PANCREATIC TRANSPLANTATION

ESSAY

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Master Degree
in
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By

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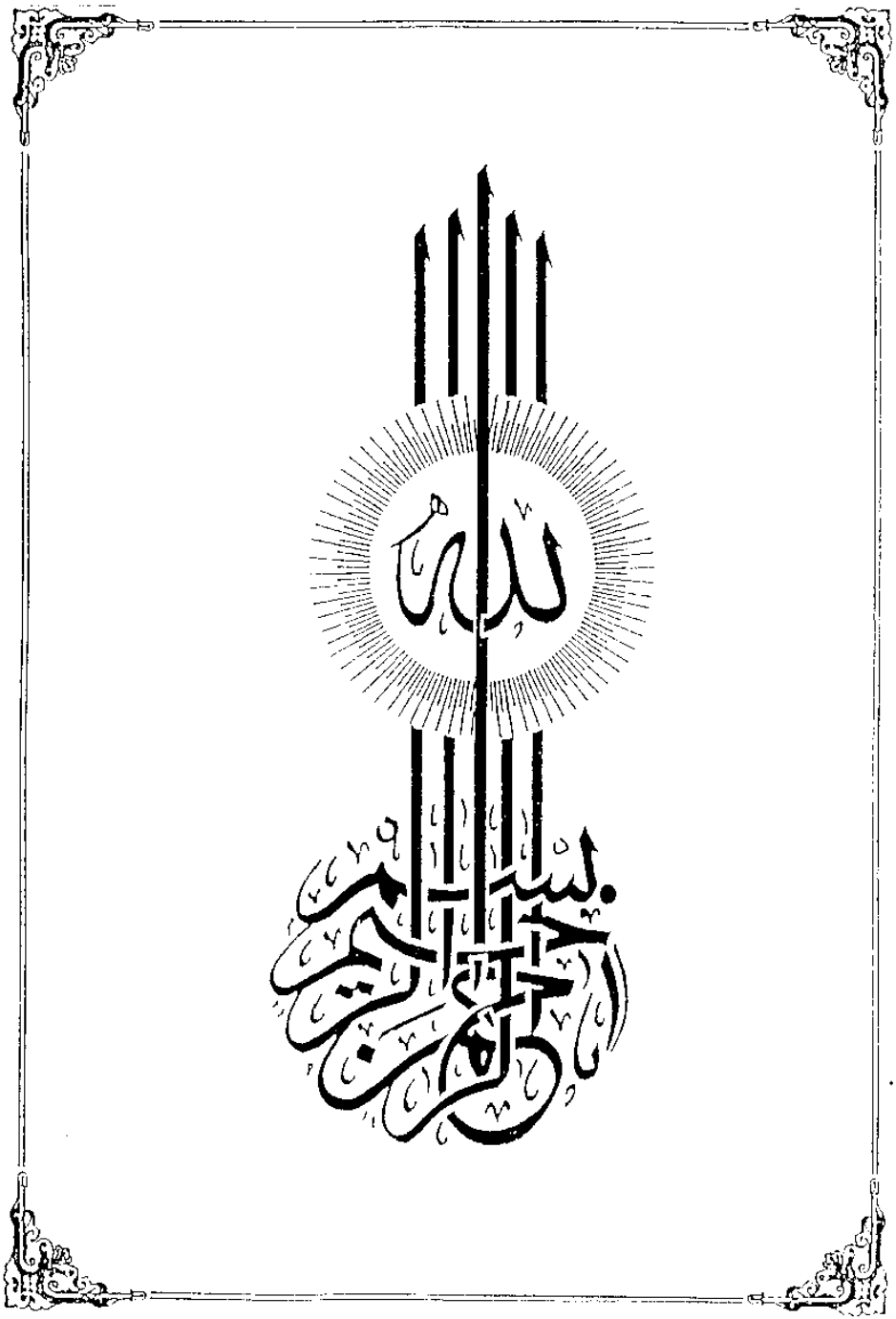
بسم الله الرحمن الرحيم

سنريهم آياتنا في الآفاق وفي أنفسهم حتى يتبين لهم أنه الحق أو لم يكف بربك أنه على كل شيء شهيد.

صدق الله العظيم
فصلت آية (٥٣)



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Yasser Abdel Raheem

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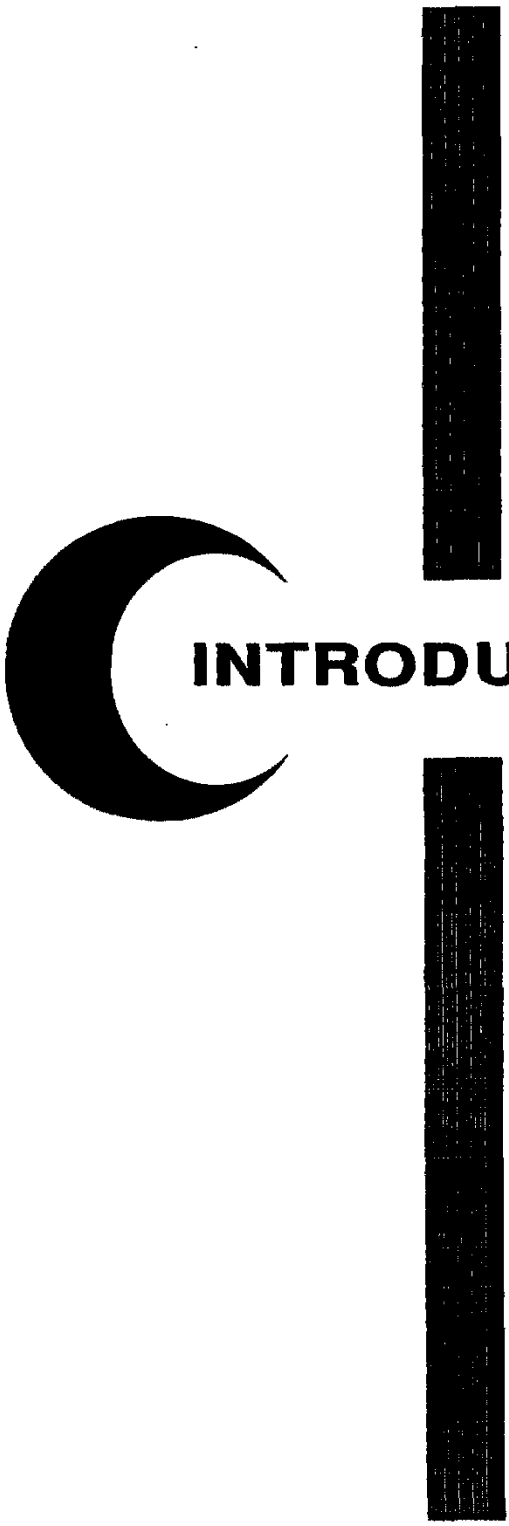

INTRODUCTION

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Despite the extraordinary impact of the discovery of insulin and other more recent advances of modern medicine, normalization of glucose levels in most diabetic patients remains an unrealized goal. Oral hypoglycemic agents are successful in maintaining normal levels of glucose in some patients, particularly those with mild, non-insulin-dependent diabetes mellitus who are able to maintain normal body weight. However, many patients with non-insulin-dependent diabetes mellitus remain hyperglycemic despite adherence to medication schedules and attempts to normalize body weight. Patients with insulin-dependent diabetes mellitus are usually lean and by definition require insulin therapy. However, despite the availability of sophisticated insulin delivery methods, such as infusion pumps, and the benefit of information from frequent glucose monitoring most patients are unable to attain normal glucose levels throughout the day. The struggle to achieve normal glucose levels in diabetic patients is made all the more intense since the clinical impression, although not yet scientifically proven, is that the rate and severity of chronic complications of diabetes mellitus is at least partially related to the magnitude of uncontrolled glycemia.

It is in this setting of the need for more effective means of treating diabetic patients that pancreas transplantation has emerged as the most effective and the most controversial method of correcting abnormal glycemia in diabetic patients.

AIM OF THE WORK

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The aim of this work is to give spot lights on the indications as well as the contraindications for pancreatic transplantation. Also, how to select patients suitable for pancreatic transplantation and prepare them for the operation.

The various surgical techniques and the most recent trends in these techniques, postoperative care, the surgical and non surgical complications and the long term results and follow up, they are all mentioned with details in this work.

REVIEW OF LITERATURE

ANATOMY OF THE PANCREAS

The pancreas is a composite gland whose exocrine acini discharge. Their secretions into the duodenum to assist in digestion, and with groups of endocrine cells, the islets of langerhans, whose special role is in carbohydrate metabolism. In shape, the gland resembles the upper end of a thick walking-stick or hook, lying sideways with the handle or hook on the right and turned downwards, and with a length of about 15 cm. **(McMinn,1990).**

It lies in the epigastrium and left hypochondrium in an ultimately retroperitoneal position behind the serous floor of the omental bursa (lesser sac) at the level of the first and second lumbar vertebrae. **(McVay,1984).**

The pancreas lies traversely in the retroperitoneal sac and between the duodenum on the right and the spleen on the left. It is almost triangular in shape and is related to the omental bursa above, the transverse mesocolon anteriorly and the greater sac below. Although it has limited upward and downward movement, for all practical purposes it is a fixed organ (Skandalakis, 1983)

Divisions and relations:

The pancreas is divided into a head, neck , body and tail.

The head:

Or the right extrimity of the gland is embraced by the

duodenum and bends downwards over the duodenum for some distance below the general level of the gland **(McVay, 1984).**

Anteriorly:

The head is related to the pylorus and to the transverse colon. Anterior pancreaticoduodenal arcade parallels the duodenal curvature, but it must be considered to be related to the anterior pancreatic surface rather than to the duodenum. (S.Kandalakis, 1983)

Posteriorly:

The posterior surface is related to the hilus and medial border of the right kidney, the right renal vessels, the inferior vena cava with the entrance of the left renal vein into it, the right crus of the diaphragm, the posterior pancreaticoduodenal arcade and the right gonadal vein (S.Kandalakis, 1983)

The distal portion of the C.B.D. may lie behind the pancreatic head in a groove (15 percent), or it may be partially or totally embedded in the pancreatic substance (85 percent). **(Baldwin, 1983).**

An abnormal hepatic artery or an abnormal middle colic artery may lie within or behind the head (S.Kandalakis, 1983

The lower part of the posterior surface is prolonged, wedge shaped, to the left behind the superior mesenteric

vessels, infront of the aorta; this is the uncinate process **(McMinn, 1990).**

It may be absent or it may encircle the superior mesenteric vessels completely (S Kaindalakis, 1983)

If the process is well developed, sectioning of the neck of the pancreas must be done from the front to avoid injury to the superior mesenteric vessels or the portal vein. **(Whipple, 1983).**

The Neck:

It is best defined as the narrow band of pancreatic tissue that lie infront of the superior mesenteric and portal veins, continous to the right with the head and to the left with the body. At the lower margin of the neck the superior mesenteric vein is apraced between the neck and the uncinate process, the splenic vein runs into the left side of the vertical superior mesenteric-portal channel. The transverse mesocolon is attached towards the lower border of the neck, which lie in the stomach bed of the omental bursa **(McMinn, 1990).**

One or two small veins may enter the portal vein, and four or five may enter the superior mesenteric vein. Carful elevation of the neck and ligation of these short vessels, if they are present, may be necessary to avoid bleeding that will make it difficult to elevate the structures lying beneath the neck (S Kaindalakis, 1983)

The body:

The body of pancreas forms a well marked anterior convexity where it lies infront of the vertebral column at, or little below, the transpyloric plane. It is somewhat triangular in cross section and presents three surfaces.

Anterior surface is covered by the peritoneal floor of the omental bursa. A solid or cystic pancreatic tumour will bulge forwards through the overlying peritoneum and presents through the gastrohepatic (lesser) omentum, gastrocolic ligament or transverse mesocolon. These modes of presentation constitute the rationale for surgical approaches to the organ (McVay, **1984).**

The posterior surface is related to the aorta, the origin of the superior mesenteric artery, the left crus of the diaphragm, the left adrenal gland, the perirenal facia, the left renal vessels, the left kidney and the splenic vein (Skandalakis, 1983)

The inferior surface is separated from the anterior surface by the anterior border of the gland along which lies the attachment of the root of the transverse mesocolon. The upper margin of the body of the pancreas has a close relation with the coeliac trunk and is grooved or tunneled by the splenic artery. (McVay **1984).**