

SMALL BOWEL DIVERTICULITIS

- May occur in any part of the small intestine
- Duodenal diverticula: most common acquired diverticula of small bowel
- Meckel's diverticula: most common true congenital diverticulum of small bowel
 - True diverticulum: usually congenital; contains all layers of intestinal wall
 - False: usually acquired; consist of mucosa and submucosa protruding through muscle coat

Duodenal Diverticula:

- **Incidence:** In the study Small Bowel diverticulitis: Perceptions and reality by Akhrass et al.; a retrospective review of 208 patients was performed, diverticula were located in the duodenum in 79%, jejunum and ileum in 18%, and in all 3 segments in 3%.
Complications occurred in 13% of duodenal diverticula vs. 46% of jejunoileal diverticula.
 - Found incidentally in 2-5% of patients undergoing UGI barium study and in 7% of patients undergoing ERCP
 - 2x more common in women than men
 - rare in patients under 40 yrs
- **Clinical manifestations:** overwhelming majority are asymptomatic, and are noted incidentally.
 - Extraluminal diverticula: occur near the papilla of Vater; acquired as a result of herniation through defect caused by entrance of large vessels.
 - Psathakis, et al: < 10% are symptomatic and only 1% require definite treatment; therefore, no indication for prophylactic removal, and initial trial of conservative treatment indicated in a symptomatic patient.
 - Associated with a higher frequency of common bile duct stones, compared to ERCP population with no diverticula
 - May cause obstruction or stasis, leading to pancreatitis, cholangitis and blind loop syndrome. Mechanism thought to be due to location of perivaterian diverticula that may produce mechanical distortion of common bile duct as it enters duodenum.
 - Inflammation may cause hemorrhage, due to erosion of a branch of SMA
 - Perforation is very rare
- **Intraluminal diverticula:** rare and usually congenital
 - Usually lined on both sides with duodenal mucosa
 - result from incomplete canalization of the intestinal lumen after embryonic proliferative epithelial state, producing a duodenal diaphragm or web
 - Patient often presents with abdominal pain and obstructive symptoms
 - Diagnosis usually made with UGI series showing typical appearance of barium filled globular structure
- **Treatment:** since vast majority are asymptomatic, when found incidentally, they should be left alone
 - Most common treatment is diverticulectomy - diverticulum is excised, and duodenum is closed in transverse or longitudinal fashion
 - Perforated diverticulum should be excised and duodenum closed with serosal patch from jejunal loop.
 - If there is surrounding inflammation it may be necessary to divert enteric flow via

gastrojejunostomy or duodenojejunostomy.

Jejunioleal Diverticula

- **Incidence/pathogenesis:**
 - Occur in 1 - 2% of the population, and most often localized to proximal jejunum
 - In study by Tsiotos, et al: 42% of those with jejunioleal diverticula were incidental finding, and at five year follow up, over 80% of these remained asymptomatic.
 - Forty percent presented with malabsorption or chronic pain, and 18% presented with emergent complaints, one-half of which required surgery.
 - Often are false diverticula occurring after 6 decades
 - Usually multiple, and protrude from mesenteric side of bowel
 - Pathogenesis thought to be due to a motor dysfunction of the smooth muscle or the myenteric plexus, resulting in disordered contractions of the small bowel, generating increased intraluminal pressure, and resulting in herniation of the mucosa and submucosa through the weakest portion of bowel (mesenteric side).
- **Clinical Manifestations:**
 - Major clinical manifestation is malabsorption due to bacterial overgrowth within diverticulum
 - Early satiety, bloating, and chronic upper abdominal discomfort found in 40%
 - Rare manifestations include perforation, bleeding, and obstruction
- **Diagnosis/Treatment:**
 - Usually made incidentally
 - Barium swallow is method of choice - multiple pouches in jejunum usually seen; may also show jejunal dyskinesia
 - CT: usually reveals a mass with an air-fluid collection in contiguity with small bowel loops
 - Incidental, asymptomatic → no treatment required
 - Patients with malabsorption → treatment with antibiotics given in cycles of 1-2 weeks/month
 - Obstruction, bleeding, perforation → resection, and end-end anastomosis

Meckel's Diverticulum

- Most common congenital anomaly of small intestine; 2% of population
- Located approximately 45-60cm proximal to ileocecal valve
- due to incomplete closure of vitelline duct
- May encounter gastric mucosa (50%) or pancreatic mucosa (5%) within diverticulum
- Vast majority are benign and found incidentally
- Most common clinical presentation is GI bleeding: occurs in 25-50% of patients with complications
- May present with obstruction due to a volvulus of small bowel around diverticulum, intussusception with the diverticulum as a lead point, or rarely, incarceration of diverticulum in an inguinal hernia
- Diverticulitis accounts for approximately 10-20% of symptomatic presentations; more common in adults, clinically indistinguishable from appendicitis
- Diagnosis in children: most accurate test is scintigraphy with sodium Tc-99m pertechnetate (sensitivity 85%, specificity 95%)

- Diagnosis in adults: nuclear scans less helpful due to reduced prevalence of ectopic gastric mucosa within diverticulum. May use barium studies.
- Treatment of symptomatic Meckel's is surgical resection of diverticulum. May need to perform segmental intestinal resection for bleeding because bleeding site usually adjacent to diverticulum.
- Treatment of incidental Meckel's: if found in children during laparotomy → should be resected.
- In adults, decision is very controversial → based on several studies; probably should resect diverticulum if found incidentally during laparotomy.

References:

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