Colorectal Cancer: A Surgeon's Perspective

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In Memory of Jessica Crowder, MD

1977-2016

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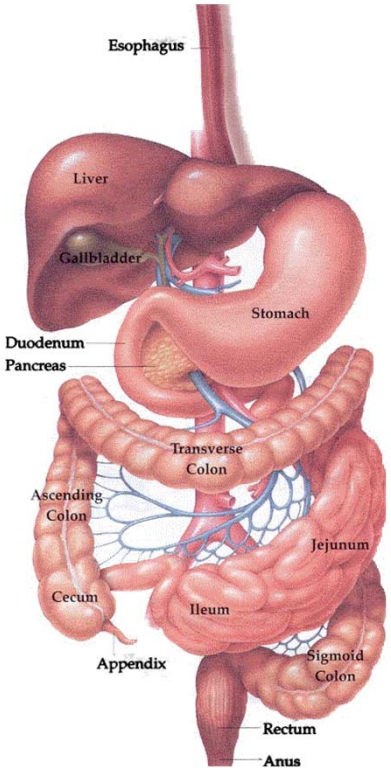
Colorectal Cancer

- 3rd most common malignancy and 2nd most common cause of cancer death in USA
- Risk factors- a few modifiable risk factors (obesity, diet, smoking, alcohol intake, red processed meats) and non-modifiable (IBD, hereditary)
  - **Majority** have no particular predisposing factors
- R0 resection- entire tumor is removed and margins are negative
- R1- margins grossly uninvolved but histologically positive
- R2- tumor is not completely removed and visible tumor remains

Colon and Rectum- Function

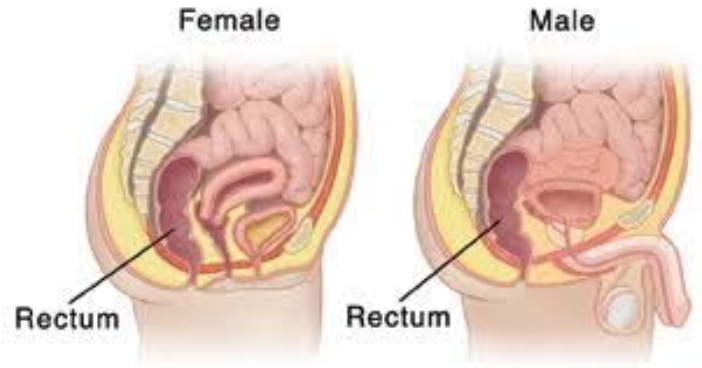
- About 150 cm of bowel
- Colon- recycles nutrients
  - Largest concentration of bacteria in body
  - Nutrients mostly absorbed by small bowel
  - Effluent that reaches colon rich in water, electrolytes, nutrients
  - Can recover substances to avoid loss of fluid and electrolytes
  - About 1-1.5L enters colon daily but only 100-150 ml is lost in stool



Colon and Rectum: Function

Rectum

- Eliminates stool
- Lies very close to bladder/ prostate or vaginal wall/ uterus
- Reservoir
- Some physiologic and sensory properties integral in defecation
- Ability to control, accommodate, and discern contents may be significantly compromised after radiation and resection



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Colon and Rectum: Anatomic Considerations

- 2 major branches of aorta give blood supply
- Marginal artery/ collateralization- can take one vessel and rest of bowel survives
- Lymphatics follow arterial supply- important for oncologic resection

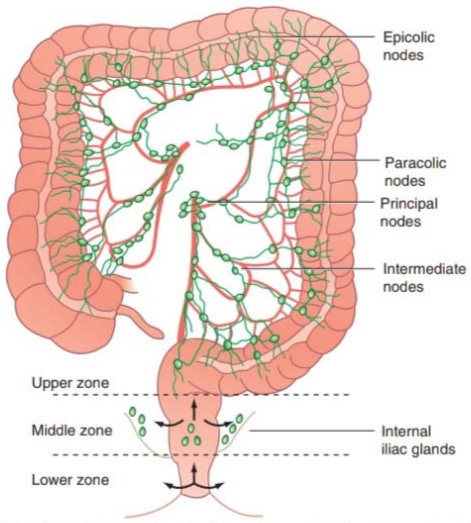

FIGURE 51-12 Lymphatic drainage of the colon. (From Corman ML, editor: *Colon and rectal surgery*, ed 4, Philadelphia, 1998, Lippincott-Raven, p 21.)

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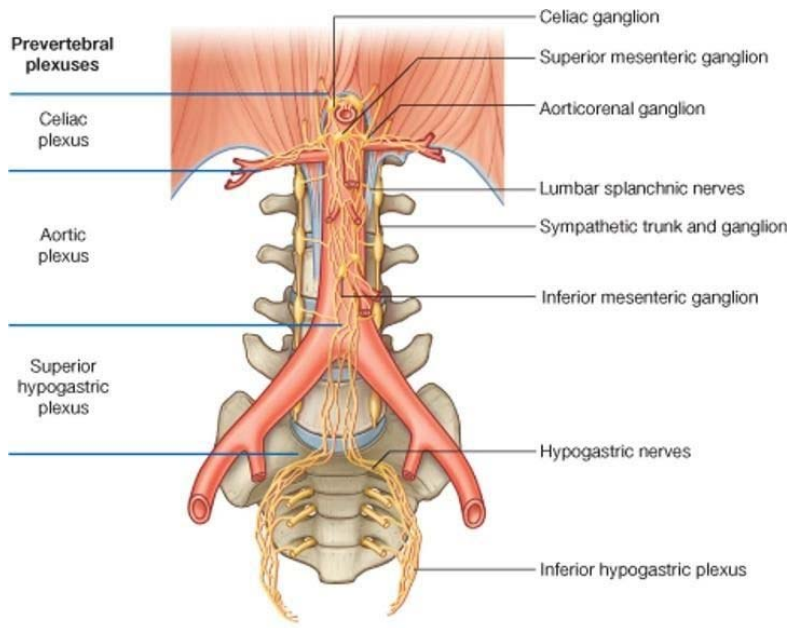
Anatomic Considerations- How It Affects You

- Nerves
  - Follow or run near vascular structures we dissect
  - Sympathetic nerves (hypogastric) nerves can be severed when IMA taken
    - Retrograde ejaculation, bladder dysfunction
  - Parasympathetic "nervi erigentes"- innervate prostate, urethra, seminal vesicles, pelvic floor
    - Damage- impotence, neurogenic bladder, impotence,
  - Bladder and erectile dysfunction occur in up to 45% after rectal surgery



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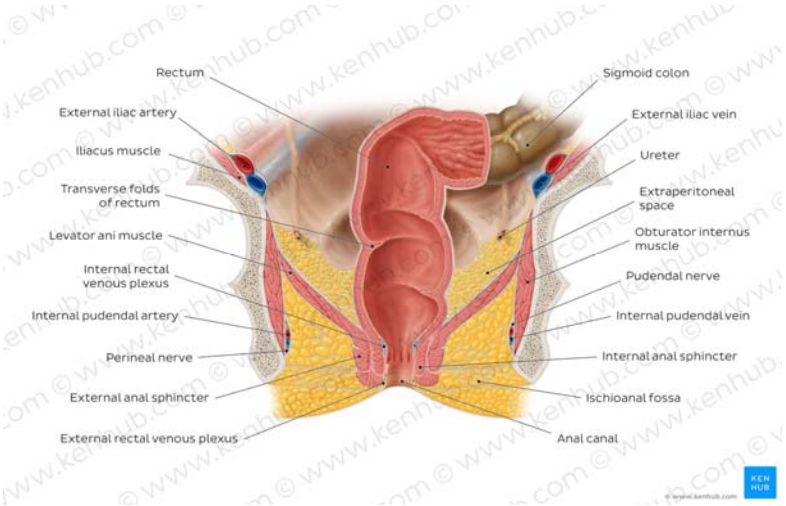
Perioperative Considerations

- Nutritional status- low serum albumin levels (<3.5 g/dL) is risk factor for anastomotic leak
  - May try to supplement before surgery
- Use of a preoperative mechanical bowel prep and oral antibiotics
  - Intent is to take both in order to lower skin and soft tissue infections
- Counseling for stoma care, education, and marking
  - Appropriately placed stoma can significantly affect quality of life
- Colonoscopy to exclude synchronous lesions (4% have another tumor, many more have polyps)
- Postoperative fluid and pain management

Sporadic Colon and Rectal Cancer

- Though causes of CRC thought to be similar, workup and treatment of rectal cancer different
  - Rectum in bony confines of pelvis with possible biologic differences
- Colon cancer staging-
  - Blood work including CBC, CMP, CEA
  - CT C/A/P
  - Colonoscopy- up to 4% have synchronous cancers
- Rectal cancer-
  - All for colon cancer + pelvic MRI (some do endorectal ultrasound)



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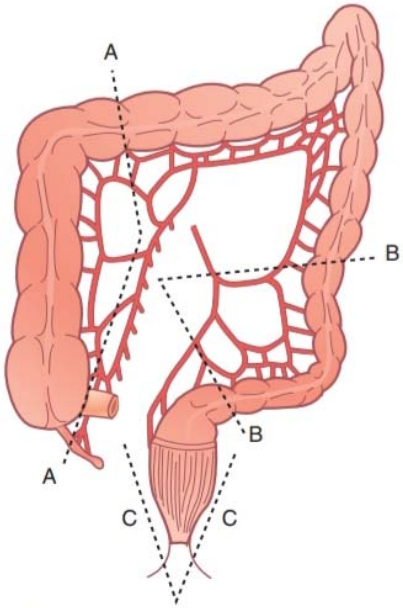
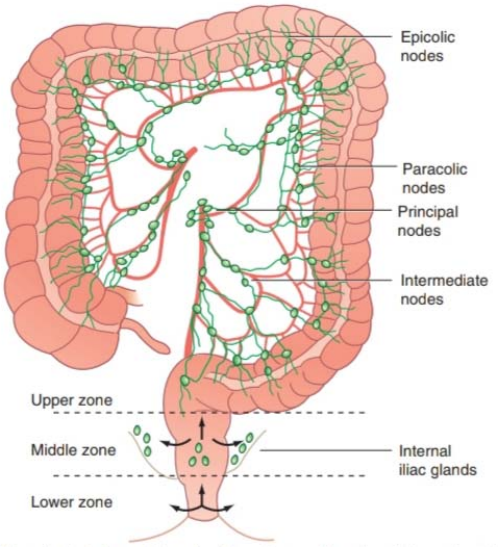
What We Remove and Why

- Remove tumor-bearing segment of bowel with adequate margins
- En bloc resection of mesentery with vessels and lymph nodes
- Location determines lymphatic drainage and dictates extent of resection
- Lymphatic spread is thought to be less than 1 cm in each direction, mucosal <2cm
  - 5 cm margin of normal bowel is sufficient



Goals of Surgery

- In rectum, lymph tends to flow upward
- 2cm of normal bowel distal to tumor (1 cm if treated with chemo/XRT) is adequate
- Negative margins (radial very important) top goal
- Preservation of function and sphincter mechanism



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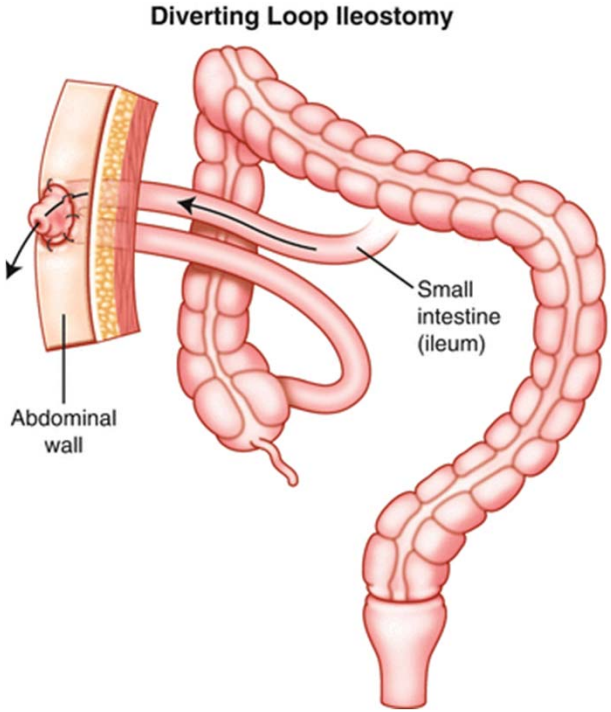
So What is a Diverting Ileostomy and Why Do I Need One?

- Terminal ileum usually delivers 2 liters of succus to colon per day
- Adapts remarkably- usually output is only 900 mL/day several weeks after surgery
- Doesn't totally compensate for fluid loss- dehydration can be a major problem
- Effluent has digestive substances that are usually inactivated in colon- very caustic to skin
- Purpose- protect anastomosis in which delayed healing is anticipated



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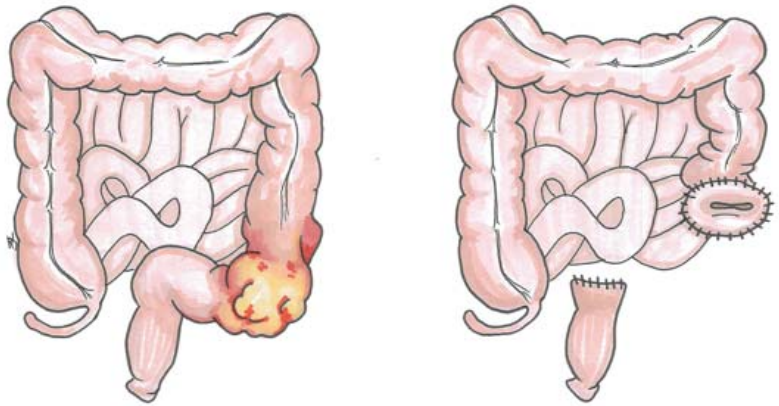
So What is a End Colostomy and Why Would I Need One?

- Totally diverting
- More common indications- obstructing sigmoid cancer, abdominoperineal resection
- Most of colon still in circuit- occasionally can use patch/ irrigate
- Can be more complex to reverse if temporary



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Things You May Hear- What Are They?

- Clustering/ LAR syndrome
  - Occurs after rectal resection
  - May be more pronounced in radiation, lower anastomosis, more rectum removed
  - Feeling stool can't be completely evacuated- may attempt to do so many times per day
  - Incontinence, difficulty discerning contents
  - Several treatment options though may take 2 years to stabilize
- Dehydration
  - Very common reason for readmission after ileostomy creation
  - Bowel often adapts over several weeks
  - Keep water, Gatorade, favorite hydrating beverage on hand
  - Can be serious- acute renal injury, electrolyte derangements, instability

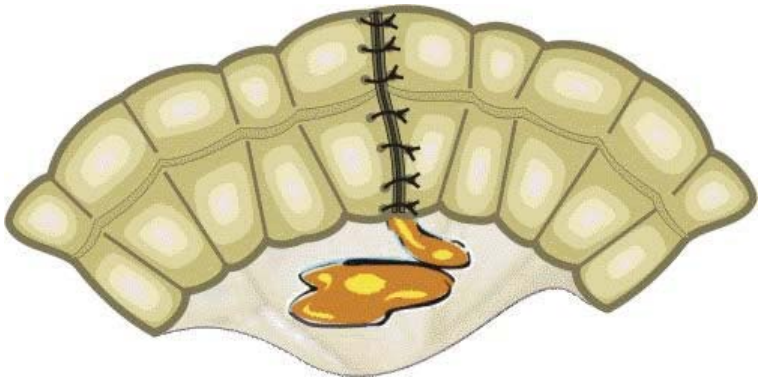
The Good...

Table 6: Stage specific prognosis of CRC (per AJCC 2002 staging criteria)

Stage I	93 percent
Stage IIA	85 percent
Stage IIB	72 percent
Stage IIIA	83 percent
Stage IIIB	64 percent
Stage IIIC	44 percent
Stage IV	8.1 percent

The Ugly

- Wound/ deep space infection-
- Anastomotic complications-
  - Leak
  - Failure (stricture, poor QOL)
- Injury or damage to other structures
- Potential to worsen oncologic outcomes
- If adjuvant chemotherapy indicated, may be delayed or not able to be given



What I'd Say To Someone Operating on My Mom…

- Do you think she will need an ostomy? If so, can we please see an enterostomal nurse before surgery?
- Can we have the opportunity to meet with a medical oncologist?
- About how many times per year do you do this particular operation?
- Please do what you think will be the **safest** and **best cancer** operation for her- we don't care about the scar
- How often will she need follow up long-term and who will do that?
- "Never operate on a person for cancer unless you have looked into the whites of their eyes at least 2 times." –WSK, 2008

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Other Recommendations

"It's one story to save someone's life, but it's another if they are happy that you did."

- United Ostomy Association of America
  - M9 deodorizing drops, Devrom tablets
  - Retreats, networking
- Support groups
- Counseling- patient and/ or caregiver

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You don't have a right
to the cards you believe
you should have been dealt.
You have an obligation
to play the hell out of
the ones you're holding.

Cheryl Strayed