EVALUATION OF THE ENDOSCOPIC, HISTOLOGICAL AND LABORATORY FEATURES OF BILIARY GASTRITIS

Thesis

Submitted for Fulfillment of
Master Degree in Internal Medicine

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2010-2011

تقييم لالتهاب المعدة الناتج عن ارتجاع العصارة الصفراوية عن طريق منظار الجهاز الهضمى العلوى ودراسة شكل الخلايا والاختبارات المعملية

رسالة

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ALT	Alanine amino transferase
AST	Aspartate amino trasnaminase
CMV	Cytomegalo virus
DGR	Duodenogastric reflux
GERD	Gastroesophageal reflux
GIT	Gastrointestinal Tract
NSAIDs	Non steroidal anti-inflammatory drugs
PT	Prothrombin time
PUD	Peptic ulcer disease

INTRODUCTION

Exposure of the gastric mucosa to various insults can lead to epithelial damage and regeneration with minimal or no inflammation (gastropathy) or the epithelial damage may be associated with significant inflammation (gastritis). For an endoscopist, gastritis usually means petechiae or erosions of the gastric mucosa. Strictly speaking, gastritis is a histopathologic diagnosis associated with the presence of inflammatory cells ***(Rakel et al; 2009).***

Reflux of bile is fairly common. In a small percentage of patients, this reflux is associated with severe epigastric abdominal pain accompanied by bilious vomiting and weight loss. It is usually not relieved by food or antacids. Vomiting may occur at any time during the day or night and can even awaken patients from sleep ***(Townsend; 2007).***

Reflux of intestinal contents can occur without operation (primary duodenogastric reflux); it is worse after gastric resection and may be deblitating in 1-2 % of postgastrectomy patients. There is also a significant increase in the reflux of the duodenal contents into the stomach in patients who have cholelithiasis and this is more pronounced after cholecystectomy ***(*Josef *et al.; 2007).***

Diagnostic procedures for alkaline reflux gastritis include analysis of bilirubin in the gastric fluid, endoscopic examination of the upper gastrointestinal tract and endoscopic biopsy (**Ozakaya et al. 2002).**

Medical therapy should preceed surgical therapy for bile gastropathy occurring in the unoperated stomach such as it does spontaneously or after cholecystectomy ***(Feldman et al.2006).***

AIM OF THE WORK

The aim of our work is to evaluate the endoscopic and histological features of biliary gastritis as evidenced by laboratory tests including iodine test, measurement of bilirubin content of the gastric juice together with PH of the gastric juice.

ANATOMY OF THE STOMACH

The stomach, as a J-shaped dilation of the alimentary canal, is continuous with the esophagus proximally and the duodenum distally. It functions primarily as a reservoir to store large quantities of recently ingested food, thus allowing intermittent feedings, initiating the digestive process, and releasing its contents in a controlled fashion downstream to accommodate the much smaller capacity of the duodenum. The stomach volume ranges from about 30 mL in a neonate to 1.5 to 2 L in adulthood **(Sleisenger et al. 2006).**

The stomach is divided into four regions, which can be defined by anatomic or histologic landmarks. Anatomically, the cardia is a small, ill-defined area of the stomach immediately adjacent to its junction with the esophagus. This region of the stomach has been the recent focus of intense investigation. The fundus projects upward, above the cardia and gastroesophageal junction. This dome-shaped area of the stomach is its most superior portion and is in contact above with the left hemidiaphragm and to the left with the spleen. The body, or corpus, the largest portion of the stomach, is located immediately below and continuous with the fundus. The incisura angularis, a fixed, sharp indentation two thirds of the distance down the lesser curvature, marks the caudal aspect of the gastric body .The gastric antrum extends from its indistinct border with the body to the junction of the pylorus with the duodenum. The pylorus (pyloric channel) is a tubular structure joining the duodenum to the stomach and contains the palpable circular muscle, the pyloric sphincter. **(Johnson ;2001).**

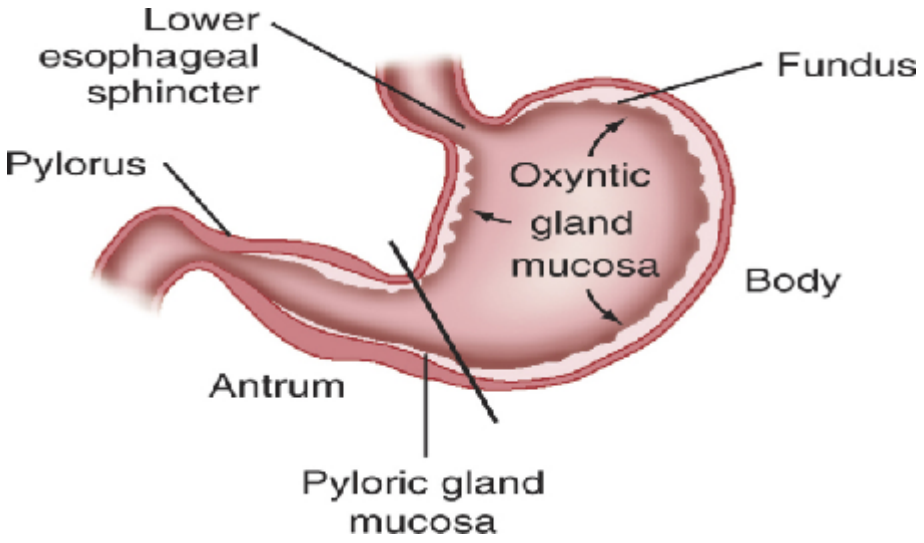

Fig (1): Parts of the stomach **(Ellis ; 2006)**

Microscopic Anatomy

The gastric mucosal surface composed primarily of a simple layer of columnar epithelial cells 20 to 40 mm in height. These surface mucous cells, which are similar throughout the stomach, contain basally located nuclei, prominent Golgi stacks, and dense cytoplasm with especially apically dense mucin-containing membrane-bound granules. The cells secrete mucus in granules, which are released via exocytosis, apical expulsion, and cell exfoliation. The primary role of mucus, along with bicarbonate, is luminal cytoprotection from "the elements": acid, pepsin, ingested substances, and pathogens **(David; 2007).**

The surface epithelial lining is invaginated by gastric pits, or foveolae, which provide the gastric glands access to the gastric lumen, with a ratio of one pit to four or five gastric glands. The gastric glands of different anatomic regions of the stomach are lined with different types of specialized epithelial cells, allowing for differentiation of these regions by type of gastric gland. The first region, the cardia, is a small transition zone from esophageal squamous epithelium to gastric columnar epithelium **(Kilgore et al 2000).**

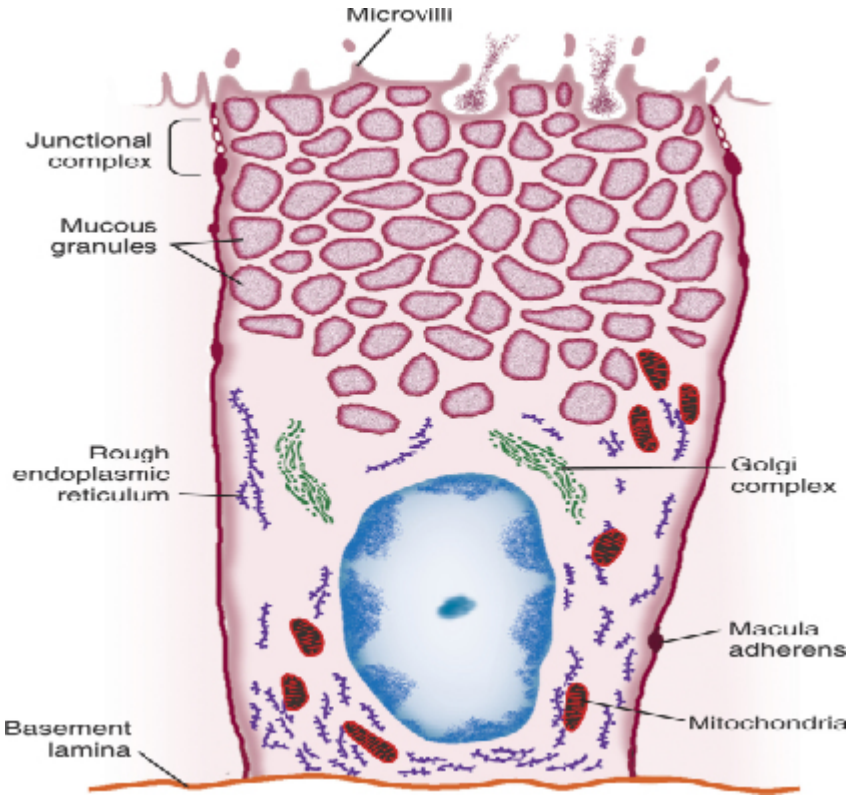

Fig (2): Surface mucus cells **(Wheater et al 2006)**

However, recent observations concluded that cardiac mucosa develops during gestation and is present at birth. The cardiac glands have a branched and tortuous configuration and are populated by mucous, endocrine, and undifferentiated cells. There is a gradual transition from cardiac glands to the second region, the acid-secreting segment of the stomach. This region encompasses the gastric fundus and body and contains the parietal (or oxyntic or fundic) glands. Parietal, chief (also known as peptic), endocrine, mucous neck, and undifferentiated cells compose the oxyntic glands. The final region, corresponding to the antrum and pylorus, contains the pyloric glands, composed of endocrine cells, including gastrin-producing G cells and mucous cells **(DeHertogh et al. 2003).**

By far the most numerous and distinctive gastric glands are the oxyntic glands, responsible for the secretion of acid, intrinsic factor, and most gastric enzymes. These fairly straight and simple tubular

glands are closely associated in the areas of gastric fundus and body. A typical gland is subdivided into three areas: the isthmus (where surface mucous cells predominate), the neck (where parietal and mucous neck cells predominate), and the base (where chief cells predominate, along with some parietal and mucous neck cells). Endocrine cells, somatostatin-containing D cells, and histamine-secreting enterochromaffin-like (ECL) cells are scattered throughout the oxyntic epithelium **(Sleisenger et al. 2006).**

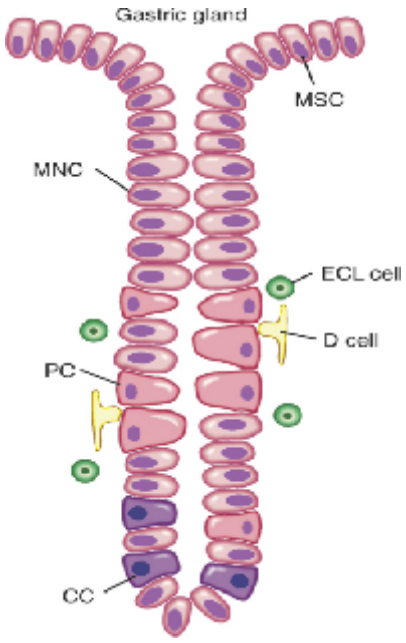

Fig (3): Parts &Cells of a gastric gland **(Tortora et al 2008)**

The region of the stomach encompasses the antrum and pylorus contains extensively coiled antral glands composed of endocrine and epithelial cells. The epithelial cells are predominantly mucous cells, and there are small numbers of pepsinogen II-secreting oxyntic cells. Although also small in number, gastrin-secreting (G) cells play a vital physiologic role and are the prototype of the open enteroendocrine cell. These cells, which occur either singly or in small clusters in the mid to deep sections of antral glands ,contain a basilar cytoplasm densely packed with gastrin-containing secretory granules .Gastrin release is stimulated by gastric distention, vagal stimulation, dietary amino acids, and peptide, with rapid appearance of the hormone into the bloodstream in the postprandial period. The apical or luminal surface of the G cell is

narrowed into small microvilli thought to contain receptors responsible for amino acid and peptide stimulation of gastrin release **(Sinclair et al. 2004).**