SMALL INTESTINAL TUMORS

ESSAY

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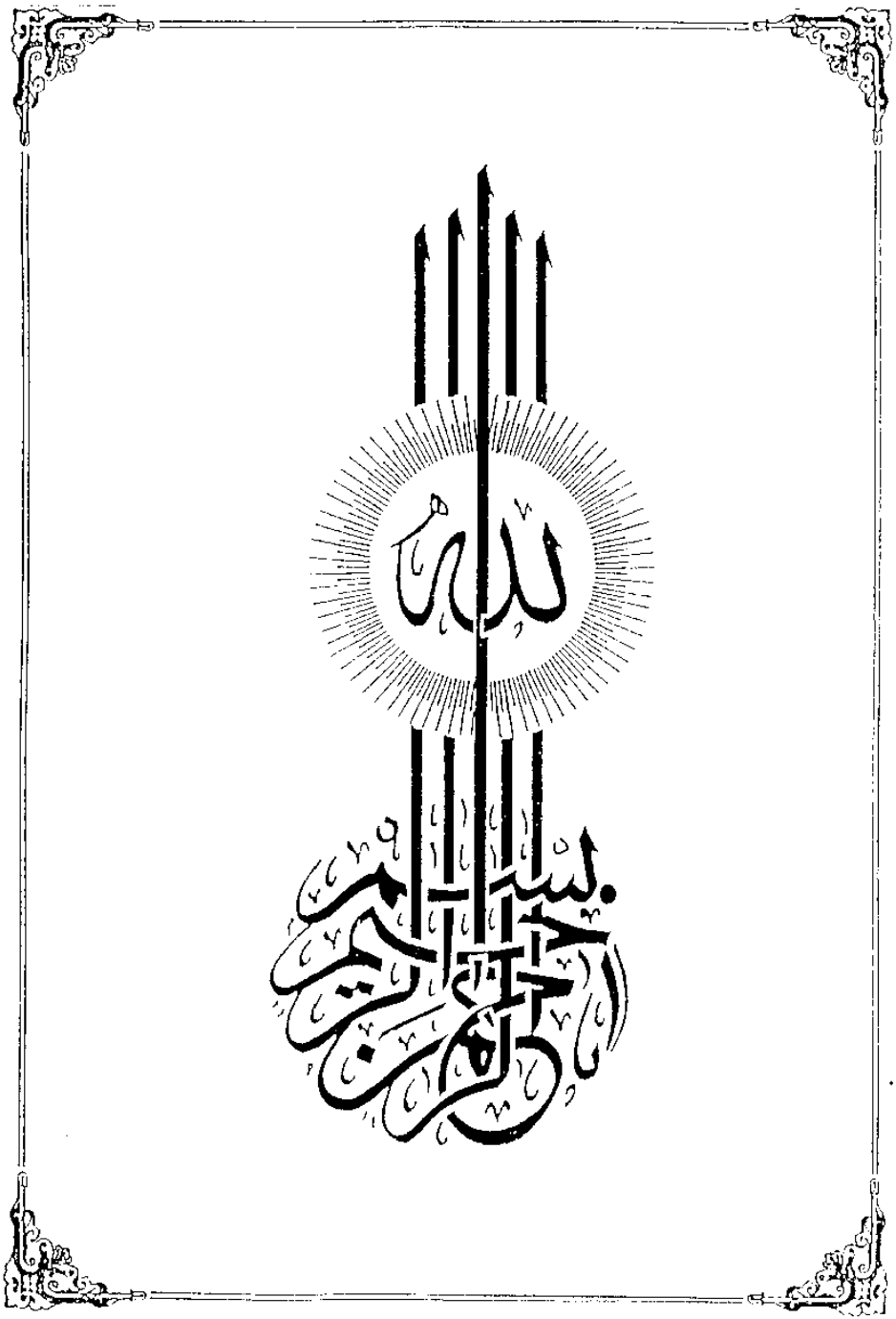
TO MY PARENTS



ACKNOLEDGEMENT

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INTRODUCTION

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Small intestinal tumors are uncommon and account for about 1 to 5 percent of all gastrointestinal tract tumors about 1 to 2 percent of all malignant tumors of the digestive tract arise in the small bowel.

They occur at any age, a range of 1 to 84 years having been reported and the mean age of onset is usually in the fifth decade of life. The incidence of small bowel neoplasia is about the same in men and women (**Greager et al., 1991**).

Because neoplasms of the small intestine occur infrequently relative to the other gastrointestinal tumors, the average physician encounters only a few cases during his professional career.Therefore he must depends on informations accumulated from many institutes, particularly those with large series of cases. (**McIlrath, 1986**).

Presently the reason for the rarity of small intestinal malignancies in contrast to the gastric and colonic ones is not well known, although various attempts have been made to explain it. This observation has been related to the rapid transit time of small bowel content which reduces mucosae exposure to dietary carcinogens, and also to the fluid content and its relative sterility (**Lowenfels, 1973**). Also this observation has been related to the fast proliferation

of mucosal cells with a competitive inhibition of malignant clones, and to the high concentration of microsomial benzopyrene hydroxylase enzyme which can detoxicates the carcinogens (Zucchetti et al., 1991). Additionally, the alkalinity of the small bowel contents may play a role since neoplasms are more common in the segments in which the luminal contents are usually acidic (Greager et al., 1991). Other important factor related to the rarity of these neoplasms is the high concentration of IgA, that is related to the lymphatic tissue of the small bowel and may facilitate the neutralization or destruction of the carcinogenic viruses. It is well known that patients deficient in IgA have been found to have a higher incidence of carcinomas (Zucchetti et al., 1991).

At times, these tumors are of unusual cell types, some having endocrinologic activity and others belonging to clearly identifiable genetic syndromes.

Leiomyomas and adenomas are the commonest benign tumors, whereas adenocarcinomas and carcinoid tumors are the frequent malignant ones. Benign tumors are seen sporadically in all small bowel segments, but adenocarcinoma has a strong predilection for the duodenum and carcinoids favour the ileum. The reasons for these regional variatins are unclear (williamson, 1991).

Small bowel tumors are medical curiosities from several points of view. They are characterized by delayed diagnosis and relative frequency at autopsy. Clearly,lack of visibility is a problem, lack of symptoms of a specific natune may be another, difficulty in diagnosis a third, and perhaps the most important, in view of the autopsy series is a low index of suspicion of the attending physician. The major delay in diagnosis of primary malignant tumors is usually after the seek of medical help and not from the onset of symptoms to first medical consultation. (Maglinte et al., 1991).

These neoplasms vary widely in their malignant potential, therefore an accurate histologic diagnoses is mandatory in treatment planning and assessment of therapeutic results.

The prognosis of benign tumors is good, while the over all survival of the malignant neoplasms is not good.

Aim of the work :

The purpose of this essay is to review the literature pertaining to the pathology, clinical presentations, diagnosis, and treatment of small bowel tumors in order to increase the awarness about them.

ANATOMY OF SMALL INTESTINE

ANATOMY OF THE SMALL INTESTINE

The small intestine is divided into two parts, the fixed part which is the duodenum of about 10 inches in length and the free part which is the jejunum and ileum of about 4 to 6 meters in length.

The jejunum contitutes the proximal 2/5 while the ileum constitutes the distal 3/5 of the free part (Last, 1989).

Duodenum : It is c-shaped, curved to the right and begins at the pyloro duodenal junction (L1., one inch to the right). It ends at the duodeno-jejunal junction (L2. one inch to the left). It is divided into:

a) **First part** : 2 inches in length. The first 2 cm of this part is called the duodenal cap and lies between the peritoneal folds of greater and lesser omentum. It forms the lowermost boundary of the epiploic foramen (foramen of winstlow).

b) **Secend part** : 3 inches in length. It is the descending part, covered by the peritoneum and crossed by the attachment of transverse mesocolon. It receives the common opening of the bile duct and main pancreatic duct at the papilla of Vater in about the middle of its postero-medial wall.

c) **Third part**: 4 inches in length. It is present just below

the head of pancreas and covered by the peritoneum of the posterior abdominal wall just below the transverse mesocolon.

d) **Fourth part :** one inch in length. It is the ascending part and present on the left side of the Aorta. It ends at the duodeno-jejunal flexure which is fixed to the left psoas fascia by a fibrous tissue and supported more over by the ligament of Treitz that contains a band of smooth muscle **(Last, 1989)**. The duodeno-jejunal flexure is a recognised land mark to guide the search for small bowel obstruction and to locate a loop of upper jejunum for gastrojejunostomy **(Mcvay, 1984)**.

Jejunum and ileum :

This part lies in the free margin of the mesentery. The jejunum is thicker, redder and more vasculer than the ileum with almost absence of the aggregated lymphatic follicles (peyer's patches) in its upper part. They are fewer and smaller in the lower part of the jejunum than in the ileum where they are larger and more numerous. The ileum is thin and characterized by the absence of plicae circularis in its lower part.

The amount of mesenteric fat in the jejunum is small to allows visualization of the windows which become obscured by

excess amount of this fat in the ileum **(Williams & Warwick 1989).**

The jejunum has one or two arterial arcades in the mesentery with long parallel end vessels (Vasa recta) while the ileum has two or there ones with short vasa recta **(Decker & duPlessis,1986).**

Meckel`s diverticulum :

It is Present in 2 percent of the population, 2 feet from the cecum and of variable length. It is ranging from a small bulge projecting from the antimesenteric border of the ileum to up to 6 inches long but the average length in about 2/3 of cases is about 2 inches. Its blind tip may contain gastric mucosa, hepatic or pancreatic tissues. It may be adherent to the umblicus or connceted to it by a fibrous cord. Ulceration, hemorrhage and perforation may occur in it **(Last, 1989).**

Blood supply and nerve supply :

* Blood supply of the duodenum is derived through branches from:-

1) Right gastric artery.
2) Supra duodenal artery:-It is an inconstant vessel,that may be double, arising from either the gastroduodenal or the hepatic arteries. It may arise from the common hepatic

artery or one of its two terminat branches. It may also arises from the rigt gastric artery (Williams & Warwick, 1989).

3) Right gastro-epiploic artery.

4) Superior pancreaticoduodenal artery:-It supplies the duodenum above the enterance of the bile duct.

5) Inferior pancreaticoduodenal artery :-It is the first branch of the superior mesenteric artery and supplies the duodenum below the enterance of the bile duct.

The superior part of the duodenum receives a leash of small branches from the common hepatic and gastro duodenal arteries.

* venous drainage of the duodenum passes along the arteries to ends in the splenic, supeiner mesenteric and portal veins.

* Nerv supply of the duodenum is derived from the coeliac plexus of nerves.

b) Blood supply of the jejunum and ileum is derived from the superior mesenteric artery which gives its jejuno-ileal branches within the mesentery from its left side. These branches join each others in a series of anastomosing loops and arcades. From these arcades, straight arteries (vasa recta) arise and go to the gut. There is no communication between the vasa recta or between the branches they give off