hossam maghraby

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

hossam maghraby

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

hossam maghraby

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

hossam maghraby

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة

hossam maghraby

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

STUDY ON POSTERIOR SERO MUSCULAR STRIP EXCISION THROUGH THE POSTERIOR SAGITTAL APPROACH FOR SHORT SEGMENT HIRSCHSPRUNG DISEASE IN PEDIATRIC AGE GROUP

THESIS

Submitted in Partial fulfillment for the Master Degree.

In

General Surgery

By

Ehab Malek El-Tohamy

(M. B., B. Ch Tanta University)

Supervisors

Prof. Dr.

Ibraheim Abd Al-Azeim Al-Bana

Prof. of General Surgery, Paediatric Surgery

Faculty of Medicine

Tanta University

Prof. Dr.

Ahmed Abd El-Raouf Gaber

Prof. of General Surgery, Paediatric Surgery

Faculty of Medicine

Tanta University

Dr.

Essam Abd El-AzizEl-Halaby

Lecturer of Paediatric Surgery

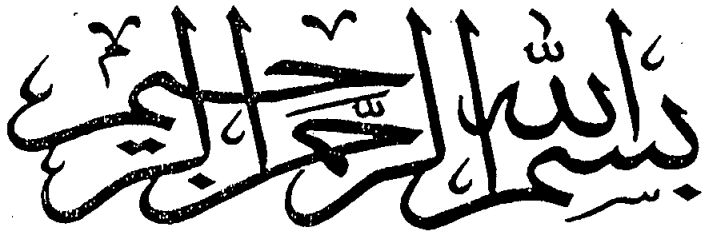
Faculty of Medicine

Tanta University

FACULTY OF MEDICINE

TANTA UNIVERSITY

1999



قَالُواْ سُبْحانَكَ لاَ عِلم لَنَاَ إلاَ ماَ علَمتنا إنّكَ أَنــتَ العَليمُ الحكيم

صدق الله العظيم

سورة البقرة (٣٢)

ACKNOWLEDGEMENT

To **ALLAH** *everything in life is resumed. In this work, he has helped me too much. He offered me what I did not know and what I have to know. Hence, if only one to be thanked, God is the first and the last. Then, those offered by God to advise and guide me, have to be thanked.*

It is a pleasure for me to express my deepest gratitude to **Prof. Dr. Ibraheim Abd AL-Azeim AL-Bana** *Professor of General Surgery, Paediatric Surgery Facutly of Medicine, Tanta University, for his instructive supervision, experienced guidance, masterly teaching and his great support that made the completion of this work possible.*

I'm also indebted and grateful to **Prof. Dr. Ahmed Abd El-Raouf Gaber** *Professor of General Surgery, Paediatric Surgery Facutly of Medicine, Tanta University, for his enthusiastic help, kind supervision, stimulating advise and encourgement throught this work.*

Sincere thanks are to to **Dr. Essam Abd El-Aziz El-Halaby** *Lecturer of Paediatric Surgery Facutly of Medicine, Tanta University, for his continous interest, generous guidance and critical review, for his kind help, I remain always remembering.*

CONTENTS

REVIEW OF LITERATURE

REVIEW OF LITERATURE

ANATOMICAL AND PHYSIOLOGICAL CONSIDERATIONS

Considerable attention has been directed towards the anatomy and physiology of the enteric nervous system in the last two decades, which proved to be more complex than it was generally thought. The enteric nervous system is a complex division of the peripheral nervous system and can function independent of the central nervous system. It consists of two neural components, extrinsic and intrinsic. Each is accompanied by supporting cells of distinct types[1]. The extrinsic component is composed of the peripheral nerves merging into the gut as sympathetic postgangliomic, parasympathetic preganglionic, sensory fibers and their supporting cells.

The sympathetic innervation generally serves to inhibit the bowel motility but is motor to the internal sphincter, the preganglionic sympathetic fibers pass the sympathetic trunk ganglia without forming synapses and travel through the thoracic splanchnic nerves to the celiac plexus and hence to the para-aortic and suparior mesenteric plexuses, where they terminate. The postganglionic sympathetic fibers progress along the route of the superior mesenteric artery to the small intestine and the right colon. The sympathetic innervation to the left colon and rectum derives from the first three lumber segments of the spinal cord and

progress along the lumbar splanchnic nerves and the inferior mesenteric plexus. The postganglionic sympathetic nerves were thought to pass directly to the smooth muscle cells of the tunica muscularis and to blood vessels, without entering into synaptic contact with the intramural ganglion cells[2], however Ehrenpries et al., found that the majority of sympathetic adrenergic fibers, except those innervating blood vessels, end in the intramural ganglia where they form terminal synaptic arborization around ganglion cells.

The parasympathetic supply to the right colon derives from the celiac branch of the right vagus, while the left colon receives its parasympathetic supply from S_2, S_3 and S_4, which travel to the pelvic and the inferior mesenteric plexuses.

The intrinsic component of the enteric nervous system is composed of a dense network of both afferent and efferent nerve fibers and ganglion cells which are condensed into myenteric layer (Auerbach's plexus) and within the submucosal layer (Meissner's plexus). The density of ganglion cells shows considerable variation at different levels of the gastrointestinal tract, with maximum density in the pyloric region, the sigmoid colon and rectum[3].

Several studies have demonstrated the absence of ganglion cells at the distal anal canal and internal sphineter and for variable length proximal to the dentate line in normal subjects[3,4,5,6].

The internal anal sphincter is the last segment of the circular muscle coat and has a complex neural apparatus. Its motor sympathetic innervation derives from the 5th lumbar segment via the hypogastric nerves and its inhibitory parasympathetic supply from the nervi erigenti originating from S_1. S_2, S_3. It is influenced by several mechanisms, such as:

1- Adrnergic exciatory nerves, which maintain sphincter tone via alpha-excitatory receptors[7];2- Beta-adrenergic receptors, whose pharmacologic stimulation leads to relaxation of the muscles[8]; 3- cholinergic neurons with biphasic action[9]; 4- purinergic neurons which are responsible for both the peristaltic relaxation phase and relaxation of the internal sphincter[10]; and 5- peptidergic nerves, which modify other cholinergic and adrenergic action[11].

The external sphincter, however, has only somatic pudendal innervation.

The basic motor intestinal function seems to be predominantly controlled by the intrinsic nerve supply, whereas the extrinsic supply serves to modulate this function. The traditional concept of inhibitory postganglionic adrenergic fibers and excitatory parasympathetic innervation has now been replaced by a far more complex explanation[12].

A substantial proportion of enteric nerves has been proven to be non-cholinergic and non-adrenergic, their neurotransmitors

being neither acetylcholine nor catecholamine; and they are often called peptidergic nerves[13,14].This subset of the enteric nervous system was known as early as 1899 when Dogiel demonstrated the existence of several morphologically different types of ganglion cells in the gut, which have been confirmed later by the electron microscopy and by immunocytochemistry staining[15]. These nerves were named p-type because the predominating type vesicles in these nerve fibers resembled those of peptide-storing neurosecretory nerve fibers in the neurohypophysis. Several peptides have been proposed as neurotransmitter candidates[16], such as serotonin, Substance P, vasoactive intestinal peptide, Enkaphalin, Somatostatin, cholceystokinin, Calcitonin, Gene-Related peptide, Galanin, and Neuropeptide Y.

The peptidergic neurons and nerves have been proven to play an active role in peristaltic activity by relaxation of part of the bowel before a propulsive wave is discharged or a bolus enters[7].

On the other hand, inhibitory adrenergic innervation inhibits peristalsis when interruption of digestive function is necessary[7].

EMBRYOLOGICAL CONSIDERATIONS

It is generally accepted that aganglionosis is a developmental anomaly. The intramural intestinal ganglion cells originate from the neural crest cells of somites 1 to 7[17]. The nerve cells of the alimentary tract can be detected as early as five weeks of gestation as immature neuroblasts in the well formed cervical vagal trunk that supply the nerve fibers to the esophagus. The sympathetic ganglionated chains are formed bilaterally ventral to the vertebral column[18].

The neuroenteric ganglion cells migrate from the neural crest to the upper end of the gut and then follow the vagal fibers caudally. Neuroblasts are recognized intramurally in the esophagus by the sixth week of gestation. By the seventh week, it reaches distally as the midgut, it arrives at the mid transverse colon by the eighth week. Neural crest cells arise from the epithelium at the site of closure of the neural tube[18]. The neuroblasts are of higher density in the upper part of alimentary tract than the lower part. This finding suggests a gradient distribution of neuroblasts along the alimentary tract in a cranio-caudal fashion. At the end of the twelfth week, the neuroblasts are found in all parts of the intestine down to the end of rectum[19]. Each cell is multipotent capable to differentiate into melanocytes, parasympathetic enteric ganglia, schwann cells and adrenal medulla.