60 yo male with hx of Crohn’s for approx 15 yrs. Referred due to uncontrolled dz despite steroids with approx 10 bowel movements/day, post-prandial pain, and worsening nausea/vomiting.
PMHx: Crohn’s, PTSD

PSHx: open appy, LIHR, endoscopic dilation of ileal stricture in 1990

Meds: clonazopam, vicodin

Allergies: NKDA

Exam: AFVSS, abd with palpable mass RLQ with diffuse mild TTP and mild distention
CT scan demonstrated NO dilated loops bowel and minimal inflammation near TI

SBFT subsequently showed mildly dilated distal ileum with high-grade stricture of the terminal ileum approx 30 in length, eventual passage of contrast into colon
Pt underwent lap-assisted resection of distal ileum and cecum with extracorporeal anastamosis without complication

Excellent post-op course with discharge on POD#3
TC

- 38 yo male with hx of HIV and recurrent diverticulitis requiring hospitalization twice, resolved with medical management. Had c/o only mild BLQ pain at time of clinic visit. Referred for consideration of laparoscopic sigmoidectomy.
- **PMHx**: HIV, hypertriglyceridemia, depression
- **PSHx**: none
- **Meds**: efavirenz, lamivudine, gemfibrozil, bupropion, vicodin, temazepam
- **Allergies**: NKDA
- **Exam**: AFVSS, abd benign
Imaging

- CT scan done several months before referral demonstrated small amount of extraluminal air and fluid c/w rectosigmoid abcess
Pt underwent lap-assisted sigmoidectomy with extracorporeal anastomosis without complication.

Excellent post-op course with discharge on POD#3.
A Brief History

- 1983 - First lap appy done by Kurt Semm
- 1985 - First lap chole done by Erich Muhe
- 6/1990 - First lap-assisted right hemicolecetomy by Moises Jacobs
- 10/1990 - First laparoscopic sigmoid resection by Dennis Fowler
- 11/1990 - First laparoscopic LAR by Patrick Leahy
- 7/1991 - First laparoscopic right hemicolecetomy by Joseph Uddo
Indications

- IBD
- Diverticulitis
- Rectal prolapse
- Volvulus
- Angiodysplasia
- Polyps
- Malignancy (< or = T3)
Contraindications/Conversion

- Dense adhesions
- Evidence of T4 malignancy
- Inability to locate lesions
- Large, dense phlegmon
- Large abscess or diffuse contamination
- Inflammation extending into pelvis
- Possibly obesity
Advantages

- Decreased pain
- Decreased post-op ileus
- Shorter hospitalization
- Decreased cost of care - debated
- Improved cosmesis
RCT showing statistically significant reductions in pain

RCT showing statistically significant shorter times to return of bowel fxn

  54 pt with mean of 3 days

  18 pts with mean of 2.7 days

  111 pts with mean of 1.5 days

  29 pts with mean of 2 days
RCT showing statistically significant shorter hospital stays

  15 pts with mean of 5 days
  18 pts with mean of 5.2 days
  111 pts with mean of 5.6 days
- Weeks et al. *JAMA*. 2002
  168 pts with mean of 7.1 days
  29 pts with mean of 5 days
  345 pts with mean of 5 days
Basse et al. Ann Surg. 2005 – small RCT with 60 pts showing that fast-track surgery with feeding POD#1 and planned d/c POD#2 for both open and lap colectomy allowed for similar functional recoveries.
Awaiting results of the LAFA trial (Laparoscopic and Fast-track multimodal management vs standard care trial) – a planned large multi-center RCT started 11/2006
Costs of Care

Franks PJ et al. Br J Cancer. 2006 with 682 pts revealed operative costs were higher in the Lap colectomy group (1703 pds vs 1386 pds) but were partially offset by the shorter hospital stay.

Delaney CP et al. Ann Surg. 2003 with 300 pts revealed the same – higher OR costs offset by the shorter hospital stay.
Disadvantages

- Steep learning curve
- Higher morbidity or longer hospital stay if converted to open - debated
- Limited mesenteric lymphadenectomy – debated
- Concerns regarding the effectiveness of laparoscopic colectomy in the treatment of malignancy
Learning Curve for Lap Colectomy

- Wishner JD et al. Surg Endosc. 1995- operative time leveled off after 35-50 cases from 250 min to 140 min.
- Bennett CL et al. Arch Surg. 1997 – Surgeons arbitrarily designated as high-volume with > 40 cases /yr and shown to have lower intra and post-operative complications (10% vs 19%)
Schlachta CM et al. Dis Colon Rectum. 2001 – After 30 cases operative times leveled off at 150 min from 180 min, intra-op complications dropped from 9% to 7%

Tekkis PP et al. Ann Surg. 2005 – 55 to 62 cases were needed to produce reduction of conversion rates and decrease operative time, readmission and post-op complications were not affected
Laparoscopic to Open conversions

- Overall, conversion rate between 8% and 25%
- Casillas S et al. Dis Colon Rectum. 2004 – 12% of 430 cases were converted. Ultimately hospital stay was unchanged at 5 days, complications were 11.6% vs 8% for open colectomy matched controls, and 30 day readmissions 13% vs 8%. Costs were no different.
Belizon A et al. Surg Endosc. 2006 – 19% of 143 pts were converted. Ultimately shown to have longer length of stay (12 days vs 8 days for open), and worse wound infection (10.4% vs 6.5%). Subset analysis suggests that wound complications could be avoided if conversion occurred within 30 min of starting case.
Adequacy of mesenteric LN dissection

- Franklin ME et al. Dis Colon Rectum. 1996 – RCT with 191 Lap and 224 Open showing 10 vs 9 LN obtained respectively, same rates for margin clearance, and no trocar implants after 5 yrs

- Lord SA et al. Dis Colon Rectum. 1996 – Prospective trial with 41 lap colectomies with matched open controls showing mean of 8.5 LN – same as open, same rates for margins, and no trocar recurrence after 1.5 yrs
Clinical effectiveness of Lap colectomy in treating colon CA

- RCT with 415 LCR arm, 395 OCR arm
- At 3 yrs, tumor recurrence was 16% vs 18% for LCR and OCR, respectively.
- Surgical wound recurrence was less than 1% for both
- Survival was 86% for LCR, 85% for OCR
Concepts in Laparoscopic Colectomy

- Known benefits of laparoscopic surgery (less pain, earlier bowel function, shorter hospital stay) extend to lap colectomy but comparison of costs to open colectomy may recede if early feeding protocols allow for earlier discharge. Additionally, the short-term QOL improvements are just that – short-term and likely do not last beyond the first 2-3 wks post-op.
Learning curve for lap colectomy of between 30-60 cases may require advanced surgical training and given the potential disadvantages to pt outcome with conversions to open (although evidence is not overwhelming) pt selection for lap colectomy must be meticulous
Recent large RCT (Nelson H. et al, NEJM) essentially proves that lap colectomy for malignancy is at least as effective as open.

LN harvest is likely effected by pathologist diligence.

Must consider that the rate limiting step in lap colectomy for incision size is removal of the specimen – studies have been done to compare the effectiveness of lap-assisted vs complete laparoscopic resection with intracorporeal anastomosis and have shown them to be similar (Nakajima K et al. Surg Endosc. 2004.)