Reflux Esophagitis

- Abnormal reflux of gastric contents into the esophagus.
- Chronic & relapsing.
- عادة يحس به بعد الأكل، أو عند النوم أو وهو نايم يقوم مفزوع يكون عنده زي الكحة أو الشرقة.
- Usually caused by reflux.
- Acute esophagitis may be caused by:
  - Fungal infection (Candida albicans)
  - Viral (HSV & CMV) → AIDs.
  - Bacteria → very rare.
  - Physical agents (irradiation)
  - Chemicals.

GERD

- Amount of gastric juice reflux into the esophagus exceeds the normal limit.
  → causing symptoms w\ or without mucosal injury.
- Pathophysiology:
  - Abnormal lower esophageal sphincter (LES):
  1. **Functional** (frequent transient LES relaxation) & **Mechanical** (hypotensive LES) → most common.
  2. Foods (Coffee, Alcohol, smoking)
  3. Medications (Ca^{2+} channel blockers)
  4. Hiatal hernia. → in 70% of pts w\ GERD.
  - Increase abdominal pressure:
  1. Obesity, Pregnant (in 80%) & increase gastric volume.
- Clinical manifestations:
  - Symptoms:
    → Heart burn: Retrosternal burning discomfort. + **Dysphagia**.
    → Regurgitation: effortless return of gastric contents into the pharynx without nausea, retching or abdominal contraction.
    Atypical symptoms:
    → Coughing, **chest pain** & wheezing. → أنا فيني كحة ما تجي إلا في الليل.. أو أحيانًا يروح لطبيب القلب ويقول أنا عندي ألم بهالمنطقة، وسويت له تخطيط القلب وصار نورمال، هنا أفكر في هالمرض.
  - Dx → if heart burn + regurgitation = GERD!
    → Endoscopy → w\ biopsy if needed (Barrett's d) with pts have:
    - Unusual signs & symptoms.
    - Medication failed.
    - Require long term Rx.
    → pH → to exclude the presence of GERD for who do not have mucosal changes.
  - Morphology:
    → Hyperemia, Basal zone hyperplasia, Elongation of lamina propria papillae + **eosinophils** & neutrophils. → The severity of symptoms is not closely related to the degree of histologic damage.
  - Complications: Erosive esophagitis, stricture, Barrett's esophagus.

Barrett's esophagus

- Intestinal metaplasia within the esophageal squamous mucosa. (= there is goblet cells)
- Risk factor: male, age, obese.
- Pathophysiology:
  - Acid damage lining of esophagus & cause chronic esophagitis.
  - Damaged area heals in **metaplastic process** & abnormal **columnar** cells replace **squamous** cells.
  - Associated w\ development of **adenocarcimoma**. (as a result of dysplasia complication)
- Morphology:
  - Gross: red mucosal area.
  - Micro: columnar cell epithelium w\ goblet cells replacing normal squamous epithelium & **Dysplasia**.
- Most individual w\ Barret's → do not develop esophageal adenocarcinoma, while most of the esophageal adenocarcinoma pts have Barret's d.

Acute peptic ulcer

- Complication of NSADs therapy as well as sever physiological stress.
- Pathophysiology: developed as a:
  - part of **acute gastritis** → acute response to an irritant chemical injury by drugs (NSAIDs, alcohol)
  - complication of a **sever stress** response:
    - ***Stress ulcer*** → most commonly affecting critically ill pts w\ shock, sepsis or sever trauma.
    - ***Curling ulcer*** → in the proximal duodenum, associated w\ sever burns or trauma.
    - **Cushing reflex** → in the stomach, duodenum or esophagus of person with intracranial disease (e.g. cerebrovascular accidenrs), have a high incidence of perforation.
  - Extreme **hyperacidity** → Zollinger-Ellison syndrome.
- Morphology:
  - Found **anywhere** in the stomach. (**multiple ulcers**)
  - Range in depth from very superficial lesions (erosions) to deeper lesions involve the entire mucosal thickness (true ulceration)
- Prognosis:
- Gastric mucosa can **recover completely** if the person does not die from the 1ry disease.

Chronic peptic ulcer

- Pathophysiology:
  - Imbalance bet aggressive factors & defensive factors. (bile salt is an aggressive factor)
  - H. pylori infection. → in 100% (duodenal ulcer) and 70% (gastric ulcer)
    - Intense inflammation → proinflammatory cytokines (**IL-1,6,8, TNF**).
    - Secretes **Urease** → break urea to NH_3 & CO_2 → ammonium chloride & monochloramine.
    - Bacterial platelet-activating factor (**PAF**) → Thrombotic occlusion of surface capillaries
    - **Lipopolysaccharides** → recruit inflammatory cells to the mucosa.
  - Chronic inflammation of the mucosa is associated w\ **MALToma** (Mucosa-Associated lymphoma tissue)
  - High dose corticosteroids (impair healing) & NSAIDs.
  - **Chronic renal failure** → hyperparathyroidism → hypercalcemia → stimulate gastrin production & increase secretion.
  - Psychological stress → can induce gastric acid secretion.
- May occur in any portion of GIT exposed to acidic gastric juice:
  - Esophagus → as a result of GERD or acid secretion by ectopic gastric mucosa.
  - Gastric mucosa within a Meckle divertriculum.
  - In ZE syndrome → multiple peptic ulcer in the stomach, duodenum, & even jejunum
- 98% → in 1st portion of duodenum or stomach, ration duodenum : stomach → **4:1**
- Duodenal ulcers → Hyperacidity & H.pylori.
- Gastric ulcer → duodeno-gastric reflux (bile), NSAIDs & H.pylori.
- Morphology:
  - Gross → round to oval, sharply punched out defect. (**solitary** mucosal ulcers)
    - Duodenal ulcers → near pyloric valve in the anterior duodenum wall.
    - Gastric ulcer → near interface of the body and antrum (lesser curvature of the antrum)
  - Microscope → the base consist of: necrotic tissue & polymorph exudate overlying inflamed granulation tissue which merges w\ mature fibrous tissue.
    → The presence of neutrophils in the gastric gland → active inflammation & presence of H.pylori.

Gastric ulcers

- The mucosal defences against acid attack consist of:
  - Mucus-bicarbonate barrier → destructed by Duodeno-gastric reflux (bile)
  - The surface epithelium → destructed by: NSAIDs, H. pylori infection.
- In gastric ulcer, **breakdown of mucosal defence** is more imp. than excessive acid production.
- Worsen by meals.

Duodenal ulcers
▪ **Increase production of acid** → more imp. in the pathogenesis of duodenal ulceration. ▪ H. pylori is involved in the duodenal ulceration bc there is **gastric metaplasia** in response to excess acid. Gastric metaplasia paves the way for colonization by H.pylori. → high acid + H.pylori = duodenal ulcers. ▪ Biopsy shows hypertrophy of Brunner glands. ▪ Improve by meals.
Clinical features
▪ **Epigastric pain** → the most common symptom. o Gnawing or burning sensation. o Occurs 2-3 hs after meals. o Relieved by food (if duodemun U) or antacids. o Pts awakens w\ pain at night. ▪ Complications: o Hemorrhage → iron deficiency, anemia. o Penetration → to other organs e.g. liver, pancrease. o Perforation → **peritonitis**. o Fibrous stricture → in the stomach, ulcers may cause **pyloric stenosis**. o Malignant change → uncommon.

- Sources:

435's slides, Robbins basin pathology 9th edition, Pathoma.

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