous follow-up and surveillance for local and distant recurrence is essential after local excision