

CROHN'S DISEASE

Introduction

Crohn's disease (also referred to as regional enteritis, terminal ileitis, or granulomatous ileocolitis) is one of two mucosal diseases of the GIT, which are collectively referred to as **inflammatory bowel disease**.

It is a chronic relapsing disease of presumed autoimmune aetiology.

In distinction to ulcerative colitis which affects only the distal GIT, Crohn's disease can affect **any part of the GIT**.

Perianal involvement on the other hand is common in Crohn's whilst this is not seen in ulcerative colitis.

Fistula formation, stricturing and abscess formation are more commonly seen as it the case with ulcerative colitis.

Toxic megacolon may be seen, but this is much more common in **ulcerative colitis**.

See also separate documents on:

- **Toxic Megacolon (in GIT folder)**
- **Ulcerative Colitis (in GIT folder)**

Pathophysiology

Causes:

The exact causes of IBD are unknown, but both genetic and environmental factors are thought to be important in their aetiology.

There is possibly an inappropriate and continuing inflammatory response to commensal microbes and/or environmental factors in a genetically susceptible person.

One important environmental risk factor for Crohn's disease is **smoking**.

Histopathology:

Important aspects of histopathology include:

- Crohn's disease can affect **any part** of the gastrointestinal tract, though the **ileocolonic region** is most commonly affected.
- Inflammation is far more commonly **transmural** compared to ulcerative colitis which is more commonly partial only.
- In contrast to ulcerative colitis, the lesions of Crohn's disease are **discontinuous**, with skip areas interspersed between one or more involved areas.

Late in the disease, the mucosa develops a cobblestone appearance, which results from deep longitudinal ulcerations interlaced with intervening normal mucosa.

- The diagnosis is made by demonstrating the endoscopic and histological features of colitis at sigmoidoscopy and excluding known infectious causes by stool examination.

There are 3 *major patterns* of involvement in Crohn's disease including:

- Disease in the ileum and cecum, occurring in 40% of patients.
- Disease confined to the small intestine, occurring in 30% of patients.
- Disease confined to the colon, occurring in 25% of patients.

Rectal sparing is common in Crohn's, (in contrast to ulcerative colitis, where it is universal)

Perianal involvement on the other hand is common in Crohn's whilst this is not seen in ulcerative colitis.

Complications:

The complications of Crohn's disease include:

Acute complications:

1. Fluid and electrolyte loss.
2. Blood loss with anaemia.
3. Sepsis, including:
 - Local abscess formation.
 - Perforation of the GIT with consequent peritonitis
 - Septicemia

4. Superimposed infectious colitis:
 - CMV
 - Clostridium difficile
5. Toxic megacolon, (although this more commonly seen with ulcerative colitis).
6. Perforation.
- 7 Medication complications, predominantly relating to **immunosuppression**.

Long term complications:

8. Obstruction due to stricture formation, (occurs much more commonly than in ulcerative colitis)
9. Fistula formation, (occurs much more commonly than in ulcerative colitis).
10. Malignant change in the longer term:
 - This is more likely in patients who have UC, but the risk may also be increased in Crohn's patients who have pan-colitis.
11. Bile salt malabsorption:
 - Extensive ileal disease, especially in patients who have undergone previous ileal resection, may cause bile salt malabsorption leading to bile salt diarrhoea (due to the stimulatory effect of bile salts on the colonic mucosa), or to steatorrhoea (due to bile salt depletion).
 - These may occur in the absence of active inflammation.
 - It is important to distinguish between bile salt diarrhoea, steatorrhoea and active Crohn's disease.

Autoimmune associations:

Extraintestinal autoimmune complications of inflammatory bowel disease include:

1. Iritis/ episcleritis
2. Arthritis.
3. Skin involvement:
 - Rashes

- Pyoderma gangrenosum ulcerations.

Clinical Assessment

Important points of history:

1. Recurrent episodes of diarrhea
2. Recurrent bouts of abdominal pain, more commonly right sided.
3. Perianal complaints are common.

In diagnosed cases:

1. Establish the patient's normal pattern of disease.
2. Establish the patient's usual maintenance drug regime.
3. Enquire as to who the patients usual specialist is, (liaison will often be necessary when planning treatment)

Important points of examination:

1. Vital signs.
2. Hydration status.
3. Look for signs of sepsis.
5. Check for signs and degree of GIT bleeding.
4. Abdominal examination:

Signs of possible toxic megacolon:

- Diffuse tenderness
- Abdominal distension
- Reduced/ absent bowel sounds.

Look for signs of a possible *surgical* complication such as perforation or peritonitis.

- Guarding (voluntary or involuntary)
- Rebound tenderness

- Rigidity.

When the terminal ileum is involved in an exacerbation of disease, the presentation can very much resemble acute appendicitis.

5 Perianal disease:

- **Note that this can be far more extensive than is appreciated on external examination.**
- **Extensive Fistulae and deep seated abscesses can occur.**

Investigations

Blood tests:

1. FBE:

- White cell count will be elevated in increased activity or secondary infective complications.
- The WCC may also be normal or depressed in patients on immunosuppressants.

2. CRP:

- This is important to assess disease activity or secondary infective complications.

3. U&Es / glucose:

- In particular check for hypokalemia.

4. LFTs:

- Albumin levels in particular, which can be an indicator of severity.

5. Others as clinically indicated:

- Blood cultures.
- Coagulation screens.
- VBGs/ lactate.
- Nutritional deficiencies are common in IBD:

- ♥ Iron
- ♥ Folate
- ♥ B12

Faecal M&C:

Faecal M&C is done for:

- Standard pathogens
- **Clostridium difficile (and toxin):**
 - ♥ There is a higher prevalence in IBD and increased mortality.
- **CMV** in severe colitis:
 - ♥ Especially for patients who are on immunosuppressants. CMV colitis is associated with increased morbidity and mortality.

Plain radiography:

CXR/ AXR, erect and supine looking for evidence of:

- Obstruction.
- Toxic megacolon
- Perforation.

CT imaging:

This is the best investigation when:

- The patient is unwell.
- Secondary complications are suspected, such as perforation or abscess formation.
- The diagnosis is unclear.

MRI:

MRI is beginning to be used more often, due to concerns about cumulative radiation exposure from repeated CT scanning, particularly in younger patients.

It is less readily available than CT however, and experience with this modality is much more limited.

Endoscopy:

Endoscopy is used for:

- Initial diagnosis.
- Staging activity/ response to therapy.
- Screening (for strictures or cancer).

Cautious sigmoidoscopy is safe in acute disease, but colonoscopy carries a risk of perforation.

Endoscopy is contraindicated in cases of toxic megacolon/ toxic colitis.

Management

The management of inflammatory bowel disease is developing rapidly.

The aims of treatment are to change the natural history of the disease and its long-term outcomes, rather than simply to achieve symptomatic control.

This is reflected in a trend towards earlier introduction of disease-modifying drugs (i.e immunomodulators and biological therapies), rather than persisting with less potent drugs (i.e aminosalicylates, corticosteroids).

These improved expectations and outcomes have coincided with increased availability of biological drugs targeting tumour necrosis factor alpha (i.e infliximab, adalimumab).

Treatment in the ED:

Patients can present to the ED with:

1. A first presentation of their disease
2. An exacerbation of their disease
3. Complications of their disease:
 - Medical
 - Surgical
4. An adverse reaction from their medications.

In all cases there should be close consultation with the Gastroenterology Unit and the Surgical Unit when a surgical complication is diagnosed or suspected.

General treatment:

In general terms, management in the ED will involve:

Management of severe exacerbations of ulcerative colitis includes:

1. IV fluid resuscitation:

- The immediate priority will usually be fluid resuscitation.

2. Nil orally.

- Consider nasogastric tube.

3. Correct electrolyte disturbance:

In particular:

- Hypokalemia
- Hypoglycaemia.

4. Analgesia:

- Opioids should be used with caution.

5. Antibiotics:

IV antibiotics are not given routinely but should be given urgently in patients who are:

- Toxic/ septicemic
- Have suspected toxic megacolon.
- Have suspected surgical complications, such as peritonitis or gut perforation.

Cefotaxime and metronidazole may be used.

6. Antidiarrheal agents.

- Loperamide, other antidiarrheal and anticholinergic agents, (such as buscopan) should be *avoided* in *severe* disease as these may precipitate **toxic megacolon**.

7. Blood transfusion as indicated.

Specific medical treatments:

These should be guided by the Gastroenterology Unit.

The severity of the disease and the site(s) of the affected bowel determine which drugs may be used and their route of administration or formulation. In contrast to ulcerative colitis, **topical therapy has a limited role.**

As with ulcerative colitis, the aims of therapy are to induce remission in active disease and then maintain remission and prevent relapse.

In general terms the following initial options are available:

Mild to moderate Crohn's disease:

Unlike in UC, the benefits of aminosalicylates in active Crohn's disease are limited and of doubtful clinical significance.

Steroids are used:

Options include:

1. Prednisolone
2. Budesonide (as controlled-ileal-release formulation).

In clinical trials some antibiotics alone or in combination, have been shown to have a limited effect when used in active Crohn's disease of the colon. These antibiotics are sometimes added to corticosteroids

Antibiotics that are used include:

3. Metronidazole.
4. Ciprofloxacin

Severe Crohn's disease:

Intravenous corticosteroids are used in severe disease:

Options include:

5. IV hydrocortisone
6. IV methylprednisolone

The optimal duration of intravenous corticosteroid therapy is not known, but it is generally given for 3 - 7 days

When disease activity has subsided oral prednisolone is substituted.

For patients with **refractory active** Crohn's disease, anti-tumour necrosis factor drugs are used.

These agents include:

7. [Infliximab](#)
8. [Adalimumab](#)

Some patients with Crohn's disease are refractory to corticosteroid induction therapy, or become corticosteroid-dependent after successful induction.

These patients need immunomodulatory drugs or consideration for surgery, particularly if they are corticosteroid-dependent.

Immunomodulatory drug options include:

9. [Azathioprine](#)
10. [Mercaptopurine](#)
11. [Methotrexate](#)

Bile salt malabsorption:

Extensive ileal disease (especially in patients who have undergone ileal resection) may cause **bile salt malabsorption**.

This in turn can lead to bile salt diarrhoea (due to the stimulatory effect of bile salts on the colonic mucosa) or to steatorrhoea (due to bile salt depletion)

These may occur in the *absence* of active inflammation. It is important to distinguish between bile salt diarrhoea, steatorrhoea and active Crohn's disease.

Bile salt diarrhoea is controlled with:

- [Cholestyramine](#)
- [Cautious use of loperamide](#)

Surgery:

Surgery may be considered for treating **chronic refractory disease**.

Surgery is also done for **malignant disease**.

Indications for **emergency surgery** include:

- Toxic megacolon/ toxic colitis.
- Perforation
- Obstruction
- Abscess
- Fistulae
- Uncontrolled haemorrhage

Perianal disease is a particular problem in Crohn's disease.

- Perianal fissures, fistulas and abscesses occur in up to 40% of patients with Crohn's disease.

Perianal Crohn's disease should always be managed in consultation with a specialist **colorectal surgeon**.

Fistulas often need surgical exploration and local drainage.

Metronidazole or ciprofloxacin are commonly used to treat perianal Crohn's disease - this practice is supported by expert opinion, but few controlled trials have been performed.

Therapy may be needed for weeks to months

Disposition:

All cases should be discussed with the **Gastroenterology Unit**.

There should also be early **Surgical consultation** when a surgical complication is diagnosed or suspected.

Patient Information Resources

Many patients require emotional support.

A number of organizations exist that may be able to offer assistance including:

- **The Australian Crohn's and Colitis Association (ACCA)**
 - ♥ www.acca.net.au

- **Australian Council of Stoma Associations (ACSA)**
 - ♥ www.australianstoma.com.au

References

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 - Gastrointestinal Therapeutic Guidelines 45th ed 2011.

2. K.Yates, L. Finnel; Inflammatory Bowel Disease in Textbook of Adult Emergency Medicine, Cameron et al 4th ed 2015.

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