Joint CME/MOC Providership

NCSG
NORTH CAROLINA SOCIETY OF GASTROENTEROLOGY

ASGE
American Society for
Gastrointestinal Endoscopy

UNC SCHOOL OF MEDICINE

To Be (Cut) or not To Be (Cut)? Surgical Management in Crohn's Disease

https://www.mopec.com/product/disposable-6-5-scalpel-with-scale-60-blade-100-pack-aj135/

DISCLOSURES

Overview

- Introduction
- Surgical Indications (brief)
- Principles of Crohn's Surgery
- Pre-operative evaluation
- Surgical Decision Making and Dilemmas

Crohn's disease (patterns)

- Small bowel in 80%
- Ileocolitis 50%
- Ileitis alone 30%
- Colon alone in 20%
- Perianal 30+%

https://healthmatters.nyp.org/crohns-vs-colitis/

Crohn's disease management

- Surgery is not curative
- Treats the complications of the disease
- After resection
  - 70-90% endoscopic recurrence by 1 year
  - 35% repeat resection within 10 years

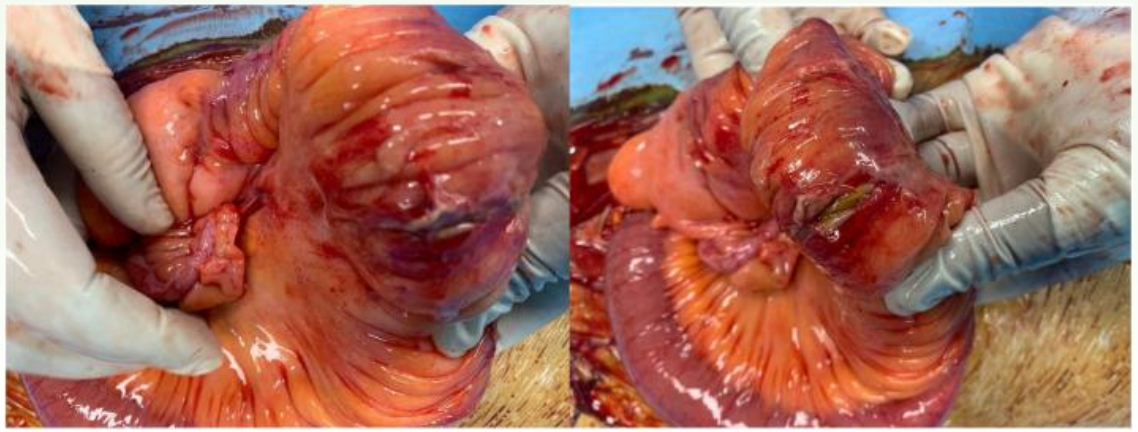
https://healthmatters.nyp.org/crohns-vs-colitis/

Crohn's Disease: Indications for Surgery

- Absolute
  - Perforation
  - Hemorrhage
  - Persistent Obstruction
  - Cancer/High-grade dysplasia
  - Toxic megacolon
- Relative
  - Medically refractory disease
  - Recurrent or pending obstructions
  - Fistula
  - Abscess

Indications: Free Perforation

- Presentation (0.15-3%)
- Overall: 1-9% (higher in Japan)
- Resuscitate, resect, divert?



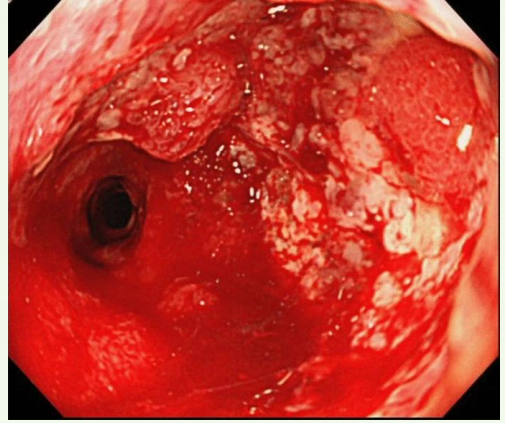
Robel Tadesse, Biniam Ewnte, Kale'ab Tesfaye,
Perforated ileum as the initial presentation of Crohn's disease, a case report,
International Journal of Surgery Case Reports,Volume 97,2022,

Indications: Hemorrhage

- Unusual complication: 0.9-10%
- If stable:
  - Resuscitate
  - Diagnostic measure (CT angio, endoscopy)
- Surgery indicated: CD with life-threatening bleeding, persistent hemodynamic instability, or recurrent, significant bleeding.
- High mortality: up to 7%
- Targeted resection

Indications: Cancer/Dysplasia

- Surveillance: Crohn's colitis of 1/3 colon or >1 segment
- Visible dysplasia completely excised
  - endoscopic surveillance
- Surgery:
  - Visible dysplasia
    - not amenable to endoscopic resection
    - dysplasia in the surrounding flat mucosa
    - multifocal dysplasia or adenocarcinoma
  - Invisible low grade or high grade dysplasia at time of high-def colonoscopy with chromoendoscopy.
- →total colectomy or proctocolectomy



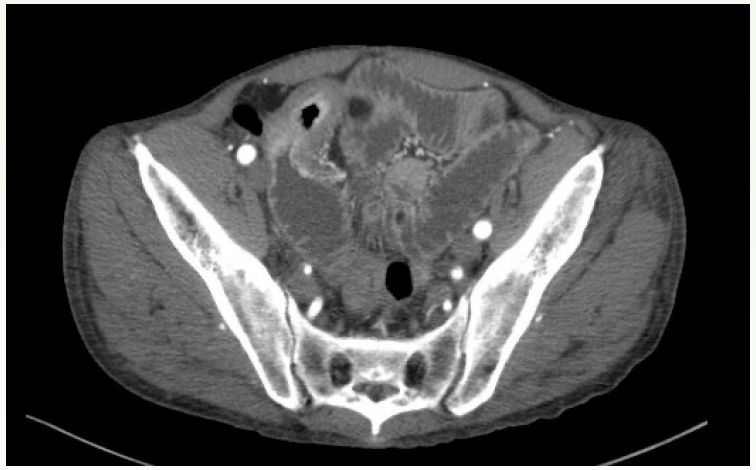
Ishimaru, K., Tominaga, T., Nonaka, T. *et al.* Colorectal cancer in Crohn's disease: a series of 6 cases. *surg case rep* **7**, 152 (2021). https://doi.org/10.1186/s40792-021-01237-0

The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Surgical Management of Crohn's Disease Amy L. Lightner, M.D.1 • Jon D. Vogel, M.D.2 • Joseph C. Carmichael, M.D.3 Deborah S. Keller, M.D., M.S.4 • Samir A. Shah, M.D.5 • Uma Mahadevan, M.D.6 Sunanda V. Kane, M.D., M.S.P.H. 7 • Ian M. Paquette, M.D.8 Scott R. Steele, M.D., M.B.A.1 • Daniel L. Feingold, M.D.9

Indications: Persistent Obstruction

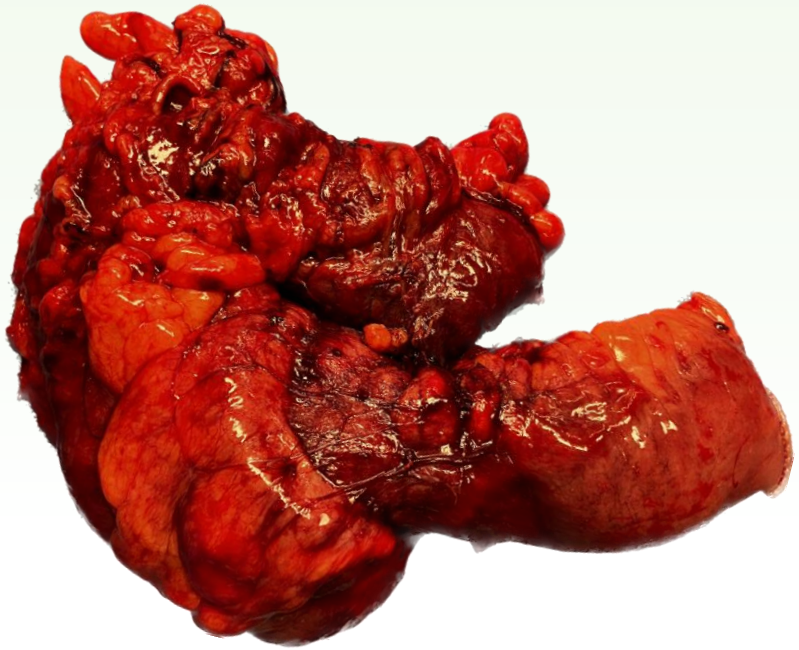
- 35% of surgeries secondary to obstruction

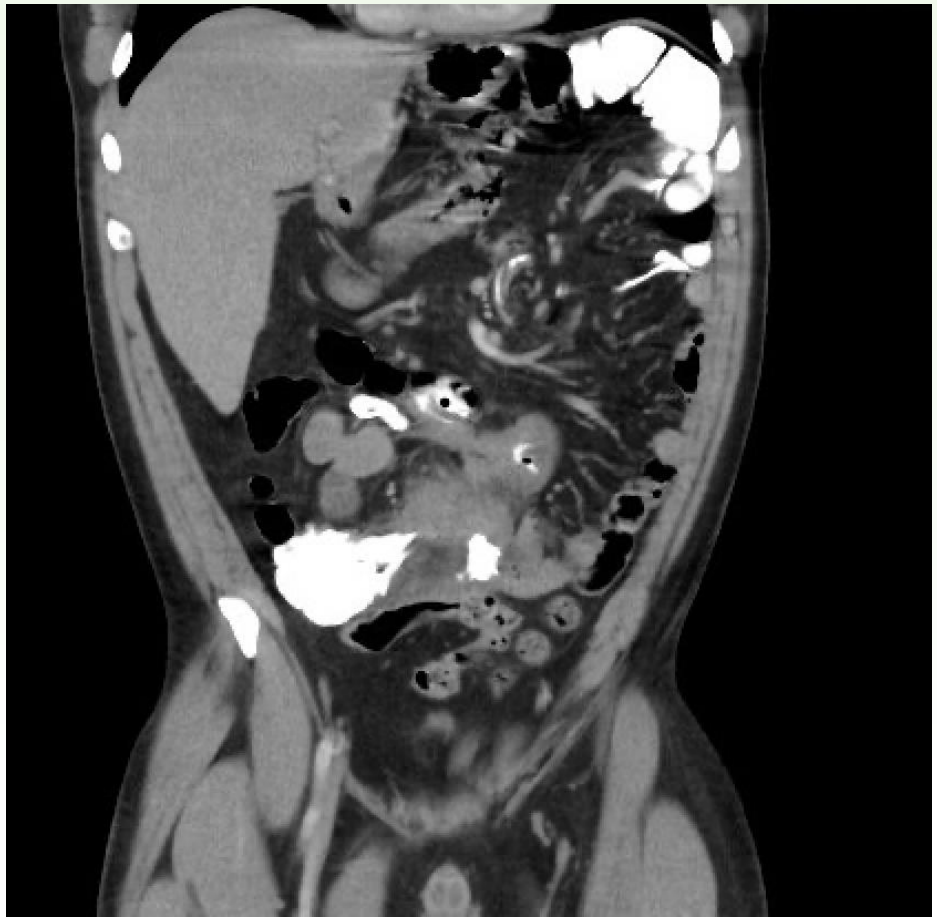
Indications: Refractory Disease



Indications: Fistula/abscess

- Indications for surgery:
  - Internal fistula: 30%
  - Abscess formation: 11%





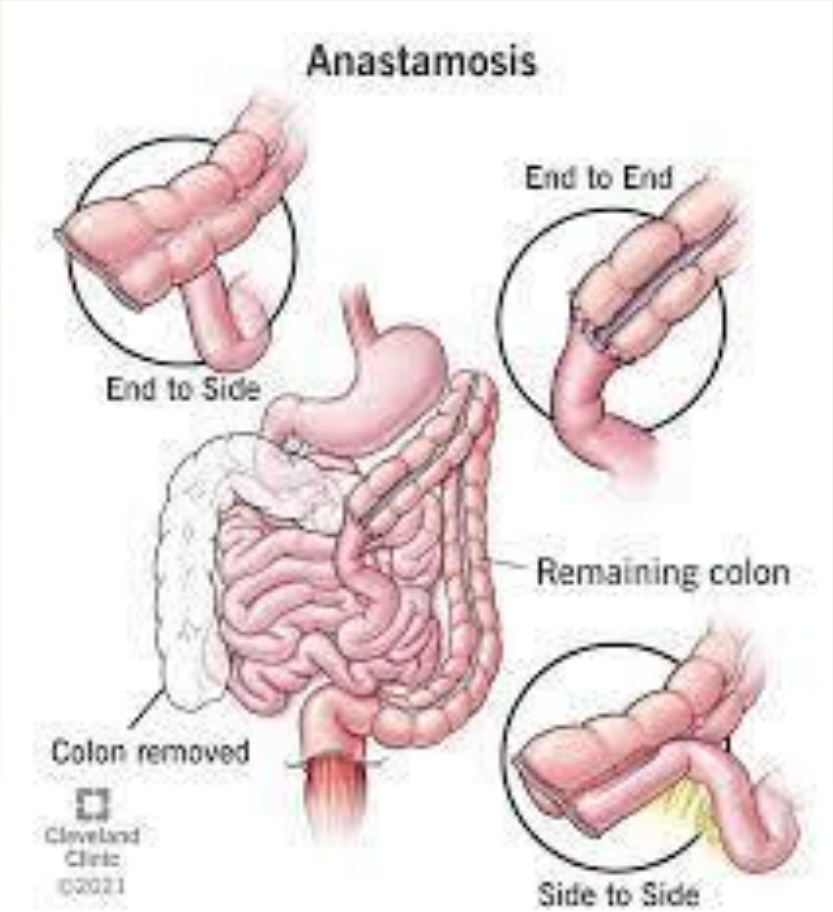
Surgical Principles

Surgical Principles

- **Minimize resections/preserve bowel**
  - Resection of gross disease only
    - Recurrence rate not affected by margin
      - Recurrence rates not increased when microscopic disease present at resection margin
      - Fazio, Marchetti. Ann Surg 1996; 224:563.
  - Frozen sections evaluated to get (-) margins
    - No difference in recurrence rates in 79 pts
    - Hamilton et al. Surg Gyn Obstet 1985; 160:57.

Surgical Principals

- **Restore intestinal continuity if able**
  - Side-to-side
  - Side-to-end
  - End-to-end
  - Handsewn
  - Stapled
- **Equivalent leak rates/ CD recurrence**
  - **McLedo et al. 2009- (CAST trial)**
    - 139 randomized to side to side vs. end to end
    - 1yr endoscopic recurrence:
      - 37.9% SS 42.5% EE (p=0.55)
    - Symptomatic recurrence:
      - 22.7% SS 21.9% EE (p=0.92)
- **Systemic reviews/meta-analysis- largely equivalent**



Surgical Principals

- **Minimally invasive= safe and preferable**
  - Earlier diet
  - ↓ hospital stay
  - ↓ costs
  - ↓ morbidity/ complications

Randomized	Non-randomized
Maartense S, Dunker MS, Slors JF, et al. Ann Surg. 2006	Young-Fadok et al. Surg Endosc 2001
Milsom JW, Hammerhofer KA, Böhm B, Marcello P, Elson P, Fazio VW.. Dis Colon Rectum. 2001	Due Pree et al. DCR 2002
Stocchi L, Milsom JW, Fazio VW. Surgery. 2008	Watanabe et al. DCR 2002

Pre-op evaluation

- Stage the disease
- Understand patients health
- Understand bowel function

Pre-op evaluation: Stage disease

- Where is the disease, multiple segments, long segments? What is the quality and health of the distal bowel for an anastomosis? Anorectal issues?
- **Cross sectional imaging**
  - CTE or MRE- CTE preferable for surgery
  - Review prior imaging to understand disease pattern
- **Colonoscopy**
  - Assess strictures (fibro-stenotic, inflammatory?)
  - Assess distal bowel suitability for anastomosis
- **Anorectal exam**
  - Assess for stricture/distal obstruction, significant perianal disease

Pre-op evaluation: Patient health

- **Nutrition**
  - Albumin
  - Recorded weights over past 6 months/ inquire about weight loss
- **Medications** (steroids, biologics, anticoagulation)
- **Prior operative history**
  - Obtain prior operative notes
    - Understand current anatomy
  - Assess abdominal wall- prior scars, prior stoma sites
  - Ostomy marking if needed
- **Pertinent medical history**

Pre-op evaluation: bowel function

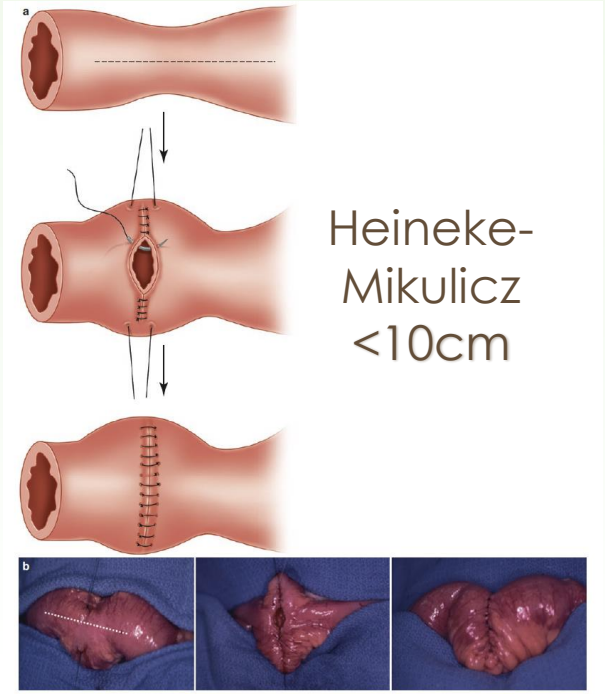
- **Daily bowel habits**
  - frequency/looseness
  - Ileostomy output (daily)
  - May give insight into issues such as short gut, tolerance of further resection
- **Assess continence**
  - Often can be worsened by removing bowel, looser stools
  - If considering ileorectal of particular importance

Surgical Decision Making

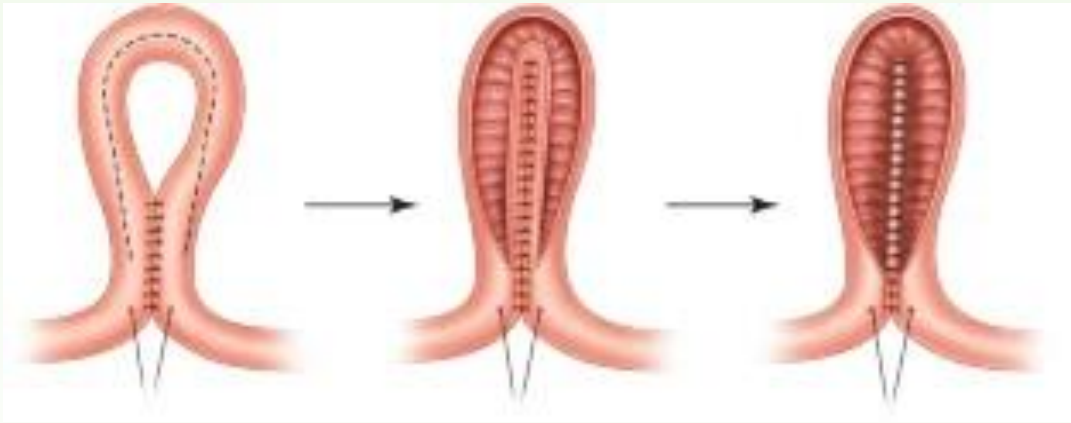
- Resect vs. Strictureplasty
- Anastomosis vs. Diversion
- Timing

Surgical Decision Making

Resection vs. **Strictureplasty**



Heineke-Mikulicz
<10cm

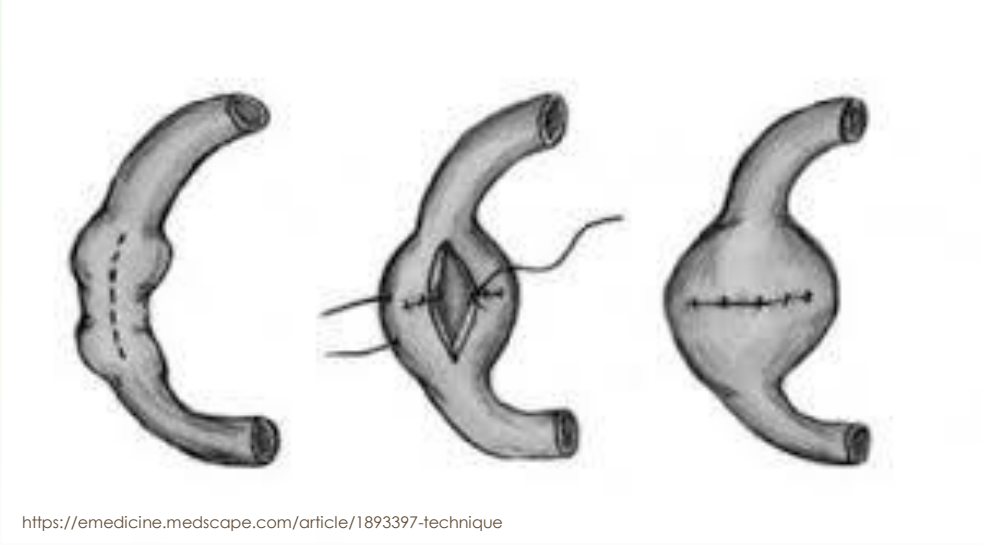


Finney
10-25cm

ASCRS Textbook 4th Ed.

Surgical Decision Making

- **Resection** vs. **Strictureplasty**
  - 38-71% of cases strictureplasty combined with resection
    - maximize bowel preservation with multifocal involvement
- **Recurrence Risk**
  - Stircture plasty
    - More surgical recurrence
    - Shorter recurrence-free interval
  - Re-op for recurrent disease
    - 29% @ 5y, 34% @7.5, 73% @10
  - < 5 % at previous stircture plasty site



https://emedicine.medscape.com/article/1893397-technique

Reese GE et al. Colorectal Dis. 2007
Stebbing et al. Br J Surg. 1996
Bellolio F, Cohen Z, MacRae HM, et al. Dis Colon Rectum. 2012
Yamamoto T, Fazio VW, Tekkis PP. Dis Colon Rectum. 2007
Dietz DW, Laureti S, Strong SA, et al. J Am Coll Surg. 2001
Geltzeiler CB, Young JI, Diggs BS, et al. Gastrointest Surg. 2015

Surgical Decision Making

Anastomosis vs. Diversion

- **High dose glucocorticoids**
  - Dosing and time matter (1mo.)
  - Wean below 20mg daily pre-op if able
- **Malnutrition**
  - >10% weight loss in previous 3 months
  - BMI <18.5
  - Serum albumin <3 (acute/phase reactant)
- **Other considerations:**
  - Obstruction/size mismatch, gross contamination, patient intra-op stability, smoking

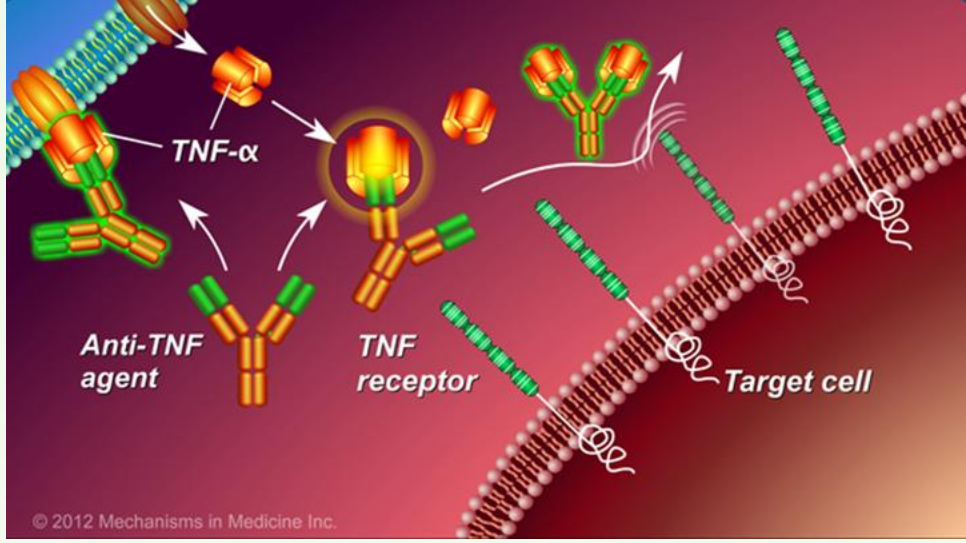
Surgical Decision Making

Timing? Delay and Optimize

- 1. **Improve surgical field**
  - Abscess- percutaneous drain/antibiotics
  - Recent operation
- 2. **Improve the patient (risk of complications/chance for anastomosis)**
  - Nutrition-TPN
  - Wean steroids
  - Medical optimization (cardiac/pulmonary conditions)
- 3. **Improve the disease/minimize resection needs**
  - Treat additional areas of disease/extensive disease
    - Pre-op imaging and scope key

Surgical Decision Making

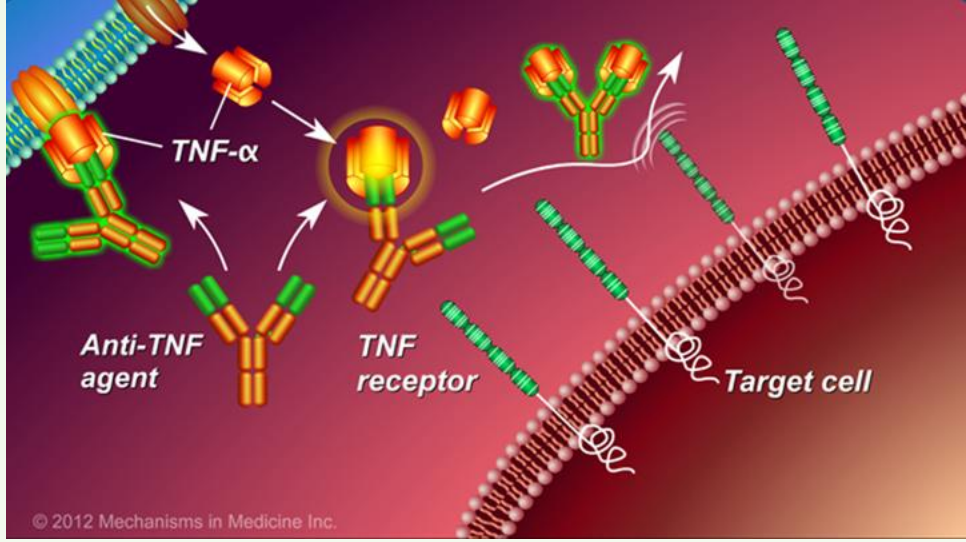
Monoconal antibody therapy?



- **Anti-TNF**
  - PUCCINI
    - multicenter, prospective observational analysis
    - no association between anti-TNF agent use/serum levels and post-op infectious complications.
- **Ustekinumab:** Lightner et al. J Crohns Colitis 2018
  - Multicenter 2015-2017
  - 44 patients ustekinumab- 169 patients anti-TNF
  - No difference post-op SSI/re-admission
- **Vedolizumab:** Novello et al. J Crohns Colitis 2020
  - Single institution 2012-2017
  - 980 patients: 141 vedolizumab case-matched to analimumab or infliximab
  - No difference in overall mortality, infection or SSI

Surgical Decision Making

Monoclonal antibody therapy



- **Delay?**
  - If elective:
    - Vedolizumab: discontinue 4-8 weeks before operation
    - Anti-TNF- discontinue 4 weeks before operation
    - Ustekinumab: discontinue 4 weeks before operation
- **Timing to restart?**
  - Depends on risks of recurrence
    - (penetrating, perianal disease, <3years from prior surgery, active smoker)
  - See patient post-op- generally 2-4 weeks after

Conclusion

- Surgery for Crohn's is not curative
- Requires multidisciplinary care team with GI and surgery
- Surgery for Crohn's disease is not one size fits all but follows several principles
  - Preserve bowel, maintain continuity if able, minimally invasive
- Pre-operative understanding of the patients disease and health status are imperative
- Monoclonal antibody around surgery believed to be safe, with short periods off therapy being preferred

CME/MOC QUESTION

- When performing a resection for Crohn's disease what is the proper resection margin?
  - A. 10cm proximal and distal to the affected bowel
  - B. 15cm proximal and distal to the affected bowel
  - C. resect gross disease only
  - D. send intra-operative margins and resect until no microscopic disease present

CME/MOC ANSWER

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Thank you!

- Jonathan_stem@med.unc.edu
- 724-244-7889