SURGICAL MANAGEMENT OF RECTAL PROLAPSE

Essay

Submitted in partial fulfilment

For

Master Degree

[In Surgery]

BY

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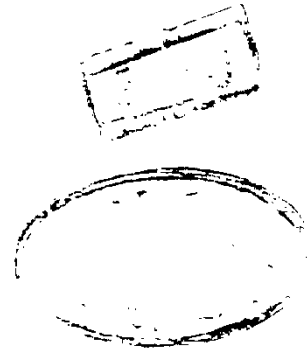


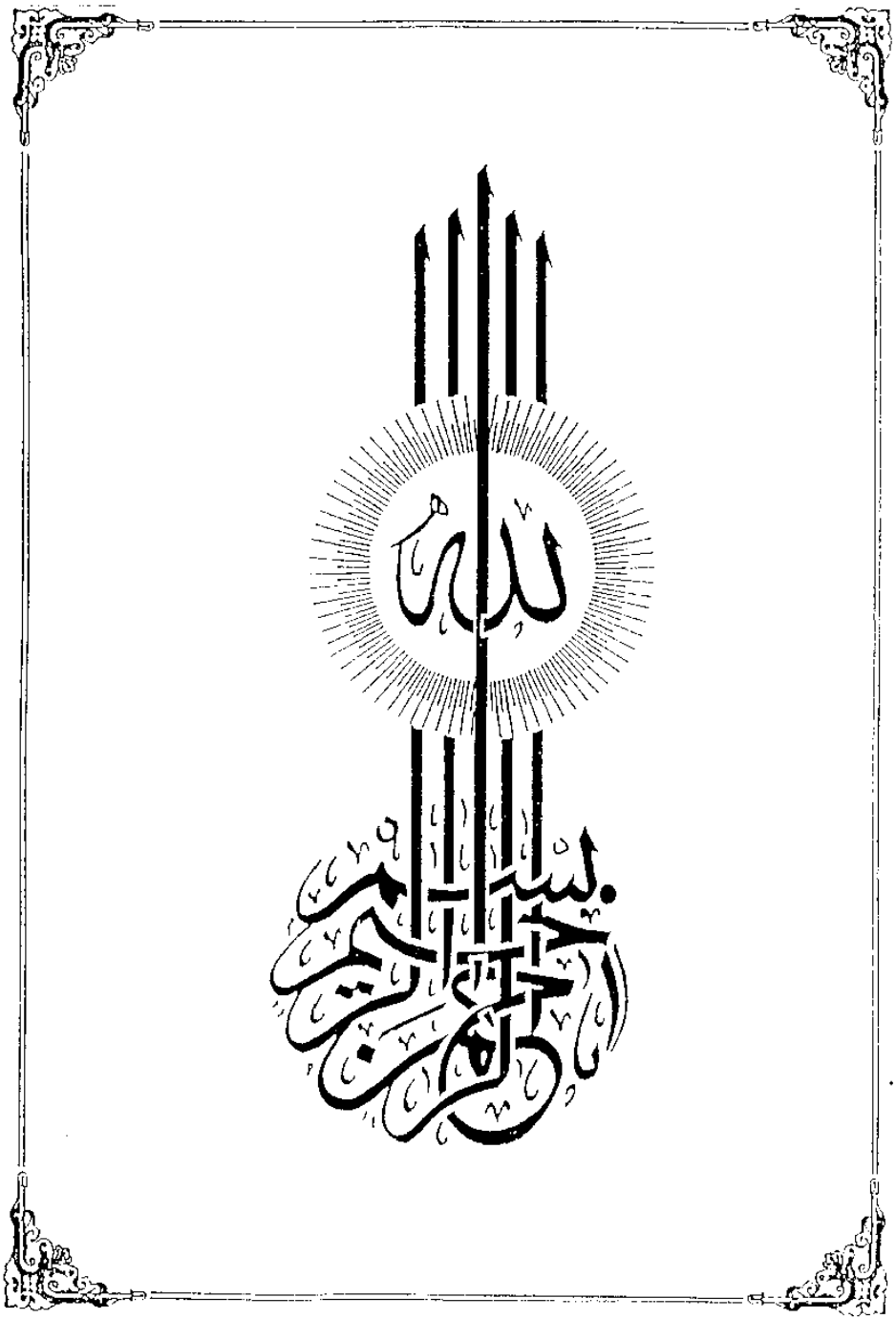
ACKNOWLEDGEMENT

First and Foremost, thanks are due to my God.

I wish to to express may profound gratitude deep appreciation and sincer thanks to Dr. Maged Mohamed Zayed Ass. Prof. of Geneal Surgery Faculty of Medicine Ain Shams Univesity for his sincer supervision, valuable guidance, encouragement during the work.

I am deeply grateful to Dr. Sayed Abd El Mouty Lecturer of General Surgery, Faculty of Medicine Ain Shams University for continuous kind supervision and fruitful advices during the study.

El-Shafei H.A.



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INTRODUCTION

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The rectal prolapse is usually a disease of extremes of life. In the Western countries it is commoner in elderly females than in males and may occur in children. Young females are more susceptible due to complicated labour. In Egypt it was found to be more common in males probably due to bilharzial infestation.

The consequent development of a multitude of surgical procedures to control rectal prolapse attests to the futility of seeking a single satisfactory panacea for this malady.

Surgery must aim to cure prolapse with least mortality, recurrence and morbidity rate with preservation of rectal, urinary and sexual function. The different procedures are studied and the results are evaluated.

SURGICAL ANATOMY

REVIEW

Anatomy of the rectum

The rectum is the direct continuation of the pelvic colon, and when straightened out, is about 12 cm in length. It begins opposite the third piece of the sacrum and follows the curvature of the sacrum and coccyx. It ends 2.5 cm.(1inch) beyond the tip of the coccyx by bending sharply backwards to become the anal canal (Farquharson's 1978).

There is no change of structure at the junction of the rectum with the sigmoid (pelvic) colon. The distinction is merely a matter of peritoneal attachment where there is a meso-colon, the gut is called sigmoid, where there is no mesentry it is called rectum. There is nothing vague about where the rectum ends, however, this is where its muscle coats are replaced by the sphincter of anal canal . This is the ano-rectal junction, and it is given in the U-loop of puborectalis. [Fig. 1]

Peritoneal covering :

The rectum [illegible] by, not the pelvic peritoneum of the posterior wall of the

pouch of Douglas is draped over its upper part. Thus the upper third is clad in front and on both sides, the middle third in front only and the lower third not clad at all by peritoneum.

<u>Relations :</u>

The upper two-thirds is related anteriorly to the recto-vesical (or recto-uterine) pouch and to its contents (a coil of ileum or pelvic colon). The lower third is related in the male to the base of the bladder with the seminal vesicles and vasa deferentia intervening and to the prostate below; in the female it is related to the vagina. A [illegible], the recto-urethralis, derived from the longitudinal fibres of the rectal wall, extend forward from the ano-rectal junction to be attached to the [illegible] the [illegible] of the prostate or to the back of vagina. Posteriorly the rectum lies first on the [illegible] and coccyx, and then on the raphe of the levator ani which [illegible].

[illegible] entry. [illegible] the pelvic floor. [illegible]

and faeces. The upper and lower ends of the rectum lies in the midline, but the ampulla is convex to the left. These lateral curves are true produced, each being marked on the interior of the ampulla by a horizontal shelf, these are named " valves" (The rectal valves of Houston). They lie, , two on the left and one on the right between them, across half the circumference of the rectal lumen and are produced by the circular muscle of the gut and are not confined solely to the mucous membrane as is the case with the circular folds of the duodenum and jejunum. Their purpose is not quite clear but they may be concerned in separation of flatus from the faecal mass, holding up the faeces while allowing the flatus to pass.

BLOOD SUPPLY OF THE RECTUM :

Arterialsupply : [Fig. 2]

It is derived principally from the artery of the hind gut, the inferior mesenteric artery, whose superior rectal branch supplies the mucous membrane of the gut as far down as the muco-cutaneous junction of anal canal (Hilton's line). The muscle wall of the rectum receives a reinforcement from the middle rectal branches of the internal

iliac artery. Finally, a small twig from the median sacral on the back of the rectum in the hollow of the sacrum, these are in series with the three main gut arteries, for the median sacral artery is the atrophic continuation of the abdominal aorta.

The superior rectal artery is a direct continuation of the trunk of the inferior mesenteric . After the lowest sigmoid artery has entered the pelvic resection the vessel touching but not crossing the medial side of the left ureter, crosses the bifurcation of the left common iliac vessels and descends on the base of the inferior lips of the pelvic resection to the commencement of the rectum. The artery here divides into right and left branches. The right one divide into anterior and posterior branches. These three main branches sink into the muscle walls in the line of the three primary haemorrhoids.

The muscle wall of the ampulla and the upper part of the anal canal receives branches from the middle rectal artery, but the latter supply little blood to the mucous membrane and anastomose but little with the branches of the superior rectal artery.

The venous drains :

A submucous plexus of veins in the rectum and anal canal drains through the muscle wall of the ampulla into a plexus that surrounds the ampulla. This is the external rectal plexus.It drains to two distination; upwards to the portal system by the superior rectal vein and across to the internal iliac vein by a plexus of middle rectal veins. This plexus (and not the superior rectal vein) communicates freely with the venous plexuses in the broad ligament of the female and with the vesicle plexus in the male. The superior rectal vein is formed by union of tributaries corresponding with the three branches of the superior rectal artery (two in the right and one on the left) It runs up in the base of the inferior line of the pelvic mesocolon, receives the sigmoid veins from the pelvic colon and, finally, the pelvic brim , becomes the inferior mesentric vein. Portal obstruction produces varicosities (haemorrhoids) at the junctional zone between superior and middle rectal veins on the ampulla. The submucous veins of the ampulla and those of the anal canal, thereby become obstructed and varicose.

The lymph drainage of the rectum :

This is via lymphatics which run back with the three arterial sources of supply (superior rectal, middle rectal and median sacral arteries). Lymph follicle in the mucous membrane provide the first filter. Thence vessels pierce the wall of the rectum and travel to nodes :

(1) In the hollow of the sacrum along the median sacral artery.

(2) On the side wall of the pelvis along the middle rectal artery.

(3) Along the inferior mesenteric artery and tributaries to the preaortic nodes at the origin of the latter vessels. All these nodes must be removed in the radical extirpation of malignant disease of the rectum.

The nerve supply of the rectum :

This is derived from both parts of the autonomic system. The sympathetic supply is derived by branches directly from the hypogastric plexuses and by fibres which accompany the inferior mesentric and superior rectal arteries from the coeliac plexus. The parasym-

pathetic supply is from S2 and S3 (or S2 and S4) by parasympathetic which run through the hypogastric plexuses.

It is motor to detrusor muscle. In addition they register crude sensation (full pain) and they have additional ability to distinguish flatus from faeces. Loss of the rectal mucosa and its surgical replacement from above results in incontinence even though the sphincters be preserved with an intact nerve supply, for the sensory side of reflex arc is lost.

Mucosa from above the rectum (Sensory supply from the sympathetic) cannot distinguish flatus from faeces .

The fascia of the rectum :

It consists of loose areolar tissue surrounding the rectal venous plexus. Posteriorly a sheet of fascia, more membranous in character, suspends the lower part of ampulla to the hollow of the sacrum, it encloses the superior rectal vessels (artery, veins and lymphatics). It is known as fascia of Waldeyer. Laterally, just above pelvic floor, the middle rectal artery and branches of pelvis plexuses are enclosed in slight condensat-

ion of areolar tissue that is known to surgeons as the lateral ligament of the rectum. Anteriorly some musclefibres leave the lower part of the ampulla and pass forwards towards the apex of the prostate and the commencement of membranous urethera They form the recto-urethralis muscle, a surgical land mark in operations in this region.

A definite fascial layer known to surgeons as denonvilliers fascia, it intervenes between the rectum behind and the prostate and seminal vesicles or vagina anteriorly. Sometimes the fascia consists of two layers.

The fascia of Waldeyer, the lateral ligaments, the pelvic peritoneum, the vessels and most of all pelvic floor combine to hold the rectum stable in position.

ANATOMY OF PELVIC PERITONEUM

The pelvic peritoneum is spread over the pelvic viscera and invests them in part with serous coat. Between the viscera it hangs in dependent folds or pouches. As elsewhere, the visceral layer has no nerve supply. The parietal peritoneum is supplied by the obturator nerve(L_3)