Duodenitis
Aclinico - pathological study

Thesis

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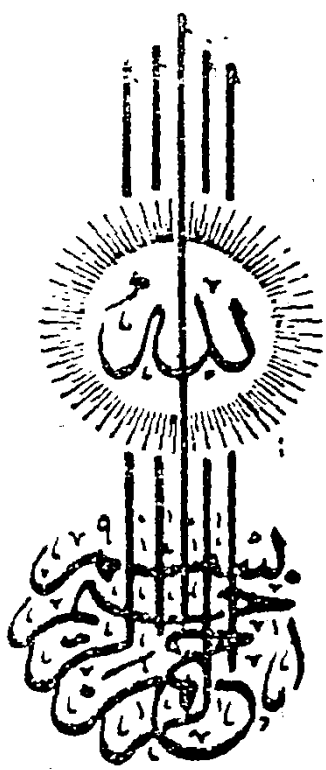

وقل اعملوا فسيرى الله عملكم ورسوله والمؤمنون

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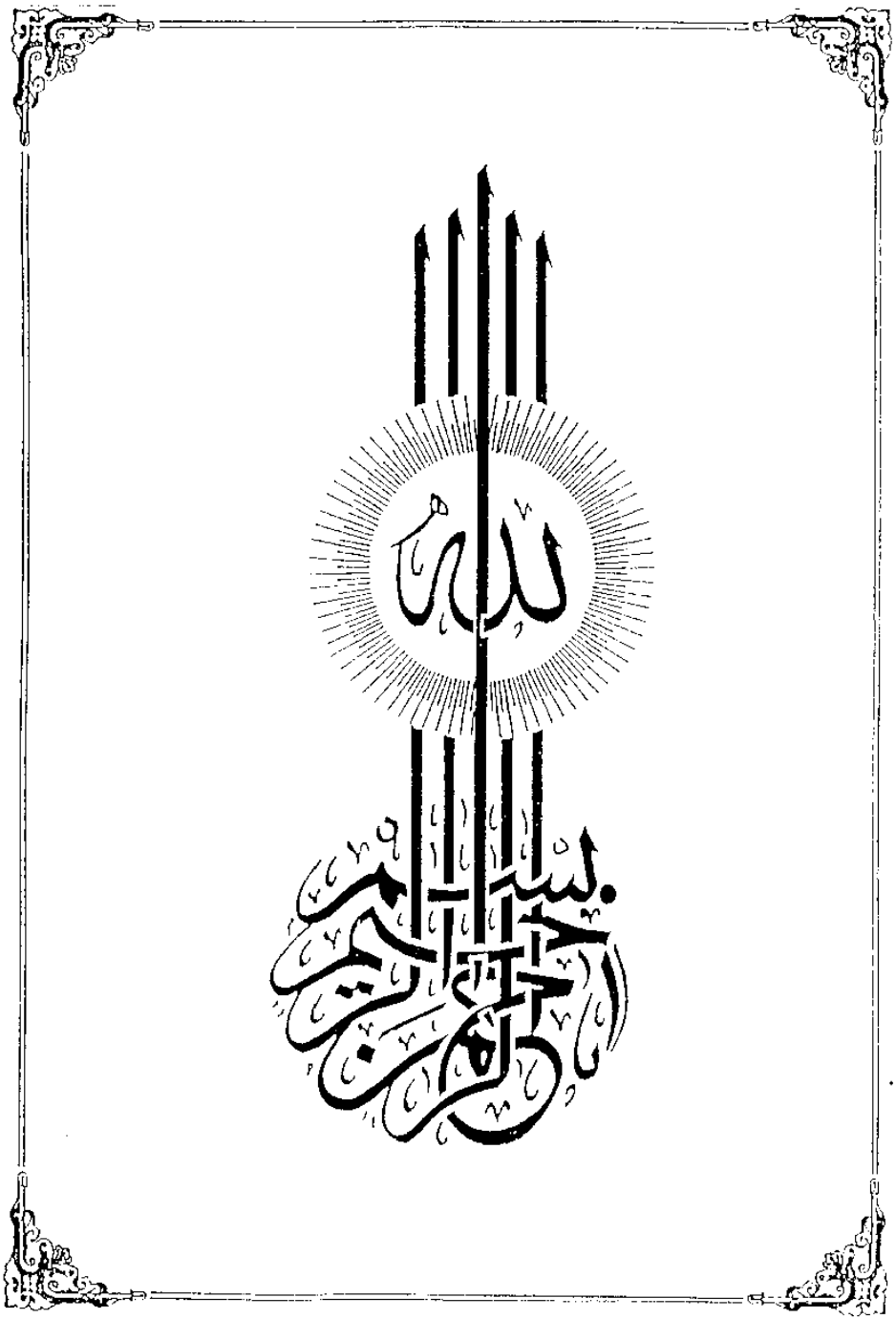

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A C K N O W L E D G M E N T

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INTRODUCTION AND AIM OF THE WORK

Duodenitis is a frequent endoscopic finding in patients presenting with epigastric pain or dyspepsia.

Duodenitis may be alone or associated with duodenal ulcer. It may be primary or secondary to many other causes as infection and drugs. So its manefestations may be variable both regarding symptomatology and pathology.

The aim of this study is to clarify the clinical and pathological findings in patients with primary duodenitis.

REVIEW OF LITERATURE

The first inch, which appear in radiographs as the "duodenal cap", is clothed on the front and the back with peritoneum continued on to it from the stomach. This portion is connected therefore with the omenta above and below; and , posteriorly it is separated by the lesser sac of peritoneum from the neck of the pancreas; anteriorly, it is related to the quadrate lobe of the liver.The second inch is clothed with peritoneum only above and in front, where it is related to the liver and the neck of the gall bladder. Inferierly, it is related directly to the head of the pancreas. Posteriorly it is directly related to the gastro-duodenal artery, the bile duct, the portal vein and small portion of the neck of the pancreas; and these structures are medial to it rather than behind it.

The first inch, owing to its peritoneal connection, is free to move, and move with the stomach. The second inch, like the other parts of the duodenum, is fairly firmly fixed by areolar tissue to the structures behind it.

The second or descending part is three inches long. It descends to the level of the third lumbar vertebra and then bends at right angle to become the third part. Anteriorly, it is crossed by the first part of the transverse

superior mesenteric vessels and the root of the mesentry. On the right side of the mesentry it is covered by loops of the jejenum, which separate it from the transverse colon. Superiorly, it is closely applied to the head of the pancreas. Posteriorly, it rests on the right psoas, the inferior vena cava and the aorta, with the ureter, the testicular artery and the inferior mesenteric artery intervening.

The fourth or descending part is the shorter part. Little more than an inch in length. It curves upward along the left side of the aorta and the head of the pancreas on to the left psoas muscle, and ends about an inch to the left of the median plane, at the level of the second lumbar vertebra, by bending sharply forwards to form the dusdeno-jejunal flexure, where it is continious with the jejunum. On the front and the left side it is covered with peritoneum and related to the jejunum. Behind, it is related to the left sympathatic trunk and the testicular artery.

Variations in form and position
(Cunningham's, 1975)

The curve of the duodenum varies with position of the third part., usually the third part nearly horizontal and the fourth part nearly vertical. But the third part may

incline upwards as it passes towards the left, and lie in line with the fourth part. On account of these variations the third and fourth parts may be grouped together as inferior part.

There are, in addition, considerable variations not only in the position of the first part owing to its mobility, but also in the position of the whole duodenum in relation to the vertebral column. This is seemed to be associated with body build or habitus.

Vessels and Nerves of the dodenum

The arteries are small branches from hepatic ,the right gastric, the pancreaticoduodenal and right colic. The area of the mucosal coat supplied by the duodenal branches of hepatic artery is specially liable to the formation of a "duodenal ulcer" and this is thought to be related to the fact that the artery has poor anastomosis with its neighboures. The nerves are derived from the celiac and superior mesenteric plexuses and accompany the arteries. The lymph vesseles end in nodes that lie between duodenum and the pancreas (R.J.last 1984).

Histology of the duodenum

(Alexander and Bloom ,1979).

The duodenal wall is formed of mucosa, submucosa musculosa and serosa.

The mucosa is formed of epithelial cells, corium or lamina propria and muscularis mucosa. There are five types of cells in the duodenal mucosal epithelium. Simple columnar cells, goblet cells, paneth cells, argentaffin cells and caveolate cells. The simple columnar absorbing cells covering the villi and crypts, are of basal oval nuclei and their surfaces are covered with brush free border due to presence of microvilli to increase the absorbing surface. The surface is also rich in alkalinephosphatase enzyme to facilitate absorption of materials as saccharides. The columnar cells on the villi have much cytoplasm and mitochondria, well developed Golgi apparatus and rough endoplasmic reticulum. They have free ribosomes. Their lateral cell membrane are highly convoluted. The columnar cells lining the crypts are undifferentiated columnar cells. Their cytoplasm contain free mitochondria, few rough endoplasmic reticulum and small Golgi apperatus. They are very rich in free ribosomes. Their lateral cell wall membranes are smooth.

Goblet cells are present on the villi and in the crypts. They are considered as unicellular mucous secretory gland. Each goblet cells has an expanded apex and a basal cylindrical part. They have deeply stained flattened nuclei in cylindrical basal areas.

Paneth cells are present in crypts. They are columnar cells with basal oval nuclei. They are highly differentiated cells with many rough endoplasmic reticulum and prominent Golgi bodies. They are rich in zinc which is related to elaboration of certain enzymes. They secrete enzymes.

Argentaffin cells are present in the crypts and occassionally in the villi. Some of these cells produce serotonin, others produce intestinal hormones.

Caveolate cells are present in the small and large intestine. They are of unknown function.

Lamina propria of mucous membran fills the spaces between the glands of liebertkhn and forms the core of the villi. It is a peculiar type of connective tissue and contains a stroma of argylophilic fibres similar to that of lymphatic tissue. Close to the fibres, fixed cells with oval and pale nuclei are present. These are perhaps comparable to the primitive reticular elements of the

lymphatic tissue stroma. Some of them become macrophages which may contains pigment inclusions. The argyrophilic framework of lamina propria adjacent to the epithelium is condensed to reticular basement membrane. Along the blood vesseles; they also surround the glands of lieberkühn's and take a part in formation of their basement membrane. The argyrophilic framework in many places contain strands of smooth muscle which arise from the inner surface of the muscularis mucosa,run toward the surface, and are specially prominent in the core of the villi, around the centeral lacteal.

The meshes of argyrophilic framework contain large number of free cells. The most numerous are small lymphocytes and plasma cells. The lamina propria always contain granular leucocytes, mainly eosinophiles, most of which have migrated from blood vessels. Many lymphocytes and few granular leucocytes pentrate the epithelium on the villi to the lumen.

Duodenal villi is finger like processes covered by coalumnar cells with striated border (microvilli). The surface epithelial cells are continuously shed from the apex of the villi and replaced cells migrating from the bottom of the crypts. The surface epithelium of the

villi is supported by delicate basement membrane. Centeral lacteal is situated near the centre of the villus which becomes distended during absorption of fats. A network of cappillaries lies under neath the basement membrane of the lining epithelium.

Crypts of lieberkühn are invaginations from the surface epithelium between the bases of the villi. They are simple tubular glands present in the connective tissue corium of the mucesa and it is lined by simple calumnar absorbing cells, goblet cells argentaffin cells and Paneth cells.

The muscularis mucosa contain an inner circular and outer longitudinal layers of smooth muscle fibres. The two layers are separated by reticular and collagenous connective tissue containing nerve fibres and para sympathetic ganglion cells.

The submucosa is composed of loose connective tissue and compound tubular glands of Brunner's. The glands open into the bottom or side of the crypts of Lieberkühn.

The musculosa is formed of smooth muscle fibres arranged in an inner circular and an outer langitudinal. The muscle fibres are supported by Aurebach's plexus of nerves.