SPHINCTER SAVING OPERATIONS FOR RECTAL CANCER

An Essay
Submitted For Partial Fulfilment of
Master Degree in General Surgery

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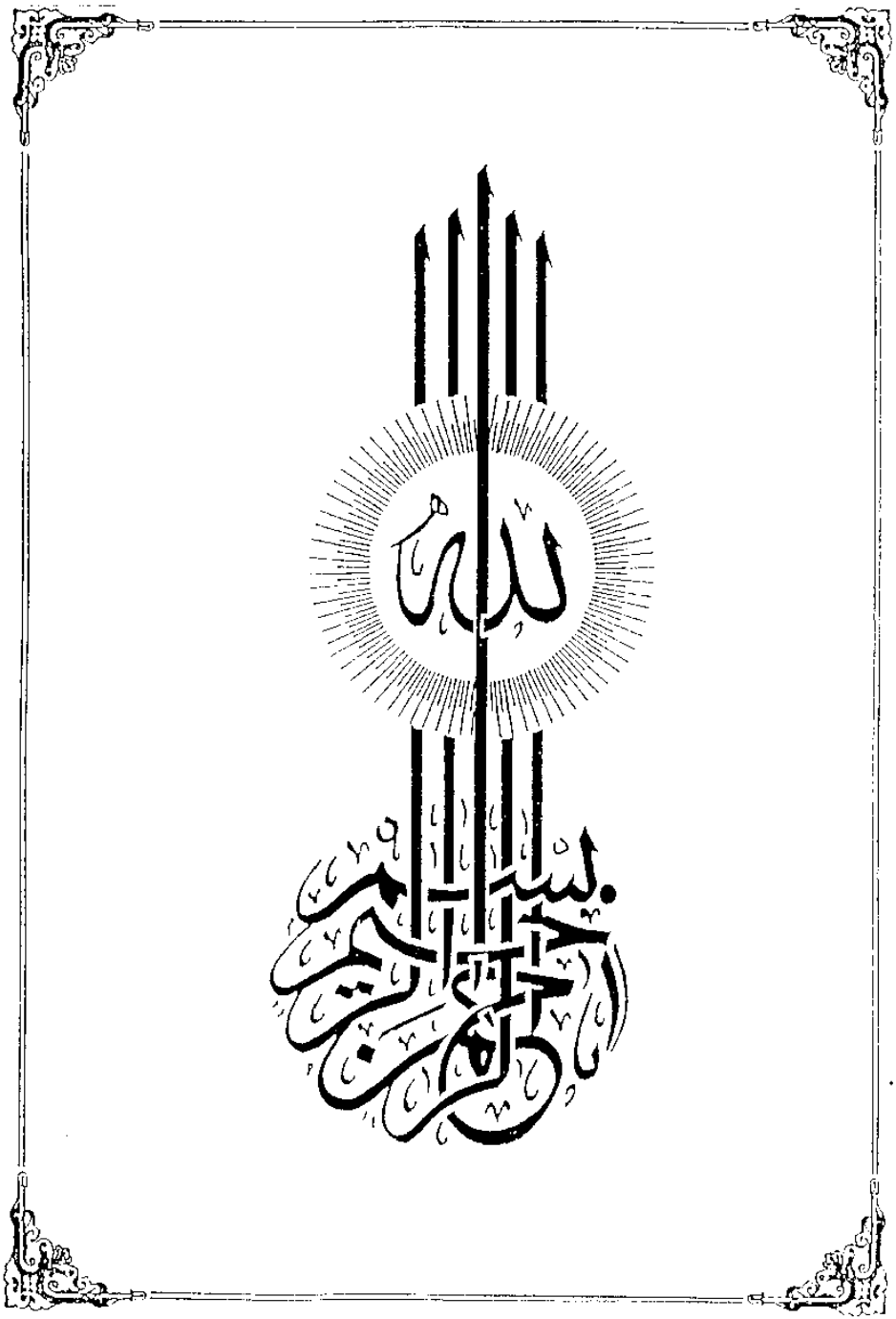

بسم الله الرحمن الرحيم

﴿ علم الإنسان ما لم يعلم ﴾

صدق الله العظيم

سورة العلق (الآية ٥)

To My Family

Acknowledgement

The greatest credit must go to Professor Dr. Mostafa Adly Helmy, *Assist. Prof. of General Surgery, Ain Shams University, whose observations garnish almost every page of the work. To him I offer my thanks.*

The deepest thanks must extend up to Dr. Ayman AbdAlla AbdRabu, *Lecturer of General Surgery, Ain Shams University, for his cooperation, encouragement, supervision and valuable help during preparing this work.*

Many thanks to all staff members of general surgery at Ain Shams University Hospital, and I am gratefull to all those who help me in preparing this work specially My Father, My Mother, and My Brother, *for them I find great pleasure to express my gratitude.*

CONTENTS

INTRODUCTION

Introduction

Improvement in surgical technique and pre-operative staging have allowed major changes in the surgical treatment of rectal tumours. Although anterior and abdominoperineal resections are the most commonly used operations for rectal tumours, more conservative modolities have been selectively employed for small, superficial lesions. These treatments include local excision, electrocoagulation, and endocavitory irradiation. Decisions determining the type of therapy are often based on visual inspection, digital examination and histologic grading of a biopsy sample. Potentially favorable lesions are selected for limited treatment when the possibility of local recurrence is small, and the presence of lymph node and distant metastasis is unlikely .

These critiria, however are not always reliable, and in some instances aggressive lesions with metastatic spread may be treated inadequately whereas localized tumours amendable to conservative treatment may be overtreated .

Larger more advanced tumours of distal rectum, which are not amenable to local exicision, have been surgically treated with low resection and coloanal anastomosis thereby allowing for preservation of sphincteric function .

ANATOMY OF THE RECTUM AND ANAL CANAL

Anatomy of the Rectum and Anal Canal

Developmental Anatomy of Anorectum

Rectum and anal canal development is associated with the growth of tail fold. Further it is intimately associated with that of the urinary bladder and other elements of the urogenital system (Williams et al., 1992).

The hindgut, cloaca, proctodeal (anal) pit, and anal tubecles are the precursors of the structures of the anorectum Fig. (1). The hindgut forms the portion of the rectum cranial to the pubococcygeal line, whereas the cloaca forms the portion below it. The urogenital and intestinal tracts terminate in the cloaca before 5 weeks of gestation Fig. (2). At the 6th week caudal migration of the urorectal septum separates the tracts Fig.(3). The cloacal part of the anal canal is lined by both ectodermal (From the anal pit) and endodermal elements with breakdown of the anal membrane, which is the origin of the anal transition zone. The anal tubercles are ectodermal in origin and become joined posteriorly and anteriorly to encircle the proctodeal pit. Anteriorly the tubercle forms part of the perineal body which completely separates the rectum from the urogenital tract (Pemberton, 1991).

The external anal sphincter forms at the same time as the perineal body; the perineal body separates the early "cloacal sphincter" in to

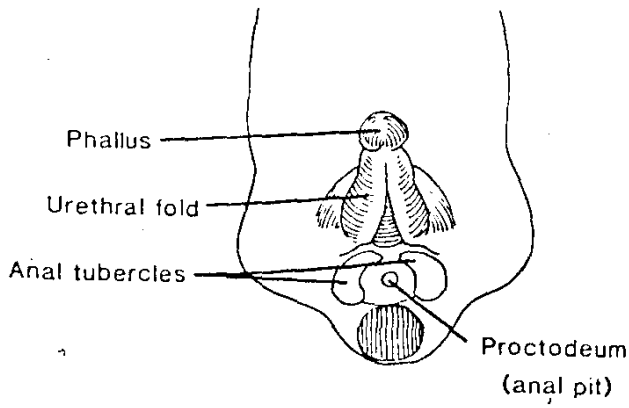

Fig. (1) : The proctodeum, or anal pit, is surrounded by the anal tubercles. The anterior tubercle forms part of the perineal body (Pemberton, 1991).

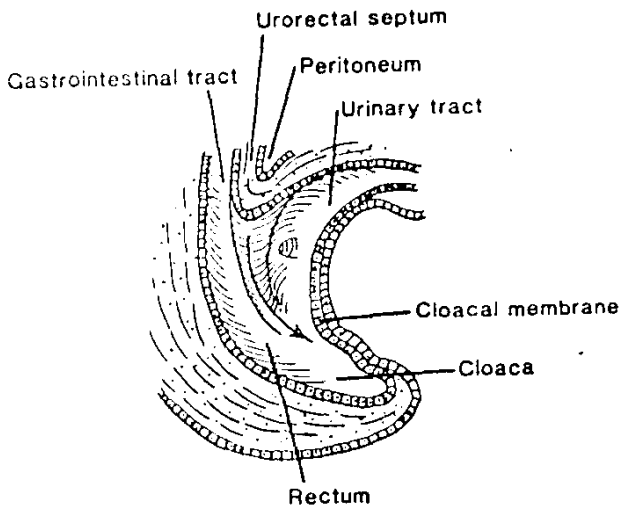

Fig. (2) : The embryo at week 5 of gestation. Note that the urinary and gastrointestinal tracts end in a common cloaca. The urorectal septum will migrate caudally (Pemberton, 1991).

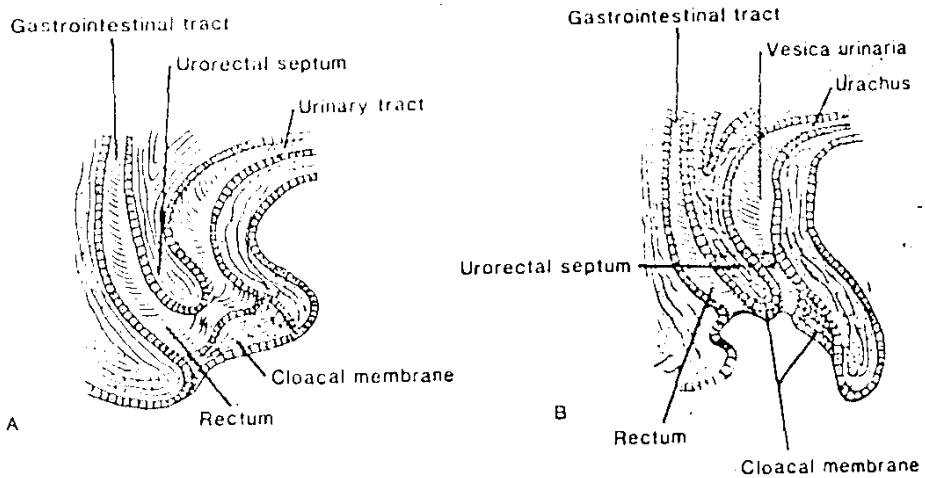

Fig. (3) : The embryo at weeks 6 to 7. The urorectal septum has migrated caudally to separate the urinary and gastrointestinal tracts. The common cloacal membrane (A) has now been separated (B) (Pemberton, 1991).

urogenital and anal portions. The internal sphincter is formed later from enlarging fibers of the circular muscle of the rectum. During development the external anal sphincter migrates caudully, whereas the internal anal sphincter migrates cephalad. Finally, it is generally agreed that the blood supply, venous return and lymphatic drinage above the anal transition zone are portal in origin whereas below this zone they are systemic (Pemberton, 1991).

Topographic Anatomy of the Rectum

Varying in length with age, sex, and body habitus, the rectum is described by anatomists as begining at the body of 3rd sacral vertebra, but surgeons describe it as begining at the sacral promontory (Goligher, 1984).

At first the rectum proceeds downward, then downward and forward closely applied to the concavity of the sacrum and coccyx for 13-15 cm. It ends 2-3 cm in front of and below the tip of the latter bone by turning abruptly downward and backward, and passing through the levator muscles to become the anal canal, which has an average length of 3-4 cm and terminate at the anal orifice or anus Fig. (4) (Goligher, 1984).

When the rectum is examined from infront, the rectum is seen to deviate to the left, but, quickly returns to the median plane. When seen on lateral view the rectum follows the anterior concavity of the sacrum

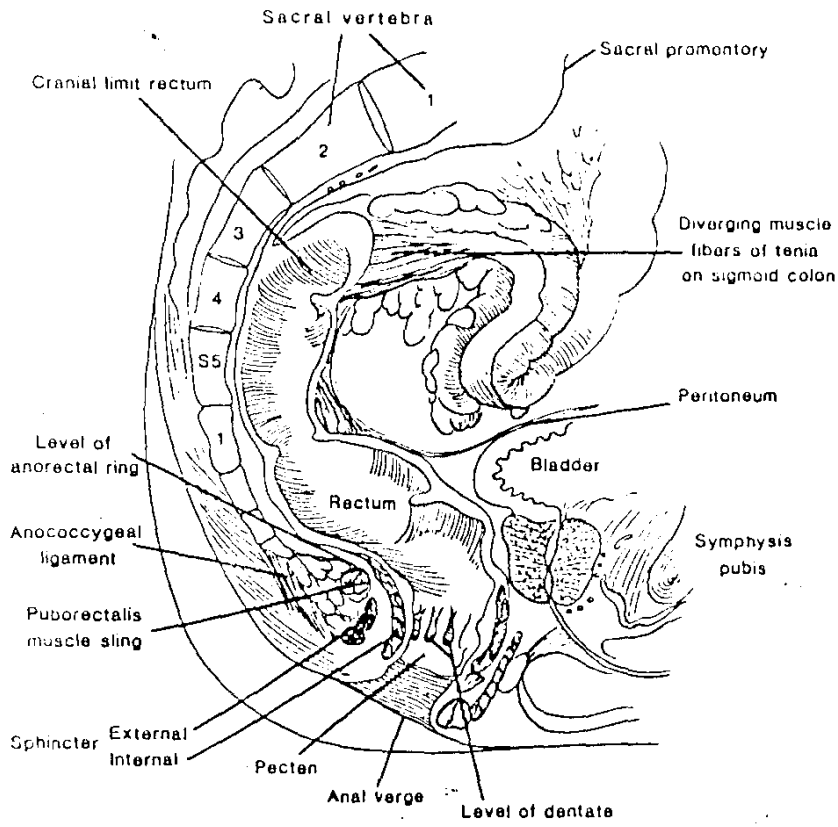

Fig. (4) : The course and relation of the rectum through the pelvis. Lateral view (Pemberton, 1991).