فيك اختصارها بالتلخيص :: CD

Chronic Diarrhea

> 14 days.

In infants :-

2ry lactose intolerance.

- 2ry to small intestine mucosal injury.
- post-infections (Rota) & others → parasitic, celiac, Chron

كيف بيجي → bloating / abd. discomfort / Flatulence / Watery D.

Dx:
- +ve reducing substance in stool. → acidic pH < 5.5 (That's why it causes peri anal itching)
- breathing H test.
- endoscopy + Biopsy) definitive

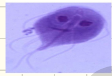
Cow's milk ptn allergy

CD + FTT
Clinical Dx.
علشي تغير بشكل presentation

* elimination 2-28 days
→ improvement
- No → Not CMPI
- yes → CMPI ← جرب

✓ extensively hydrolysed formula.
· aa formula

Infections



HIV
Giardiasis (Lamblia)

- Feco-oral ↔ 75% asymptomatic.
- Contaminated water

↑ in b cell deficiency

كيف بيجي → Watery D. / 2ry lactose intolerance / FTT

✓ Metronidazole.

Cystic Fibrosis.

In older Children :-

Toddler's diarrhea

= Chronic non-specific diarrhea.

Benign No FTT (normal Growth Chart) 1-5.
· excessive intake
of fruit juice → osmotic effect.
(Sorbitol / Fructose)
D → watery.

✓ Reassurance

2ry lactose intolerance.

Celiac

Infection

Cystic Fibrosis

Dx:
- Sweat chloride
- Fecal elastase → pancreatic insufficiency
- Duodenal aspirate.

In adolescents :-

IBS

Functional d. / no organic cause
"Visceral Hyperalgesia"
"Dx. of exclusion"

[Rome IV] ⇒ abd pain ≥ 1 times / month for 3 months.
+ ≥ 2 ↓
- pain during bowel movement
- altered stool appearance
- altered stool frequency ↑↓

Take care

The following clinical features should alert the physician to the possibility of a disorder other than irritable bowel syndrome (red flags)

- Frequent awakening by symptoms (urgency — IBD)
- Steady progressive course
- Fever
- Weight loss
- Arthritis
- Rectal bleeding (anal fissure, Chron)
- Persistent vomiting (→ obstruction, malrotation, SMA)

Infection

IBD ↓

تذكروا GIFTS
- granuloma
- ileum
- fistula & fissures
- transmural
- Skip lesions.

Crohn disease		Ulcerative colitis
• Skip lesions (any site)	Location	• Continuous inflammation (MC site → rectum)
• Transmural inflammation • Non caseating granulomas	Histology	• Crypt Abscess • Inflammation confined to submucosa
• Creeping fat • Thickened cobblestone mucosa	Colonoscopy	• Friable mucosa • Deep ulcerations • Loss of haustra
• Watery diarrhea (can be bloody)	Stool	• Bloody diarrhea
• Fistulas (Enterocutaneous, Enteroenteric)	Complications	• Toxic megacolon
• Nephrolithiasis	Associated conditions	• Primary sclerosing cholangitis
• Colorectal cancer		

ASCA — P.ANCA

Extraintestinal symptoms [8]
- Joints
  - Enteropathic arthritis
- Eyes
  - Uveitis
  - Iritis
  - Episcleritis
- Oral mucosa
  - Oral aphthae
  - Pyostomatitis vegetans
- Skin
  - Erythema nodosum
  - Pyoderma gangrenosum: a neutrophilic dermatosis
    - Associated with various conditions (e.g., IBD, rheumatoid arthritis, and trauma)
    - very painful, rapidly-progressive, red spots that can change into purulent pustules or deep ulcerated lesions with central necrosis
    - located at extensor side of the lower limbs
    - Treated with immunosuppressants (e.g., corticosteroids, cyclosporine A)

موجودين بالصور على شكل أكبر وأوضح

Extraintestinal manifestations	Erythema nodosum (CD>UC), pyoderma gangrenosum (UC>CD), primary sclerosing cholangitis (UC>CD), ankylosing spondylitis (CD>UC), sacroiliitis (CD=UC), uveitis, iritis, episcleritis

Intestinal symptoms
- Bloody diarrhea with mucus
- Fecal urgency
- Abdominal pain and cramps
- Tenesmus

Extraintestinal symptoms of ulcerative colitis
- General: fatigue, fever
- Skeletal (most common extraintestinal manifestation of ulcerative colitis): osteoarthritis, ankylosing spondylitis, sacroiliitis
- Ocular: uveitis, episcleritis, iritis
- Biliary: primary sclerosing cholangitis (more than chron) (it is rare for patients with ulcerative colitis to develop PSC, but up to 90% of all patients with PSC will also have ulcerative colitis)
- Cutaneous
  - Erythema nodosum
  - Pyoderma gangrenosum
  - Aphthous stomatitis
  - Pyostomatitis vegetans
    - A very rare condition that is associated with other cutaneous diseases and inflammatory bowel disease, particularly ulcerative colitis
    - Manifests with multiple aphthae and pustules of the oral mucosa
- In children and adolescents: growth retardation and delayed puberty

Lactose intolerance

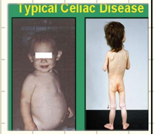
AN

Celiac.

1% of population

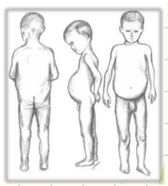
produced by the ingestion of dietary gluten products.
→ genetic HLA-DQR2 / HLA-DQR8
→ environmental (specific / not sensitive)

Typical Celiac Disease

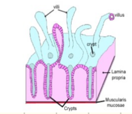


Classical
- Abdominal distension: "potbelly," (2ry to ascites)
- Wasted extremities,
- Chronic diarrhea

Another GIT presentation:
- Constipation
- Aphthous ulcer
- Weight loss

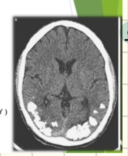


- Villous atrophy
- Crypts hyperplasia
- Lymphocyte infiltration

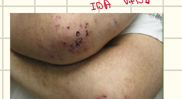


Dx: Biopsy (definitive)

Extra intestinal manifestation
- Heamatolgy: Anemia IRRETRACTABLE (It's an indication of screening of celiac!)
- Skeletal: Rickets, enemal hypoplasia
- Endocrine:
  - Short stature
  - Delayed puberty
  - Secondary hyperparathyroidism
- Neurological:
  - Peripheral neuropathy (B12, B6)
  - Seizure (occipital calcification)
- Skin
  - Dermatitis herpetiformis (BULOSA / ITCHY)
  - Alopecia
  - Erythema nodosum
- Respiratory: pulmonary heamosidrosis



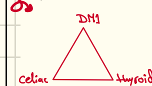
#أكثر مكان بأثر عليه؟
duodenum → Risk → IDA, vit D↓



very itchy / bilateral / vesicle

Variants:-
- symptomatic ✓
- Silent — no symptoms, +ve biopsy
- Latent — symptomatic, normal biopsy
- Potential. — +ve ab, normal biopsy.

↑ incidence:-



- + RA
- Autoimmune Liver dis.
- + Turner, Down, William
- + selective IgA ↓

Screening Blood Tests
- * Anti-tissue transglutaminase IgA antibodies are the most specific
- Antiendomysial IgA,
- In case of IgA def. IgG portion should be checked
- Antigliadin IgG antibody test

Who should be screened?
- Symptomatic
- 1st degree relative of affected patient
- Autoimmune disease
- Short stature
- IgA deficiency
- Unresponsive IDA or vit.D deficiency
- Occipital calcification
- Dermatitis herpitiformis

✓ Life-long gluten-free diet

one of late complications:-
- ↑ risk of intestinal T-cell lymphoma.

Stool examination

- Ova and parasites, blood, mucus
- Stool culture
- Clostridium difficile toxin assay (→ watery diarrhea)
- Antigen detection for Giardia and Cryptosporidium
- Occult blood
- Stool PH, reducing substances
- Feacal calprotectin (→ Infl. marker: infection, IBD)

Blood tests

- CBC: anemia, thrombocytosis
- CRP, ESRs
- IDA work up, B12, folic acids, vitamins levels
- KFT, LFT, PT/INR, Electrolytes (K+, Coagulopathy)
- Albumin

Blood tests

Second phase (guided by Hx and PE):
- Sweat chloride,
- celiac work up,
- quantitative stool for fat (72 hrs collection of stool)
- Alpha-one antitrypsin (in stool): for protein loosing enteropathy(PLE) (ptn losing eteropathy)

3rd phase
- Endoscopy (U&L), Biopsy
- Barium studies

Malabsorption

→ Chronic diarrhea
→ abdominal distention
→ FTT

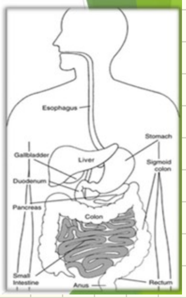
= defective digestion &/or absorption of transport of ≥1 nutrient.

مش شرط الثلاثة يكونوا مع بعض.

malabsorption مش كل pt عنده malabsorption يكون عنده diarrhea
for example → pernicious anemia
no C.D.
والعكس كمان صحيح

according to malabsorped nutrient :-

Digestion



- Intraluminal phase: oral, gastric, pancreatic enzymes and bile acids needed (congenital; fat absorp.)
- Absorption (mucosal phase): requires mucosal, brush border and intracellular enzymes (celiac, IBD)
- Transport mechanism (aquired)

Can affect any phase.
• Infant → congenital • older child → aquired.

carbohydrates CHO

- Starch 50 %
- lactose 20-40 %
- sucrose 20-40 %

- Intraluminal phase: needed only for starch, by salivary and pancreatic amylase releasing maltose, and glucose oligosaccharides
- Mucosal: By brush border enzymes disaccharidase : sacrase-isomaltase, lactase, and glucoamylase into monosaccharides
- Then transported via special mechanisms

carbohydrates → malgigested/unabsorbed → osmotic effect. → diarrhea → dehydration
- acidic stool (PH < 5.5) ← iliocolonic fermentation.
- reducing substance.

beyond Infancy

Dx → + breath H test - Small bowel biopsy disaccharide level.

Types of carbs malabsorption

- Primary (extremely rare)
  - Sacrase- isomaltase deficiency
  - Glucose - galactose malabsorption
  - Congenital lactase deficiency
  - Adult onset lactase deficiency
- Secondary:
  - Secondary lactose intolerance

→ The hall mark :- inability to remain normally hydrated on standard infant formulas or human milk.

Protein

- Intraluminal phase:
  - Started in the stomach, by effect of its acidity and pepsin
  - Enterokinase, a brush border enzyme, activate pancreatic endopeptidase (trypsin, chemotrypsin, elastase
- Mucosal phase: either absorbed as aminoacids or oligoaminoacides
- Transport: defect results in aminoaciduria with no diarrhea .

* generalized malabsorption syndrome ⇒ hypoproteinemia. ascites.
* Cong. pan enzyme ↓ [CF]
  - enterokinase ↓
  - transport dis ← Cys , His , lysine , meth. Hartnup dis.
* Infl. disorders.
* ptn losing enteropathy ← Cow's milk.. celiac.

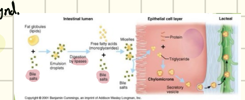
Dx: Fecal α1 antitrypsin. hypoalbuminemia.

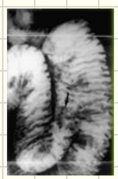
Fat

Fat → Steatorrhea — Stool → bulky, oily, foul.

* Congenital → CS (shwachman -diamond synd.) lipase ↓ — panc. insufficiency.
* bile acid ↓ — emulsification ↓ surface area of fat so lipase can work.
  - Chronic liver dis
  - Cholestasis.
  - ileal resection. (site of bile salt reabsorption.)
  - bact. overgrowth.
* mucosal dis ← celiac, short bowel syndrome.
* abetalipoproteinemia
* Intestinal lymphangiectasia.

Dx ↑ - 72 hr stool collection
- Fat soluble vit level.
- bile acid level in duodenal fluid aspirate.





Intraluminal phase:

- Fat are emulsified intraluminally within small digestive packets called micelles, which facilitate mixing with pancreatic lipase
- Micelles are made up of bile acids, phospholipids associated with monglycerides and FA, and also contains fat soluble vitamens

Mucosal : fats are absorbed by passive diffusion, TAG are reformed and packed into chylomicrons. Bile acids are absorbed in the distal ilium

Transport: Long - chain fatty acids are absorbed via lymphatics Short- or medium-chain fatty acids are digested and absorbed by a similar process, but are transported directly to the liver via mesenteric venous blood flow

Fat soluble vit. ← المشكلة انو بأثر على ال fat

Vitamin A deficiency

A. Night blindness, Xerophthalmia
B. Hyperkeratosis

Vitamin K deficiency (clotting factors)

- Lead to reduced hepatic synthesis of coagulation factors
- bleeding

Vitamen D deficiency:

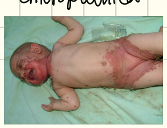
- Rickets and osteopenia

Vitamin E deficiency

a. ataxia
b. decreased or absent deep tendon reflexes
c. ocular palsy
d. hemolytic anemia

micro-nutrients

Zinc ↓ → acrodermatitis enteropathica



Copper ↓ — Menke kinky Syndrome

- X-linked
- spiky hair
- Risk: Intracranial bleeding
- recurrent bleeding

Congenital Na Cl
- hyponatremia with metabolic acidosis.
- metabolic alkalosis.
- high Cl in stool
- prenatal → polyhydramnios

B12
Folate
Vit D

Specific findings

- Protein malabsorption: edema
- Clubbing: Cystic fibrosis, Celiac
- Perianal excoriation: Carbohydrate malabsorption
- Perianal and circumoral rash: acrodermatitis enteropathica
- Calcium and vit D: Rickets, osteopenia, and fractures
- Iron: IDA
- Vit A,D,E,K (Fat malabsorption)
- Folate malabsorption

Treatment

- Replacement of nutrient deficiencies:
  - Pancreatic enzymes in pancreatic deficiency
  - Vitamins and Iron
  - Cholestyramine: Bile acid malabsorption
- Diet Modification:
  - Gluten-free diet in celiac disease.
  - lactose intolerance: LF
  - Food allergic enteropathy need to be on an elimination diet
  - CMPA: Amino acid formula
  - Fat tolerance: MCT oil