COLON AND RECTAL CANCER

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Colon and Rectal Cancer Statistics
- 2016
  • 134,490 new cases
  • 8.0% of all cancers
  • 49,190 deaths
- 4.4% of all men and women will be diagnosed with colon or rectal cancer at some point in their life
- In 2013: 1,177,556 people living with colon and rectal cancer in the US
- Colon and rectal cancer costs the US $8.4 billion/yr

Overall Incidence

Epidemiology
- In 2016

Pathogenesis
Pathogenesis

Signs and Symptoms

colon cancer symptoms are....

WEIRD POOP?

Staging: TNM

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Colon Cancer

Work-up
- Blood work
  - CBC
  - CMP
  - CEA
- Imaging
  - CT Chest/Abdomen/Pelvis: Rule out metastatic disease!!
  - Locally invasive disease: Consider MRI
  - Metastatic disease: PET scan

Treatment: Stage I-III

Surgery Goals
- Primary Goals
  - Remove the tumor **INTACT** with adequate margins (minimum 5cm proximal/distal)
  - Adequate lymphadenectomy (minimum 12 nodes)
  - If the tumor is locally invasive, the tumor should be removed **EN-BLOC** with any other affected organs/structures
    - R0 Resection: 5-yr overall survival 82%
    - R1 Resection: 5-yr overall survival 35%
    - R2 Resection: 5-yr overall survival 0%
- Secondary Goals
  - Restore intestinal continuity
  - Minimally invasive approach
    - Laparoscopic
    - Robotic

Surgery: Vascular Anatomy

Surgery: Lymph Node Anatomy
Surgery: Open vs. Laparoscopic

  - Decreased length of stay
  - Less postoperative pain
  - Less intraoperative blood loss
  - Earlier return to work
  - Improved quality of life at 30 days postop
  - Equivalent oncologic outcomes
- <50% of colectomies performed laparoscopically
  - Complex procedure
  - Lack of knowledge among surgeons of increased benefit
  - Difficulty in training surgeons already in practice

Rectal Cancer

Work-up
- Blood work
  - CBC
  - CMP
  - CEA
- Imaging
  - CT Chest/Abdomen/Pelvis: Rule out metastatic disease!
  - Local Staging: Pelvic MRI vs. Endorectal Ultrasound
  - MRI: More sensitive for LN detection, difficult to differentiate T-stage
  - Metastatic disease: PET scan

Rectal Cancer: History
- Local Recurrence Rate 1980’s: 30-40%
  - Standard of care: surgery with postoperative radiation
  - Reports of positive pelvic lateral margins in 85% of cases
- Mid 1980’s
  - Bill Heald: Total Mesorectal Excision (TME)
    - Complete removal of the rectum and rectal mesenteric envelope all the way to the pelvic floor
    - Published Basingstoke experience in 1998: local recurrence rate 3.6%
- Swedish Trial (1997)
  - Improved overall survival and local recurrence with addition of preoperative chemoradiation
- Dutch Trial (2001)
  - Compared pre-op radiation followed by TME vs. TME alone
  - Local recurrence: 2.4% vs. 8.2%
- German Trial (2004)
  - Compared pre-op radiation vs. postop radiation
  - Preop group had improved local control with less toxicity and no changes in survival
Standard of Care: United States 2016

- Stage 1
  - Surgery
    - TME
    - Low Anterior Resection vs. Abdominoperineal Resection
      - Minimum 1cm distal margin
  - Role of short course (25 Gy in 5 fractions) radiation?
  - Role of radiation for upper rectal cancer?

- Stage 2 or 3
  - Preoperative chemoradiation: 50.4 Gy delivered in 28 fractions
  - Surgery
    - TME
    - Low Anterior Resection vs. Abdominoperineal Resection
      - Minimum 1cm distal margin
  - Role of short course (25 Gy in 5 fractions) radiation?
  - Role of radiation for upper rectal cancer?

Surgery Goals

- Primary Goals
  - Remove the tumor intact with adequate margins (minimum 5cm proximal/distal margin for PME or 1cm distal margin with TME)
  - Adequate lymphadenectomy (minimum 12 nodes)
  - If the tumor is locally invasive, the tumor should be removed en bloc with any other affected organs/structures
    - R0 Resection: 5-yr overall survival 64%
    - R1 Resection: 5-yr overall survival 0%
    - R2 Resection: 5-yr overall survival 0%
- Secondary Goals
  - Restore intestinal continuity
  - Minimally invasive approach
  - Questionable benefit → studies at this time do not support laparoscopic or robotic surgery

Rectal Cancer: T1N0 lesions

- Can consider local excision
  - Transanal
  - TEM/TAMIS

Local Excision of Rectal Cancer Without Adjuvant Therapy

A Word of Caution

- 82 patients with T1 (n=55) and T2 (n=27) rectal cancer
  - All node negative disease, negative margin resection, moderately differentiated, no lymphovascular invasion
  - 10 of 55 patients with T1 tumors (18%) and 10 of 27 T2 patients (37%) had recurrence by 54 months
  - Average time to recurrence: 18 months
  - 17 of 20 patients underwent salvage surgery
  - 5-yr cancer specific survival
    - T1: 98%
    - T2: 89%

Rectal Cancer: Complete Response

- Habr-Gama
  - 2004 Annals of Surgery: Introduced the idea of complete pathologic response
    - 265 patients with rectal cancer undergo preop chemoradiation
    - 71 patients (26.8%) with “complete response”
      - 5-yr overall survival/disease-free survival
        - Resection: 88%/83%
        - Observation: 100%/92%
    - 2009 BJS
      - 15-year experience of "watch and wait"
        - 120 patients
        - Local recurrence rate 11%
        - All amenable to salvage surgery, no change in oncologic outcome

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Treatment: Stage IV

- Chemotherapy first?
- Surgery first?
- Primary first?
- Metastases first?
- Synchronous resection?
- Heated intraperitoneal chemotherapy (HIPEC)
Adjuvant Chemotherapy

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NCCN Guidelines: Stage I/II

NCCN Guidelines: Stage III

5-year Survival

5-year Survival Trends

Incidence by Age
Incidence by Age

Disease Specific Survival by Stage

Early Detection: Screening
- 30-50% Americans over the age of 50 have not undergone screening for colon and rectal cancer
- Screening options (average risk):
  - Colonoscopy (10 years): Gold standard
  - CT Colonography (5 years)
  - Flexible Sigmoidoscopy (5 years)
  - Double Contrast Barium Enema (5 years)
  - FOBT/FIT Testing (1 year)
  - Stool DNA test/Cologuard (Unknown)

US CRC Screening Rates
Questions?

Colon Cancer