بسم الله الرحمن الرحيم
INFLAMMATORY BOWEL DISEASE
• Small intestine

• The length of the small bowel vary from 300 to 850 cm between the duodeno-jejunal (DJ) flexure to the ileocaecal valve.

• The proximal 40 per cent of the small intestine is referred to as the jejunum; the remainder is the ileum.

• The jejunum tends to have a wider diameter and a thicker wall, with more prominent mucosal folds (valvulae conniventes), while the ileum has a thicker, more fatty mesentery with more complex arterial arcades.
• The ileum also contains larger aggregates of lymph nodes (Peyer’s patches).

• **Arterial supply**: Superior mesenteric artery.

• **Venous drainage**: Portal venous system.

• **The lymphatic drainage**: Follow the arterial supply.

• **Nerve supply**: Dense network of sympathetic fibers around the superior mesenteric artery. Referred pain from the small intestine usually felt in the periumbilical region (T10).
• **Large intestine.**

• The large intestine begins at the ileocaecal valve and extends to the anus.

• The large intestine is approximately 1.5m long.

• The colon characterized by presence of fat-filled peritoneal tags known as *appendices epiplioicae* and presence of *taeniae*.

• The taenia coli are 3 flat bands of longitudinal muscle that run the length of the large intestine from the appendix base to the rectosigmoid junction and they act to pull the colon into its typical sacculated state, producing a series of haustrations.
• **Arterial supply:** Superior and inferior mesenteric artery.

• **Venous and lymphatic** drainage of the colon follows the arterial su.

• **The nerve supply derived** from the splanchnic nerves.

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**PHYSIOLOGY OF THE SMALL AND LARGE INTESTINES**

• The main function of the small intestine is the digestion of food and the absorption of nutrients and fluid.

• The principal function of the colon is absorption of water; 1000 mL of ileal contents enter the caecum every 24 hours of which only about 150-250 mL is excreted as faeces.
INFLAMMATORY BOWEL DISEASE

By definition, the term “Inflammatory bowel disease” is reserved for conditions characterised by the presence of idiopathic intestinal inflammation, i.e. Ulcerative colitis (UC) and Crohn’s disease (CD).

ULCERATIVE COLITIS

Ulcerative colitis is a disease of the rectum and colon with extraintestinal manifestations.

UC is common in Jewish population and affects men and women equally in early life.
• **Aetiology**

  ➢ The cause of UC is unknown.
  
  ➢ Unlike Crohn’s disease, smoking seems to have a protective effect in UC.

• **PATHOLOGY**

  ➢ In virtually all cases, the disease starts in the rectum and extends proximally in continuity.
  
  ➢ Colonic inflammation in UC is diffuse, confluent and superficial, primarily affecting the mucosa and superficial submucosa.
  
  ➢ In very severe cases, the inflammation may extend full thickness through the wall of the colon, making interpretation difficult.
  
  ➢ Chronic mucosal ulceration is associated with formation of granulation tissue and regeneration, leading to a polyp-like appearance, ‘pseudopolyposis’
Colonic dysplasia may develop irregular mucosal swelling (dysplasia-associated lesions or mass, DALMs), which are highly predictive of the coexisting carcinoma.

**SYMPTOMS**

- The main symptoms will be **rectal bleeding**, tenesmus and mucous discharge. The disease remains confined to the rectum in 90% of cases but proctitis may spread proximally over time.
- Colitis is almost always associated with **bloody diarrhea** and urgency.
- Extensive colitis is also associated with **systemic illness**, characterised by malaise, loss of appetite and fever.
Diarrhea may be profuse and bloody, resulting in anaemia, hypoproteinaemia and electrolyte disturbance.

Approximately 30% of patients have inflammation extending to the sigmoid colon and spread proximal to the splenic flexure occurs in 20%.
CLASSIFICATION OF COLITIS SEVERITY

The assessment of severity of UC is determined by frequency of bowel action and the presence of systemic signs of illness:

- **Mild disease** is characterised by fewer than 4 stool daily, with or without bleeding. There are no systemic signs of toxicity, and a normal erythrocyte sedimentation rate.

- **Moderate disease** corresponds to more than 4 stool daily, but with few signs of systemic illness. There may be anaemia, abdominal pain may occur. Inflammatory markers, including ESR and C-reactive protein (CRP) are often raised.
• **Sever disease** corresponds to **more than 6 bloody stools a day**, and evidence of systemic illness with fever, tachycardia, anaemia and raised inflammatory markers. Hypoalbuminaemia is common and an ominous finding.

• **Fulminant disease** is associated with **more than 10 bowel movement** daily, fever, tachycardia, continuous bleeding, anaemia, hypoalbuminaemia, abdominal tenderness and distension, in more severe cases, progressive colonic dilatation (**toxic megacolon**).
**Extraintestinal manifestations**

1- Arthritis: occurs in around 15% of patients affecting large joint polyarthritis type, affecting knees, ankles, elbow and wrists.

2- Sacroiliitis and ankylosing spondylitis are 20 times more common.

3- Sclerosing cholangitis can progress to hepatocellular failure and bowel cancer.

4- Skin lesions: erythema nodosum and pyoderma gangrenosum.

5- The eyes can also be affected with uveitis and episcleritis.
• **Acute colitis**

• Around 5% of patient with sever acute (fulminant) colitis characterised by frequent bloody diarrhea, weight loss and dehydration.

• Toxic dilatation should be suspected in patients with active colitis who develop severe abdominal pain and conformed by the presence on a plain abdominal radiograph of colon with a diameter of more than 6 cm (megacolon).

• **Cancer risk in colitis**

• The risk of cancer in ulcerative colitis increases with duration of disease. 10 years 1% - 20 years 10 -15% 30 years 20%.
• COMPLICATIONS OF ULCERATIVE COLITIS

• ACUTE

  Toxic dilatation
  Perforation
  Haemorrhage

• Chronic

  Cancer

  Extra-alimentary manifestation: skin lesions, eye problems and liver disease.
INVESTIGATIONS

• **ENDOSCOPY BIOPSY**

• **RADIOLOGY**

  • 1. A plain abdominal film.

  • 2. Barium enema showing loss of haustra, pseudopolyps and in chronic cases a narrow, featureless shortened “hosepipe” colon.

• 2. Abdominal CT.

• **BACTERIOLOGY**
Double-contrast barium enema showing left-sided ulcerative colitis with a tubular left colon compared with a normal right colon.
• Treatment

• I- Medical treatment.

• 1- anti-inflammatory agents. The 5-aminosalicylic acid (5-ASA) derivatives can be given topically (per rectum) or systemically.

• 2- Corticosteroids are the mainstay of treatment for any “flare up” either topically or systemically and have widespread anti-inflammatory action.

• 3- Immunosuppressive drugs azathioprine and cyclosporine.

• 4- Monoclonal antibodies, infliximab, adalimumab.
• **Proctitis**

  Rectal steroids for an acute attack and oral 5-ASA compounds to maintain remission.

• **Acute colitis**

  • Mild attack (up to 4 motions a day) treated by oral prednisolone for 3- to 4-week.
  
  • A moderate attack often responds to oral prednisolone, twice-daily steroid enema and 5-ASA.
  
  • In severe attack high-dose of IV steroid can be added.
  
  • Some gastroenterologists will use azathioprine, cyclosporine a or infliximab in severe attack to try and induce remission.
II- Indications for surgery

- Severe disease failing to respond to medical therapy.
- Chronic disease with anemia, steroid – dependent disease
- Neoplastic change.
- Extraintestinal manifestation

Operative treatment for UC.

1- Subtotal colectomy and ileostomy (as in an emergency).
2- Proctocolectomy and permanent end ileostomy
3- Subtotal colectomy and ileorectal anastomosis.
**CROHN’S DISEASE (REGIONAL ENTERITIS)**

• Crohn’s disease is characterised by a chronic full thickness inflammatory process that can affect any part of the gastrointestinal tract from the lips to the anal margin.

• It is common in North America and Northern Europe with an incidence of 5 per 100 000.

• It is common in women than in men, and is most commonly diagnosed in young patients between the age of 25 and 40 years.
• **Aetiology**

- The aetiology of **Crohn’s** is incompletely understood but is thought to involve a complex interplay of genetic and environmental factors.
- Smoking increases the relative risk of **CD** 3 fold and is certainly an exacerbating factor after diagnosis, contrary to the protective effect seen in **UC**.

• **Pathology**

- The terminal ileum is the most commonly involved (60%) either in isolation or in combination with colonic disease.
- **Macroscopically**, resection specimens show a fibrotic thickening of the intestinal wall with a narrow lumen and fat wrapping (encroachment of mesenteric fat around the bowel).
Crohn’s disease of the ileocaecal region showing typical thickening of the wall of the terminal ileum with narrowing of the lumen.
• **Microscopically**, there are focal areas of chronic inflammation involving all layers of the intestinal wall with lymphoid aggregates.

• Non-caseating giant cell granulomas are found in 60% of patients.

• Characteristically, and unlike in UC, there may be completely normal areas immediately next to areas of severe inflammation.

• **Clinical features**

• **CD** presents *acutely* with acute ileal inflammation and symptoms and signs resembling those of acute appendicitis, or even free perforation of the small intestine, resulting in a local or diffuse peritonitis.

• **Chronic** small bowel **CD** often manifests as mild diarrhea extending over many months, occurring in bouts accompanied by intestinal colic. Intermittent fever, anaemia and weight loss. After months fibrosis may lead to **intestinal obstruction**.
• With progress of the disease, adhesions and transmural fissuring, intra-abdominal abscesses and fistula tract may develop.

• Colonic CD presents with symptoms of colitis and proctitis as in UC.

• Multiple perianal fistulae can be found.

• **Extra intestinal manifestations**

  • I - Related to disease activity.
    
    • Erythema nodosum. - Arthropathy - Amyloidosis
    
    • Pyoderma gangrenosum. - Eye complications (iritis-uveitis).

  • II - Unrelated to disease activity
    
    • Gallstones. - Primary sclerosing cholangitis.
    
    • Chronic active hepatitis. – Sacroiliitis.
• **Investigations**

• **1- Laboratory**
  - CBC, Vitamin B12 deficiency due to blood loss or malabsorption.
  - Liver function test, decrease in serum albumin, magnesium, zinc and selenium.

• **2- Endoscopy**

• **3- Imaging**
  - Abdominal ultrasound, CT, MRI.
• **Treatment**

I - **Medical treatment**

• **Steroids** are the mainstay of treatment for **CD**.
  • Aminosalicylates
  • Antibiotics
  • Immunomodulatory agents
  • Monoclonal antibody
  • Nutritional support
II- Surgery

• **Indications for surgery**

  • Recurrent intestinal obstruction.
  • Bleeding
  • Perforation.
  • Failure of medical treatment.
  • Intestinal fistula
  • Malignant change.
  • Perianal disease.
• **Ileocaecal resection** is the usual procedure for terminal ileal Crohn’s with primary anastomosis between the ileum and the ascending or transverse colon.

• Segmental resection.

• Colectomy and ileorectal anastomosis.

• Subtotal colectomy and ileostomy.

• Proctocolectomy

• Temporary loop ileostomy.

• Strictureplasty.
THANK YOU

• أ.د. محمد عبد النعيم سيد

• أستاذ الجراحة العامة

الجهاز الهضمي والمناظير.