ANAL INCONTINENCE

ESSAY

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BY

YASSER MOHAMMED KHODARY RABIE.
M.B., B.CH (AIN SHAMS UNIVERSITY)

UNDER SUPERVISION OF.

PROF. DR. ALAA ISMAIL
PROF. OF GENERAL SURGERY (AIN SHAMS UNIVERSITY)

ASSIST IN SUPERVISION

DR. REFAAT REFAAT KAMEL
LECTURER IN GENERAL SURGERY (AIN SHAMS UNIVERSITY)

DR. ASHRAF ELZOUGHBY ELSAEED
LECTURER IN GENERAL SURGERY (AIN SHAMS UNIVERSITY)

FACULTY OF MEDICINE
AIN SHAMS UNIVERSITY

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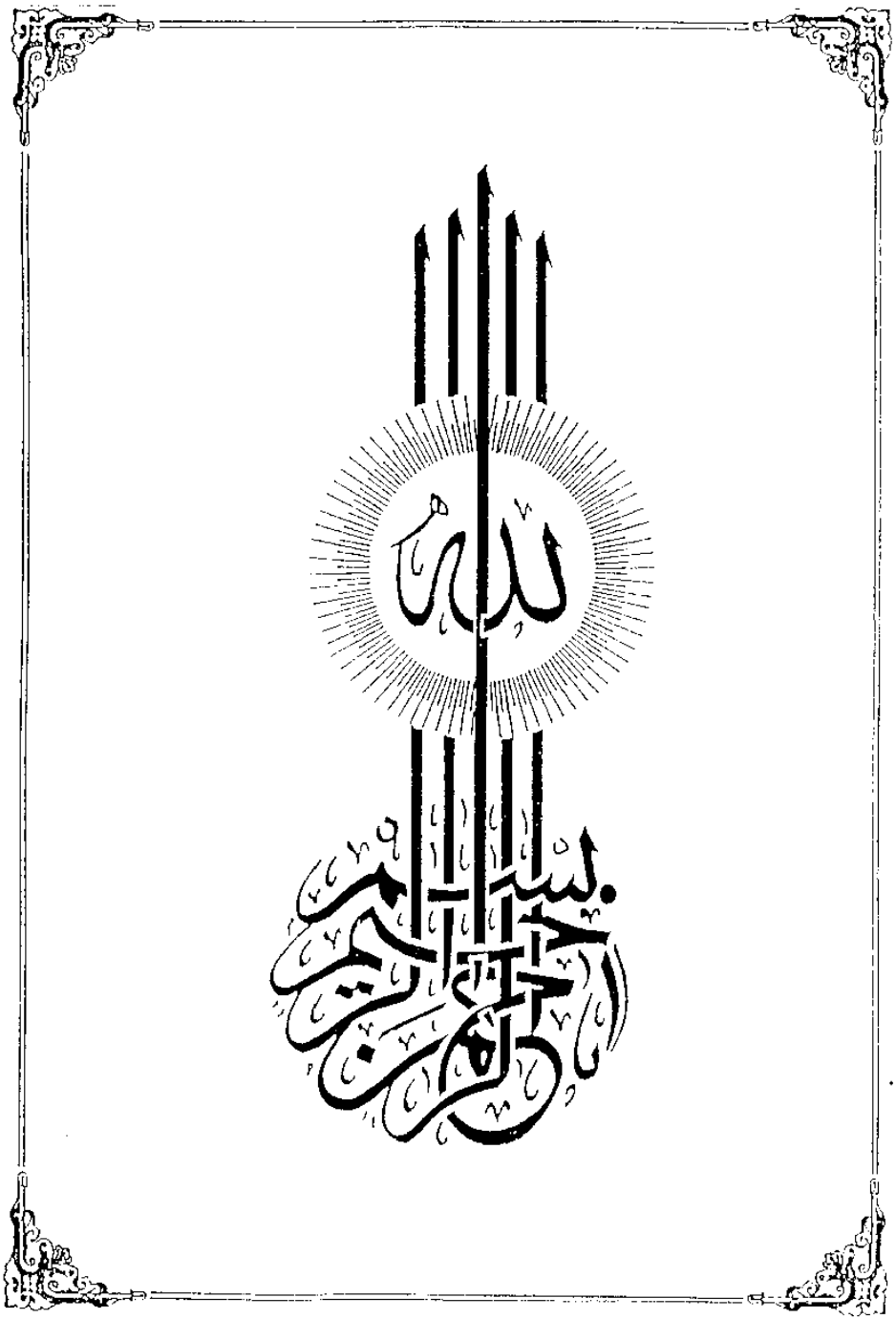

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INTRODUCTION

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Anal incontinence although not a life threatening disease, can be a source of considerable distress and disability. It can be caused by disturbance of any one of the mechanisms that normally ensure continence; such as CNS or spinal cord injuries.; by disease that impair smooth muscle (SCLERODERMA) or striated muscle (polymyositis) or by direct muscle damage occurring with perineal disease or trauma.(Corman, 1983).

The disturbance of faecal control associated with reduced or absent anal sphincter and pelvic floor muscle junction have been recognized as a major clinical problem. It is only recently that surgeons have been able to employ operations with guaranteed good results.

Likewise it is recently with advent of greater interest in research into the normal and abnormal physiology of faecal incontinence in more patients and are able to apply operative methods to correct this distressing disability. (Thomson, 1986).

AIM OF THE WORK

The aim of the work is to review the literature about the recent knowledge concerning the aetiology,

pathophysiology and investigations of anal sphincter incontinence. Such knowledge has grown immensely in the last few years so as to confuse the practising surgeons.

The treatment of such condition will reveal special consideration regarding the indication, choice of procedure, techniques and results.

REVIEW OF LITERATURE

ANATOMY

RELATED ANATOMY OF THE RECTUM AND THE ANAL CANAL

- Anatomy of the Rectum.
- Fascial Relation of the Rectum.
- The Support of the Rectum.
- Anatomy of the Anal Canal.
- Mucocutaneous Lining.
- Anal Sphincter.
- Puborectalis Muscle.
- Anorectal Angle.
- Nerve Supply of the Rectum and Anal Canal.

Anatomy of the rectum:

Varying in length with age, sex and body habitus, the rectum is described by the anatomist as the beginning at the S_3 vertebral body, but surgeons describe it as the beginning at the sacral promontory (Goligher, 1984). The rectum descends caudally following the curve of the sacrum first downwards and then forward for a distance of 13 - 15 cm to end at the anorectal ring, or the top of the anal canal (Fig. 1). This ring is formed by the pelvic floor muscles (the puborectalis muscle in particular and the EAS and the IAS) (Fig. 2).

The rectum has three lateral curves. The upper and lower curves are convex to the right. Whereas the middle curve is convex to the left (Fig. 3), on the intraluminal aspect of these curves are the valves of Houston. These infolding incorporate all layers of rectal wall except the longitudinal muscle layer. The middle valve is the most consistent and usually marks the level of the anterior peritoneal reflection (Goldberg et al., 1980).

It ends 1 to 1.5 inches (2.5 to 3.1 cm) below the tip of the coccyx where it changes direction to become part of the anal canal.

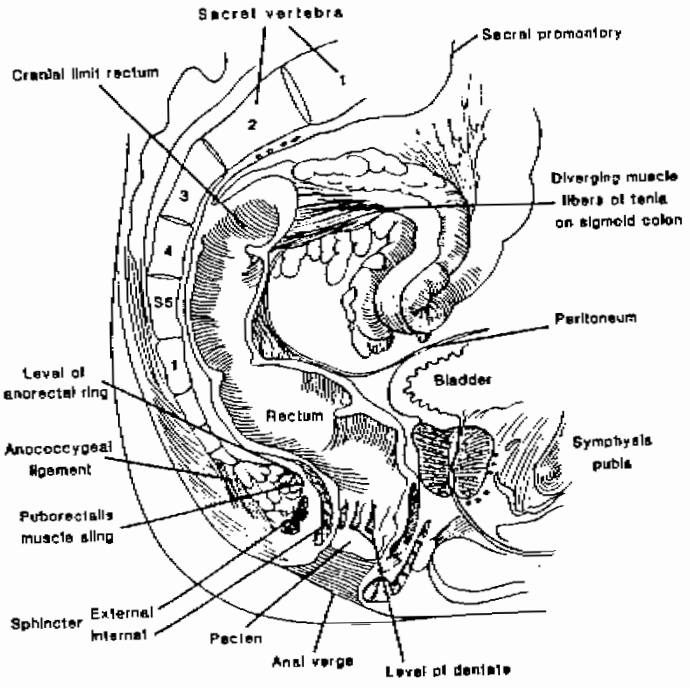

Figure 1: The course of the rectum through the pelvis.

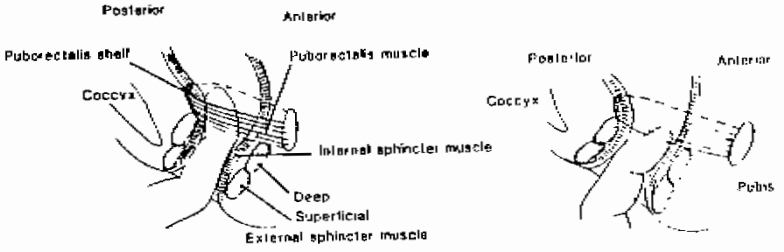

Figure 2: The anorectal ring

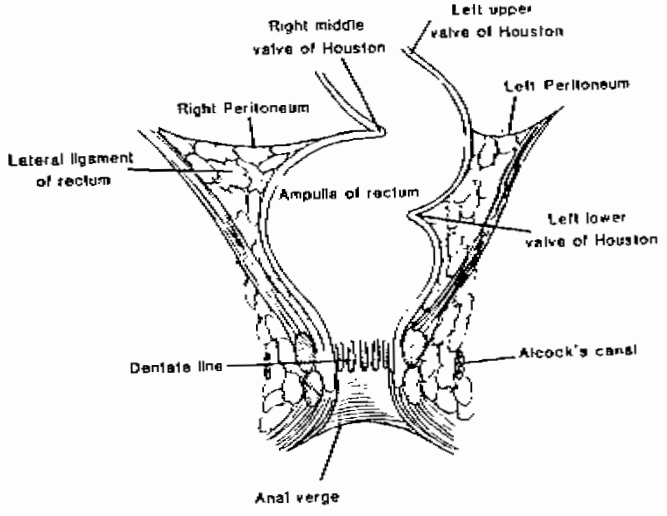

Figure 3: The curves of the rectum. (Zuidema, 1991).

It ends at the tip of the apex of the prostate in males and at the level of the lower 1/4 of the vagina in females.

Its upper part has the same diameter as the sigmoid colon, about 4 cm in the empty state, but its lower part is dilated to form the rectal ampulla. The upper fold is situated on the right side and is the most constant one lying at the level of the fundus of the bladder. The function of these folds is intriguine, they were believed by Houston to delay the passage of stools and by others to distinguish flatus from faeces (Ger, 1988).

The upper part of the rectum is usually empty, but the lower part, resting on the pelvic floor, is distended into the ampulla which contains resting flatus and faeces. The rectum has been suggested by Paterson (1912) to consist functionally of two parts, one above and the other below the middle fold, the upper part containing faeces and being free to distend towards the peritoneal cavity, while the lower part occupies a more confined situation; enclosed in a tube of condensed extraperitoneal tissue and (except during defecation) the rectum is empty in normal individuals, though in case of chronic constipation or after death it may contain faeces.

The taenia coli blend about 5 cm above the junction of the rectum and sigmoid colon to form two wide muscular bands which descend, one in the anterior and the other in the posterior wall of the rectum (Williams and Warwick, 1980).

The three taenia coli come together over the rectum to invest it in a complete outer layer of longitudinal muscle that is thicker anteriorly and posteriorly than laterally. (Ger., 1988).

Fascial relations of the rectum: (Fig. 4)

In the posterior extraperitoneal portion of the rectum the fascia propria (Fascial capsule) envelops the vessels and lymphatics, this fascia is continuous with the visceral pelvic fascia below the anterior peritoneal reflection, condensation of this fascia on each side of the rectum are termed the lateral ligaments and attach the rectum to the lateral pelvic side walls. These ligaments support the rectum and must be divided to facilitate rectal mobilization.

The sacrum and coccyx are covered by presacral fascia (Fig. 4).This fascia also covers the middle sacral vessels from the S_4 level. The retrosacral fascia (Fascia of waldayer), a part of parietal pelvic fascia, runs downward and forward to reflect into the fascia propria above the

anorectal ring. (Fig. 5A). This is a very thick fascial layer that must be incised sharply to facilitate complete posterior rectal mobilization. (Fig. 5B).

Anteriorly the extraperitoneal rectum is also covered by tough visceral pelvic fascia (Denonvillers' fascia) that extends from the peritoneal reflection downward to the urogenital diaphragm, parallel to the rectum and dorsal to the urogenital structures and attaches laterally to the lateral ligaments (Fig. 6). This fascia separates the rectum from the prostate and seminal vesicles or vagina and should be entered high near the peritoneal reflection during anterior rectal mobilization for benign disease in order to separate these structures from the rectum (Pemberton, 1991).

The support of the rectum:

1- The attachment of the levator ani between the internal and external anal sphincter.

2- The visceral layer of pelvic fascia.

3- The rectourethralis muscle which attaches it to the urogenital diaphragm and perineal body.

4- The rectal stalk or lateral ligaments on each side of the back of the rectum 2-5 cm above the levator, it is a dense fibrous cord running from the third piece of the sacrum to the rectal wall, it contains the nervi erigentis ($S_{2,3}$) and