شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومـــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

ANORECTAL INCONTINENCE:

CLINICAL, IMAGING AND MOTILTY STUDY

MD Thesis

Submitted to Faculty of Medicine, Tanta University

In Partial Fulfillment of the Requirement of the M.D. In Surgery

By

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REVIEW OF LITERATURE

Continence is the ability to control defecation voluntarily. It may be defined as the ability to perceive, to retain, and to excrete rectal contents at socially appropriate times. This depends principally on a mechanical barrier to defecation, adequate anorectal sensation, appropriate reflexes, and the ability to evacuate (1).

Anorectal incontinence is a challenging condition of diverse etiology and devastating psychological impact. It may be difficult to define accurately. Some patients may be very troubled with the inability to control flatus, and others are troubled only when they have occasional episodes of diarrhea. However, more concern is given to those patients who may be incontinent at any time with the unconscious passage of solid stool, and who may need to wear padding (2).

Anorectal incontinence is a physically and psychologically disabling condition with considerable social stigma such that only one-third of patients ever discuss the problem with a physician and many are unwilling to admit to symptoms or to seek help. It can be defined as involuntary excretion of feces at an inappropriate place more than twice in one-month (2).

Epidemiology

Fecal incontinence is an under-reported condition because patients feel so inhibited and stigmatized by the affliction that they are reluctant to seek medical advice because of embarrassment. It has become increasingly clear to clinician over the last decade that this is a common condition. There are no accurate published reports of the overall incidence of anorectal

incontinence. Some reports claimed that soiling of underclothes, incontinence for flatus, anal discharge and even loss of fecal control are probably quite common complaint (3). One of the studies reported that, when soiling is included in survey questionnaires, at least 5% of healthy subjects have experienced incontinence (4).

Some epidemiological studies suggested that anorectal incontinence affect about 1 in 1000 people in general population (1), while others, reported up to o.5 to 1.5 percent of the general population (5). The combination of fecal with urinary incontinence is twelve times more common than fecal incontinence alone, because of weakness of pelvic floor muscles which frequently affects the angle between the bladder and the urethra, and the sphincter urethrae muscle at the same time (6). The prevalence of known fecal or double fecal and urinary incontinence is increased with age, yet it is estimated to be 0.5 / 1,000 in males and 0.4 / 1,000 in females aged 15-64 years. Above the age of 65 years, the incidence rises to 10.9 /1,000 in males and 13.3 /1,000 in females (7). In a more recent studies, Mander & Williams in 1998 reported, fecal incontinence in more than 1% of population over-65 age group and up to 60% in the long-stay institutions, with an estimated prevalence of at least 4.2: 1000 rising to more than 10: 1000 in the over 65 year age group (8). In 1999, Madoff et al (9) reported that the prevalence of fecal incontinence is about 2.3 % in the United States, which corresponds to more than 5 million affected individuals.

Anorectal incontinence occurs with variable frequency in certain congenital anomalies. Pëna in 1998 (10) reported that anorectal malformations affect 1 in 5,000 newborns and at least 30 % of these patients

have be fecal incontinence after corrective surgery. Likewise, approximately one half of children who have spina bifida suffer from fecal incontinence, as do some children who have Hirschsprung's disease.

Anatomy of the Anorectum

Rectum

The rectum usually makes three curves in its course, two lesser curves to the right, and a prominent loop to the left, extending as far as the tip of the coccyx. Inferiorly, it widens and forms the rectal ampulla, which is normally empty of fecal material. On distention, the rectum normally presents three valves of Houston, two on the left and one on the right side. The middle valve, to the right, is the most constant and is situated at the level of the anterior peritoneal fold.

Anal Canal

The anal canal is the terminal part of the alimentary tract that is encircled by the sphincteric muscles. It is 3-4 cm long. It descends as the continuation of the rectum but turns posteriorly through the pelvic floor and opens externally at the anus. It commences at the ampullary part of the rectum at the level of the anorectal angle, and corresponds physiologically with the zone of intraluminal high-pressure zone described by Bennett and Duthie in 1964 (11).

Anteriorly, the perineal body separates the anal canal, in the female from the lower end of the vagina, and in the males from the bulb of the penis and the prostatic gland. The anal canal is surrounded by the internal and the external anal sphincter muscles. There are two definitions of the boundaries of the anal canal. The anatomic anal canal is approximately 2 cm in length and extends from the side of the embryonic cloacal membrane just proximal to the dentate line to the anal verge. The longer surgical or clinical

anal canal begins at the anorectal junction at the cephalad border of the puborectalis muscle and terminates 2.5 cm distally at the caudal border of the external sphincter (12) (Fig.1).

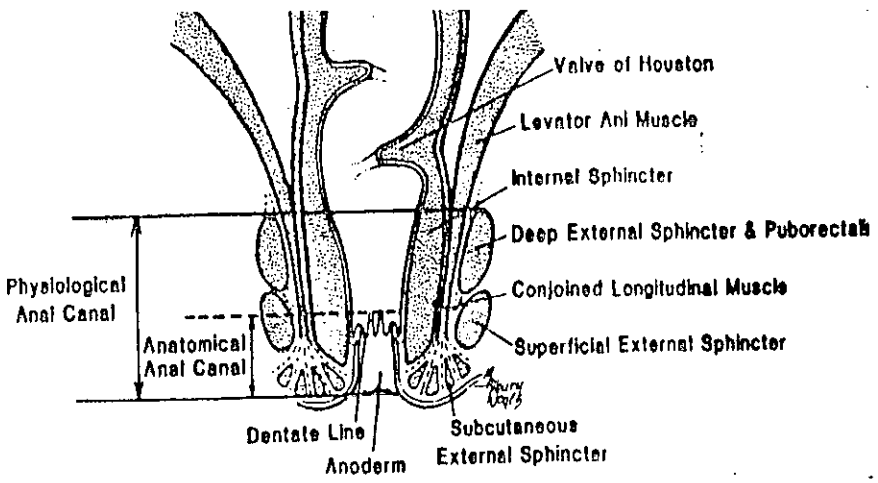

Fig. 1 The anal canal (Adapted from Goldberg SM, Gordon PH, Nivatvongs. Essential of anorectal surgery. Philadelphia. JBLippincott, 1980.

A transitional area of epithelium separates the columnar epithelium of the upper anal canal, from the squamous epithelium of the lower anal canal. This, transitional area, extends 1.9 mm in length with a mixed picture of stratified squamous and stratified columnar epithelium.

The longitudinal muscle of the anal canal is a direct continuation of the outer muscle coat of the rectum. This longitudinal muscle is augmented by striated muscle fibers of unknown origin. It might be originated from the levator ani or the puborectalis muscle (13). Despite the explosion of interest in anorectal physiology in the past decade, it is surprising that the anatomy and function of this longitudinal muscle still uncertain. Lunniss & Phillips in 1992 reported that, the most important role of this muscle is in contraction during defecation, which leads to shortening and widening of

the anal canal and evertion of the anal orifice (13). Shafik in 1976 considered the muscle has only a minimal role in continence and suggested that its name should describe its action and propose the descriptive term (Evertor ani muscle) (14). Other authors, however, believe that it has a role in fixing the anorectum to the pelvis, supporting and binding the internal and external sphincter complex together, helping during defecation by everting the anus, and supporting the hemorrhoidal cushions (13).

The Internal Anal Sphincter

The smooth muscle of the rectum consists of an inner circular and outer longitudinal coat derived from the muscular tenia of the sigmoid colon. The circular muscle in the lower aspect of the rectal wall thickens and ends just above the level of the anal verge. This thickening constitutes the internal sphincter, which surrounds the upper two third of the anal canal. The internal sphincter is separated from the upper portions of the external sphincter by the longitudinal muscle of the rectum. The thickness of the internal anal sphincter varies between 0.1-0.5 cm and is 3-4 cm long, extending distally to a well-defined round edge 8-12 mm below the pectinate line. There has been macroscopic and histological evidence of internal anal sphincter continuation to the anal verge.

The External Anal Sphincter

The external anal sphincter is a striated muscle. It has been traditionally divided into a subcutaneous, superficial, and deep layers. The superficial components are attached anteriorly to the perineal body and posteriorly to the coccyx. The deep and the subcutaneous parts are annular. The deep portion of the external anal sphincter surrounds the musculature of

the rectum, the anal canal, and the internal anal sphincter, while the deep fibers are inseparable from the puborectalis.

Shafik in 1975 postulated that, the external sphincter mechanism is a triple-loop system consisting of deep, superficial, and subcutaneous loops (15). These loops are separated by fascial planes, and each receives individual innervation and has a unique orientation and attachment to the surrounding tissues. The deep or cephalad loop, consisting of the puborectalis muscle fused to the deep portion of the external sphincter muscle and is innervated by the inferior rectal nerve, a branch of the pudendal nerve. It loops around the anorectal junction and inserts anteriorly on the symphysis pubis. Contraction of this loop pulls the anorectal junction up and forward. The superficial or intermediate loop is innervated by the perineal branch of the fourth sacral nerve, it encircles the mid portion of the canal and inserts into the anococcygeal ligament and coccyx. Contraction of this loop pulls the mid portion of the anal canal posteriorly. The subcutaneous loop is innervated by the inferior rectal nerve, it consists of fibers that originate from the distal portion of the anal canal and pass anteriorly to insert onto the perianal skin. Contraction of the subcutaneous loop causes the distal portion of the anal canal to be pulled anteriorly and inferiorly (15) (Fig. 2).

The concept of triple loop is controversial. Goligher in 1984 (16) believed that the external anal sphincter couldn't be divided into three distinct loops but rather represents a homogenous single muscle.