DISEASES OF THE LARGE INTESTINE

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ILOS

• Define Hirschsprung’s disease and explain its pathogenesis.

• Explain pathogenesis of bacillary dysentery and describe its pathologic features and complications.

• Explain pathogenesis of amabetic dysentery and describe its pathologic features and complications.

• Define each of Crohn’s disease and ulcerative colitis, describe their pathologic features and explain their complications.

• Define diverticular disease and its complications.

• Define non neoplastic and neoplastic polyps and explain their complications.

• Enumerate tumors arising from the large intestine, explain staging of adenocarcinoma.

• Explain causes of intestinal obstruction.
Congenital Megacolon

Q. Define the defect.

A. Defect in innervation of rectum

Q. What is arrested migration of neural crest cells into the gut?

A. Aganglionic distal colonic segment

Q. What is dilatation of proximal segment?

A. Area affected by Hirschsprung's disease
### Gross

<table>
<thead>
<tr>
<th>Ganglionic Segment</th>
<th>Aganglionic Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal</td>
<td>Dilated</td>
</tr>
<tr>
<td>Distal</td>
<td>Narrow</td>
</tr>
<tr>
<td>Hypertrophy</td>
<td>No Hypertrophy</td>
</tr>
</tbody>
</table>

### Mic:

**Transmural absence**

### TTT:

**Surgical excision of affected segment**
Dysentery

c by diarrhea, tenesmus & passage of blood + mucus
1. Bacillary
2. Amaebic
3. Bilharzial
Dysentery

1. Bacillary dysentery
   - Definition: Membranous inflammation caused by Shigella bacteria in food and drink contaminated with feces.
   - Gross: 1. Grayish-white membrane
             2. Colonic wall is thickened, edematous, red and congested.
   - Symptoms: Diarrhea, tenesmus, passage of blood + mucus

2. Amoebic dysentery
   - Definition: Parasitic infestation caused by Entamoeba histolytica in food & drinks.
   - Gross: 1. Multiple ulcers
             2. Undermined edge
             3. Deep dysentery induced by diarrhea, tenesmus & passage of blood + mucus

ccc by diarrhea, tenesmus & passage of blood + mucus
## Dysentery

<table>
<thead>
<tr>
<th>Mic</th>
<th>1- Bacillary dysentery</th>
<th>2- Amoebic dysentery</th>
</tr>
</thead>
</table>
| Q. Ulcers Covered by **pseudomembrane** of | - Fibrin |- Multiple.  
- Necrotic tissue  
- PNL | - Small.  
- Undermined edge.  
- Necrotic floor.  
- Amoeba surrounded by space |
| Submucosa: oedema | ± PNL (2ry infection) |

**END RESULT: HEALING**
Complications

1- Bacillary dysentery
   1- Acute Toxemia (neuritis, arthritis, myocarditis)
   2- Piles
   3- Chronic intestinal obstruction.
   4- Peritonitis

2- Amoebiasis
   1- Amoeboma (caecum)
   2- Parasitic emboli (Q.Liver Amoebiasis)
   3- Bleeding per rectum
   4- Cutaneous amoebic lesion (perianal)
   5- Intussusception.

3- Chronicity:
   6- Spastic colon
   7- Fibrosis and stricture
   8- Perforation → peritonitis
   9- Rectal Prolapse

Complications
AMAEBIC DYSENTERY

- Amaeboma
  - Spastic colon
  - Obstruction
  - Perforation
  - Intussusception
  - Prolapse

- Liver Amoebiasis
- Cutaneous Amoeb

Bleeding
Idiopathic inflammatory bowel disease (IBD)

- Crohn's disease (regional enteritis)
- ulcerative colitis.

**Common features:**

- inflammation of the bowel.
- Unknown cause.
- familial.
- systemic manifestations.
Crohn’s disease

- Affects S.I (ileum) + parts of large bowel
- ± any other part of GIT

Ulcerative colitis

- Limited to colon
Crohn's disease

- **Site:** ileum, colon or any part of the GIT
- **Q.Pathogenesis:**
  1. Several infectious agents
  2. T-cell dysfunction
  3. Immune mediated
- **Clinical picture:**
  - intermittent attacks of diarrhea
  - Fever
  - abdominal pain
  - weight loss
  - Asymptomatic intervals

bimodal age distribution 10-30 and 50-70 yrs
Crohn's disease

1. Bowel and mesentery: thickened and oedematous.
2. Cut surface: thickening, oedema and fibrosis.
3. "Skip lesions".
4. "Cobble stone". (nodular swelling, fibrosis & ulceration)

1. Fissures and deep ulcers.
2. Narrow lumen? (oedema / fibrosis)
Crohn's disease

Microscopically:
1. Transmural chronic inflammatory process
2. Mucosal fissure ulcers
3. Non-caseating granulomas
Crohn's disease

**Complications:**

1. Fibrotic strictures
2. Fistulas.
3. Malabsorption
4. Colonic bleeding and perforation.
5. Risk of intestinal cancer (3 folds higher than normal).

- Extraintestinal manifestations
Ulcerative Colitis

Chronic bloody diarrhea with remissions and exacerbation.

Site:
Rectum (extends proximally to involve whole colon).

PANCOLITIS

Pathogenesis:

1- Infection: clostridium difficile
2- Familial
3- Auto immune disease
4- Psychosomatic disorder
Ulcerative Colitis

Gross:
Mucosa:
- Red
- Granular
- Q. Ulcers
- Q. Friable
- Pseudopolyp
- Or atrophic & flat.
- proximal to lesion: Toxic megacolon

No skip lesions
disease of continuity
Pseudopolyp
Ulcerative Colitis

Q.Mic:

1- Mucosa:
- Oedema
- Congestion
- Hemorrhage
- **Ulceration** (with neutrophilic infiltration)
- **Dysplasia**

2- Lamina propria: inflammatory cells.

3- **Crypt**:
- cryptitis
- Crypts are tortous, branched, shortened
- **Q.Crypt abscess** (dil+filled with PNL)

Goblet cell depletion
1. Ulceration
2. neutrophilic infiltration

3. Goblet cell depletion
GB depletion

4. Crypt abscess
GB depletion

Crypt abscess
# Ulcerative Colitis

## Complications:

<table>
<thead>
<tr>
<th>Intestinal</th>
<th>Extraintestinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Severe bleeding (acute ph.)</td>
<td>a- Arthritis.</td>
</tr>
<tr>
<td>2- Toxic Megacolon → functional obstruction</td>
<td>b- Uveitis.</td>
</tr>
<tr>
<td>3- Polyp → ulceration → hge</td>
<td>c- Pyoderma gangrenosa</td>
</tr>
<tr>
<td>4- Malignancy.</td>
<td></td>
</tr>
<tr>
<td>5- Perforation (rare)</td>
<td></td>
</tr>
</tbody>
</table>
CROHN DISEASE

Skip lesions

Continuous colonic involvement, beginning in rectum

Transmural inflammation
Ulcerations
Fissures

ULCERATIVE COLITIS

Pseudopolyp
Ulcer
### Gross:
- site
- Skip lesions √
- Wall
- Stricture
- Dilatation
- Pseudo polyp

<table>
<thead>
<tr>
<th>Crohn's</th>
<th>Ulcerative colitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ileum then colon</td>
<td>Rectum + rest of colon</td>
</tr>
<tr>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>Thick</td>
<td>Thin</td>
</tr>
<tr>
<td>Early</td>
<td>rare</td>
</tr>
<tr>
<td>X</td>
<td>√ Mega colon</td>
</tr>
<tr>
<td>+/-</td>
<td>√</td>
</tr>
</tbody>
</table>

### Mic:
- ulcers
- Fistula /Perforation √
- Granuloma √
- Lymphoid reaction
- Serositis
- Fibrosis

<table>
<thead>
<tr>
<th>Crohn's</th>
<th>Ulcerative colitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep (fissure)</td>
<td>Superficial</td>
</tr>
<tr>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>√</td>
<td>mild</td>
</tr>
<tr>
<td>√</td>
<td>Mild</td>
</tr>
</tbody>
</table>

### Clinically:
- Malabsorption ?
- Malignant potential √
- Response to surgery

<table>
<thead>
<tr>
<th>Crohn's</th>
<th>Ulcerative colitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>Mild risk</td>
<td>Very high</td>
</tr>
<tr>
<td>Poor</td>
<td>Good</td>
</tr>
</tbody>
</table>
A 30 year old man has bloody, mucoid diarrhea for 3 weeks.Colonoscopy reveals an erythematous, friable colonic mucosa extending from the rectum to the splenic flexure. Biopsy reveals mucosal ulceration with crypt abscess. Which of the following is the most likely to occur

a. Perforation
b. Fistula

C. Adenocarcinoma
d. Cirrhosis
e. Malabsorption
A 44 year old man presents diarrhea and abdominal pain with intervening asymptomatic symptoms. Colonoscopy reveals focal thickening of the wall separated by normal areas (skip lesions). Which of the following is expected to be found microscopically?

a. Bacteria detected with special stains
b. Non-caseating granulomas in the submucosa

b. Non-caseating granulomas in the submucosa

c. Dilated submucosal blood vessels and thrombosis
Diverticular disease

Aquired herniation of mucosa and submucosa through the muscle wall.

Inflammation: diverticulitis.

**Gross:**
- Few to several hundreds.
- Appear in parallel rows between the taeniae.

**Micro:**
- Flask like structures extending from lumen through the muscle layers.
- Continuous with the surface mucosa
Diverticular disease

Complications:
Asymptomatic, may be:
- sudden severe, painless, bleeding → anaemia.
- Fibrosis: intestinal obstruction.(ch.diverticulitis)
- Rare: perforation and peritonitis
Tumours of large intestine

Benign

• Neoplastic Polypi

• Usual

Malignant

• Adenocarcinoma
• Carcinoid
• Lymphoma
• SqCC (anus)
• MM (anus)
# Colonic Polypi

## Non-neoplastic polypi
- Hyperplastic polyp
- Bilharzial polyp
- Peutz- Jeghers polyp
- Inflammatory polyp
- Lymphoid polyp
- Juvenile polyp

## Neoplastic polypi
- Benign polypi (precancerous)
  - Adenomatous polyp
  - Familial adenomatous polyposis
1. Hyperplastic polyp
2. Bilharzial polypi of Large Intestine
3. Peutz-Jeghers polyp (hamartomatous)
5. Lymphoid polyp
6. Juvenile polyp
1. Adenomatous polypi

<table>
<thead>
<tr>
<th></th>
<th>Tubular</th>
<th>Villous</th>
<th>Tubulovillous</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>Multiple</td>
<td>Single</td>
<td></td>
</tr>
</tbody>
</table>

- Tubular: Mic • tubules (glands) in a • fibrovascular core
- Villous: Thin tall finger-like process lined by epithelial cells
- Tubulovillous: Both features

ADENOMAS
Pedunculated Tubular  Sessile Villous
2. Familial adenomatous polyposis (polyposis coli):

- A.D
- Mostly tubular adenoma
- Innumerable adenomatous polyps > 100 for diagnosis.
- Ttt: Prophylactic colectomy.
  *(risk of malignancy 100%)*

Complications of neoplastic polyps:

1. Ulceration and bleeding.
2. Intussusception.
3. Malignant transformation
Adenocarcinoma

Pathogenesis:
1. Diet: ↓vegetable, ↑CHO and fat.
2. Genetic factors.
3. Adenoma
4. ulcerative colitis.

Gross:
1. Fungating Mass
2. malignant ulcer
3. Infiltrating mass annular (napkin ring). ± ulceration.
**Micro:**

- Adenocarcinoma
- Mucoid carcinoma.
- Undifferentiated carcinoma.
Adenocarcinoma

Mucoid Adenoc.

Signet ring
**Complications:**

1. **Intestinal obstruction** (commonest).
2. Perforation.
3. Intestinal haemorrhage.
4. Fistula.
5. Piles.
6. **Spread:** + *Transcoelomic spread (OVARY)*
Duke’s classification

**DUKE’S A**

Tumour is confined to the wall

**DUKE’S B**

Extension to all layers and pericolic fat

**DUKE’S C**

Metastases to regional lymph nodes

**DUKE’S D**

Metastasis

Ulcerating Carcinoma

Distant Metastasis

Liver

Lungs
Malignant Melanoma of L.I.
Acute Intestinal Obstruction

Complete obstruction to the passage of faeces and gases

Causes:
1. **Intra luminal causes : impacted**
   a. hard faecal matter (fecolith)  
   b. large gall stones.  
   c. Ball of ascaris  
   d. inspected meconuim (new born)

2. **Strangulated hernia.**
3. **Intussusception.**
4. **Volvulous**
5. **Mesenteric Vascular Occlusion.**
6. **Paralytic ileus.**
Acute Intestinal Obstruction

Effects:
Locally:
1. Severe colicky pain
2. Distension
3. Vomiting
4. Gangrene
5. Peritonitis

Generally:
1. Dehydration d.t vomiting
2. Electrolyte disturbance
3. Renal failure (↑ BUN)
4. Shock (fatal)
5. Severe toxaemia

Causes of death
Chronic intestinal obstruction

It is incomplete evacuation of the intestine.

*Causes:*

1. *In the walls: (commonest):*
   a. Carcinoma
   b. Stricture: healed ulcers
   c. Granuloma
   d. Ischaemic stricture: gradual.
   e. Adhesions: TB, post-operative.
   f. Megacolon.

2. *Pressure from outside:*
   large ovarian cyst, uterine leiomyoma and pregnancy.
## G.I.T ulcers

<table>
<thead>
<tr>
<th>Stomach</th>
<th>Small intestine</th>
<th>Large intestine</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Peptic ulcer</td>
<td>1- Peptic ulcer (D)</td>
<td>1- Bacillary dysentery</td>
</tr>
<tr>
<td>2- Crohn’s</td>
<td>2- T.B ulcer</td>
<td>2- Amoebic ulcer</td>
</tr>
<tr>
<td>3- Malignant ulcer</td>
<td>3- Typhoid ulcer</td>
<td>3- Ulcerative colitis</td>
</tr>
<tr>
<td></td>
<td>4- Ankylostoma ulcer</td>
<td>4- Crohn's disease</td>
</tr>
<tr>
<td></td>
<td>5- Crohn's disease</td>
<td>5- Malignant ulcer</td>
</tr>
<tr>
<td></td>
<td>6- Malignant ulcer</td>
<td></td>
</tr>
</tbody>
</table>
A polyp removed from a 54 year old male revealed glands showing dysplastic stratified epithelial cells and decreased mucin production. Fingerlike villous projections are not seen.

Which of the following is the most likely diagnosis?

a. Inflammatory polyp
b. Bilharzial polyp
c. Tubular adenoma
d. Villous adenoma
A 39 year old male had a colonoscopy which revealed innumerable adenomatous polypi

a. What is your diagnosis?

b. What is the risk of progression to adenocarcinoma

c. What are the other possible complications

d. Enumerate non–neoplastic polypi
A mother comes complaining that her new born infant does not pass stools till now. X-ray reveals dilatation of the colon proximal to a stenotic area.

a. What is the most likely diagnosis?
b. What is the pathogenesis of this case?
c. What is the method of diagnosis?
d. What is the main line of treatment?
A 24 year old presents with nausea and vomiting and right lower abd. pain. Barium meal reveals a pouch communicating with the lumen gut

a. What is the most likely diagnosis?
b. What are the gross and mic features of this lesion?
c. What is the explanation of the acute abdomen?
d. What is the commonest tumour that may arise in that site?
A 39 year old woman presents with attacks of flushing, diarrhea and dyspnea. Workup reveals masses in the liver and a large ileal mass. Which of the following substances is likely to be elevated in urine?

a. 5-hydroxytryptamine
b. Alphaphetoprotien
c. Adrenaline

a