An Unusual Complication of Crohn’s Disease

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Surgical Grand Round
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Case Presentation

- 70 year old lady
- k/c of Crohn’s disease
- h/o of Hartmann’s procedure
- On mesalazine, methotrexate and infliximab
- Other co-morbidities: IHD, AF
- Admitted with parastomal abscess in June 2008
Presenting Complaint

- 1 week ho of spiking fever up to 100F
- Watery loose stool up to x 10 dly
- No blood with stool
- No mucus with stool
- No abdominal pain
- No vomiting
- No chills or rigors
- Stoma working well
Physical Examination

- Febrile
- Dehydrated
- Haemodynamically stable
- Abdomen NAD
- No abnormalities with stoma
- Healed pyoderma gangrenosum both LL
- DE of stoma: yellowish loose stool
Investigations

- WCC 10.30
- Neu 8.66
- Hb 10.5
- PLT 354
- Amylase 48
- U&E, Cr: WNL
- ESR 84
- CRP 180
- ALP 112
- ALT 21
- GGT 50.7
- Bili 8.0
- Stool C&S, OCP, C difficile –ve
- Blood C&S -ve
Initial Management

- Admitted to IDU
- Maximal medical therapy
- Elemental diet
- DVT prophylaxis
- IV rehydration
- Antibiotics
  (Ciprofloxacin/metronidazole, changed to meropenem)
Stomal Problems

- Onset of tingling sensation around stoma
- Mild inflammation and exudation around stoma,
- Progression to induration, ulceration with pustular discharge
- Still febrile
- Still frequent loose stool
- Inflammatory markers still high
- Surgical consultation: CT abdomen suggested
CT (2/7/2008)
Surgical Review

- Advised to start TPN
- Metronidazole ointment bd
- Steroid foams bd
- Mesalazine suppositories per stoma
- Oral steroids
- To consider surgery if medical Rx fails
TPN line
TPN line in situ
- Did well with medical Rx
- TPN stopped after 2 wks
- Antibiotics stopped
- However deteriorated again
- Spiking fever
- CT repeated
- Bacteriological work up – cultures negative
- TOE: no vegetations
- Restarted on Amoxycillin and Tazocin
Repeat CT

- Intestinal loops connected with the col-ostomy show thickened mucosa.
- No free fluid or abscess formation.
- Otherwise normal.
C Difficile

- Clostridium difficile +ve stool
- Started on oral vancomycin
- GC improved: afebrile, eating and drinking
Suspicion of LB obstruction

- Again deterioration with fever, colicky abdo pain and vomiting
- 3rd CT
  - [L] colostomy
  - thickening of the wall of the colon adjacent to the colostomy
  - distention of the colon
  - findings are indicative of large bowel obstruction.
  - Gastrograffin study suggested
3rd CT
Gastrograaffin study
Colonoscopy

- Endoscopy via stoma
- Irregular friable mucosa
- Contact bleeding
- Tight stricture at stoma
- Impossible to examine rest of large bowel
Surgery 6/11/08

- Laparotomy
- Diseased distal transverse colon
- Dissection of stoma off anterior abdo wall
- Resection of diseased bowel
- Re-siting of stoma
- ITU stay X 2 days
Post-op

- Slow but steady recovery
- Afebrile
- Normal enteral diet
- Stoma working
- Off medical Rx to encourage healing
- Inflammatory markers normalised
Discussion

- Chronic disease that primarily affects young individuals
- Requires ongoing medical management
- Significant morbidity
- Surgical treatment has been reserved for refractory disease and complications
- Minimally invasive surgery alternative to the traditional open approach.
History

- 1932: "Regional Ileitis" described by Crohn, Ginzburn, and Oppenheimer

- 1960: Pathologic criteria to distinguish Crohn’s disease from other forms of inflammatory bowel disease established.
Frequency

- incidence 5.3 cases per 100,000.
- disease onset peaks in older adolescents and young adults
- 5% of new cases in children <5 years
- most common in the Ashkenazi Jewish and Caucasian populations
- equal M:F ratio
Aetiology

- Aetiology unknown
- Multifactorial: infectious agents and environmental exposures
- Familial clustering
- Disease locations and types tend to be similar among family members.
- Smoking and exposure to second-hand smoke also implicated.
Pathophysiology

- Can affect any part of the alimentary tract from the mouth to the anus
- Most common site is the terminal ileum
- Appendix often involved
- Rectum frequently spared
- Segmental
Fig 1: Distribution of Crohn’s disease.
Microscopic Appearance

- Transmural inflammation of all layers of the bowel wall
- Mucosa: cryptitis, crypt abscesses, basal plasmacytosis, and crypt ulcers
- Bowel wall: noncaseating granulomas characteristic, proliferative stromal and nodular inflammatory changes lead to strictures.
Figure 2: Mucosal granulomas
Fig 3: Fissuring ulcer
Macroscopic Appearance

- Patchy areas of inflammation separated by uninvolved bowel
- Earliest lesions are aphthous ulcers
- Progress to linear ulcers and cobblestone appearance.
Macroscopic Appearance

- Surgical specimens rigid and thickened secondary to chronic inflammation and fibrosis.
- Mesentery is thickened and may partly surround the bowel wall (creeping fat).
- Fistulous connections (transmural inflammation).
Fig 4: Pathology in Crohn’s Disease
Fig 5: Laparoscopic view depicts creeping fat along the mesentery of the terminal ileum.
Fig 6: Resection Specimen showing Crohn’s disease of the ileum with segmental stricture.
Clinical Presentation

- Chronic abdominal pain,
- Diarrhea,
- Weight loss.

- Crohn colitis: bloody diarrhea, tenesmus, or incontinence.
- Children: secondary amenorrhea, delayed onset of puberty and FTT.
- 5% only perianal symptoms: anal fissures (most common), skin tags, anal stenosis, faecal incontinence, fistula, and perianal abscesses.
Fig 7: Perianal Crohns’.
Complications

Less commonly presentation is with complication:

- small-bowel obstruction,
- intra-abdominal abscess,
- enteric fistulas,
- intestinal perforation,
- toxic megacolon.

- ileitis may mimic appendicitis.
Extraintestinal Manifestations

Overlap with those of ulcerative colitis.

- Aphthous ulceration of the buccal mucosa, lips, or tongue
- Skin: erythema nodosum and pyoderma gangrenosum,
- Ankylosing spondylitis is more common in men
- Ocular: such as iritis and uveitis
- Hepatic: chronic hepatitis or sclerosing cholangitis (more common in UC)
- Renal calculi and cholelithiasis in long-standing ileal disease.
Investigations

- Stool specimens to exclude infectious causes
- CBC: anaemia caused by iron, vitamin B12, or folic acid deficiency
- Albumin and prealbumin levels: levels of nutrition
- Electrolytes: level of hydration and renal function
- Inflammatory markers: ESR and CRP
- LFTs: elevated transiently because of inflammation or chronically because of sclerosing cholangitis.
- Amylase and lipase levels: drug-induced pancreatitis (azathioprine, 6-mercaptopurine, and 5-aminosalicylic)
Imaging: CT

- CT: in patients with acute inflammatory symptoms
- may show
  - bowel-wall thickening,
  - mesenteric oedema,
  - abscesses,
  - fistulae.
Fig 8: CT with oral contrast.
Other Imaging

- Small-bowel contrast studies: distribution of small bowel disease
- May show
  - bowel fistulae,
  - mucosal fissures,
  - strictures,
  - obstruction,
  - narrowed and thickened terminal ileum (lead pipe appearance)
- MRI: high sensitivity and specificity for both the diagnosis and assessment of severity.
Fig 9: Contrast-enhanced upper-GI study with small-bowel follow-through.
Endoscopy

- Endoscopic visualization and biopsy are essential
- Colonoscopy with intubation of the terminal ileum
- Colonoscopy may have a role in cancer surveillance (controversial).
- OGD: gastroduodenal disease. Recommended for all children
- 10% of patients will have indeterminate colitis with features of both Crohn disease and ulcerative colitis.
- On long-term follow-up, small-bowel disease characteristic of Crohn’s disease ultimately develops.
Fig 10: Endoscopic view of severe Crohn's disease of ileum.
Medical Therapy

- Aminosalicylates
- Corticosteroids
- Antibiotics
- Immunosuppressants
- Biologic Therapies
Aminosalicylates

- First-line medications
- Sulfasalazine: sulfapyridine moiety linked to 5-ASA
- Acts locally by inhibiting various elements of the inflammatory cascade
- Helpful in preventing recurrence after surgery
- Topical aminosalicylates in distal colonic Crohn’s disease
- Adverse effects: nausea, vomiting, abdominal pain
- Newer oral compounds better tolerated eg mesalamine.
Corticosteroids

- Highly effective in acute episodes
- Induce remission in all disease locations
- Long-term corticosteroid treatment does not have a role
- Many adverse effects, esp in children
- Newer steroids rapidly metabolized during their first pass through the liver
- Topical steroid enemas in distal Crohn colitis without the systemic effects.
Antibiotics

- Antibiotics aimed at the intestinal flora used in both intestinal and perianal Crohn’s’ disease,
- Metronidazole is most widely used in perianal Crohn’s’ disease,
- Promotes healing of perianal fistulas
- After ileal resection decreases post-surgical disease recurrence,
- Ciprofloxacin or other broad-spectrum antibiotics useful alternatives.
Immunosuppressants

- Azathioprine and its metabolite, 6-mercaptopurine,
- Inhibitors of purine synthesis,
- Used in the treatment of both active and quiescent Crohn disease,
- Allow for early reduction and cessation of corticosteroid treatment during acute episodes,
- Dose-dependent adverse effects include nausea, rash, marrow toxicity, hepatitis, and acute pancreatitis.
Biologic Therapies

- Antibodies against TNF-alpha eg Infliximab, have shown promise in the treatment of patients with active and quiescent disease
- Improvement in the endoscopic and histologic appearance of chronic active disease after a single infusion
- Benefit also in refractory enterocutaneous and perianal fistulae.
Surgery

- Most patients with Crohn's disease require surgical intervention during their lifetime,
- Surgery not curative,
- Many require multiple procedures,
- Every attempt at conserving bowel length should be made,
- Repeated intestinal resection major cause of short-bowel syndrome.
Indications

- Failure of medical therapy
- Complications of steroid or other medical therapy (e.g., growth failure)
- Complications of the disease process
  - intestinal obstruction
  - intestinal perforation
  - recalcitrant sepsis and abscesses
  - fistulae
  - toxic megacolon
  - massive hemorrhage
Surgical Options

- Strictures: resection of the strictured bowel, stricturoplasty or balloon dilatation
- Abscesses: drained surgically or percutaneously
- Fistulae: resection of the involved bowel if medical Rx fails
- Toxic megacolon & massive hemorrhage: may require urgent bowel resection
Perianal Crohns’

- Particularly difficult to manage
- Repeat operations may lead to sphincter damage and incontinence,
- Abscess: drainage,
- Fistula: a silicone Seton can be used to prevent premature skin closure,
- Severe perianal disease with sphincter destruction: proctectomy with permanent ileostomy may be necessary.
Outcome and Prognosis

- Crohn's disease is a chronic, incurable condition.
- 86% require surgical intervention within 15 years of disease onset.
- Advances in medical and surgical therapy have led to additional treatment options.
- Most achieve a healthy height and weight.
- Mortality rate for the disease is low.
Thank you

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