Evaluation of the Role of Laparoscopy in Management of Pelvic Floor Dysfunction Associated with Obstructed Defaecation Syndrome

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By

Mohamed Abdel-Hamid Mohamed Rabie
MB.BCh, MS General Surgery
Ain Shams University

Supervised by

Prof. Dr. Amr Abdel Monem Sherif
Professor of General Surgery
Faculty of Medicine - Ain Shams University

Prof. Dr. Ahmed Abdel Aziz Abou-Zeid
Professor of General Surgery
Faculty of Medicine - Ain Shams University

Prof. Dr. Deya Marzouk
Professor of General Surgery
East Kent University hospitals

Dr. Hanna Habib Hanna
Lecturer of General Surgery
Faculty of Medicine -Ain Shams University

Faculty of Medicine
Ain Shams University
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قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

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To My Father and My Mother

To My Wife & My Son

Mohamed Rabie

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LIST OF ABBREVIATIONS

Abbreviation	Complete term
ARA	**Anorectal Angle**
BET	Balloon Expulsion Test
CCCS	Cleveland Clinic Constipation Score
CCIS	Cleveland Clinic Incontinence Score
DDV	Defaecatory desire volume
ERP	External Rectal Prolapse
FACL	functional anal canal length
FCS	First constant sensation
IRI	Internal Rectal Intussusception
LRR	Laparoscopic resection rectopexy
MRI	Magnetic Resonance Image
MTV	Maximum tolerable volume
ODS	Obstructed defaecation syndrome
PAC-QoL	Patient Assessment of Constipation Quality of Life
PNTML	Pudendal nerve terminal motor latencies
PRL	Puborectalis length
PSC	Paradoxical sphincter contraction
SRUS	Solitary Rectal Ulcer Syndrome
STARR	Stapled Transanal rectal resection
STC	Slow Transit Constipation

INTRODUCTION

Obstructed defaecation syndrome (ODS) is one of the most difficult conditions to understand & treat. It is often associated with pelvic floor dysfunction, whether anatomical [e.g. intussusception] or functional [e.g. anismus]. The association in some patients with slow transit further complicates the situation and patients may paradoxically complain of difficulty in evacuation and leakage. A great deal of controversy still exist with respect to what does the term obstructed defaecation means, how prevalent it is in the community [as a subset of ”constipation”] and the relative importance of the various abnormalities found in such patients. These include pelvic floor dysynergia, internal rectal intussusception, rectocoele, sigmoidocoele, enterocoele & abnormal uterine descent as well as the contribution of other conditions such as pelvic adhesions following pelvic surgery.

The advent of anorectal physiology testing played an important role in advancing our understanding of the subject. More recently MRI proctography further enhanced our understanding of ODS. Surgical treatment of obstructed defaecation is still, however, experimental in a way. There is a great deal of disagreement among coloproctologists regarding the merits of various approaches. Our experience in treating these patients with laparoscopic techniques has further expanded our knowledge of the complex nature of this disorder at the same

time it afforded the convenience of keyhole approach to patients.

This study aims to evaluate the results of laparoscopic resection rectopexy (LRR) for ODS patients.

AIM OF THE WORK

The aim of the present thesis is to evaluate the role of laparoscopic resection rectopexy in the management of patients suffering from obstructed defaecation syndrome secondary to “anatomic” pelvic floor abnormalities.

Chapter 1
Physiology of Normal Defaecation

Defaecation is the physiological process by which the body expels unwanted food residue. Defaecation is a complex neuromuscular process where a multitude of sensory and motor inputs interact with pelvic floor mechanics and colon and rectal motility to expel faeces. Small bowel contents enter the large bowel through the ileocaecal valve. The large bowel function is to mix and propel faecal matter and to absorb water and electrolytes. Colonic motility is mediated by a combination of extrinsic and intrinsic nervous stimuli. The extrinsic innervation is made up of sympathetic and parasympathetic nerves. The intrinsic innervation is made up of the enteric nervous system, which is a network of nerve cells in the bowel wall comprising the myenteric and submucosal plexuses[1]. Colonic motility follows three different patterns; segmentation contractions which mix contents, anti-peristaltic contractions, which retard progress of faecal contents and mass colonic movements which occurs once or twice per day to move most contents towards the rectum to start the process of defaecation.

The rectum maintains low intraluminal pressure and accommodates slowly (rectal compliance) to faecal contents. Once a certain volume is reached (usually 200ml), a sensation of rectal fullness occurs, which is mediated by sensory stretch receptors in the puborectalis and levator ani. These sensations are relayed to the pontine defaecation centre. The recto-sphincteric inhibitory reflex (Rectoanal inhibitory reflex)[2] is

activated, causing relaxation of the internal anal sphincter. The faecal bolus descends towards the anal canal, but is prevented from progressing further by the voluntary contraction of the external sphincter[3]. At this point, sensory sampling by the profuse sensory receptors of the upper anal canal in the anal transition zone permits the individual to distinguish between flatus, liquid, or solid[4]. When socially convenient, the external sphincter and puborectalis are relaxed and combined with straining; the anorectal angle straightens, allowing the rectal contents to be expelled. If the timing is inconvenient, the external sphincter and puborectalis remain contracted, returning the luminal contents back to the rectum, and the contents are then re-accommodated in the colon **(Figure 1Figure 2)**[4].

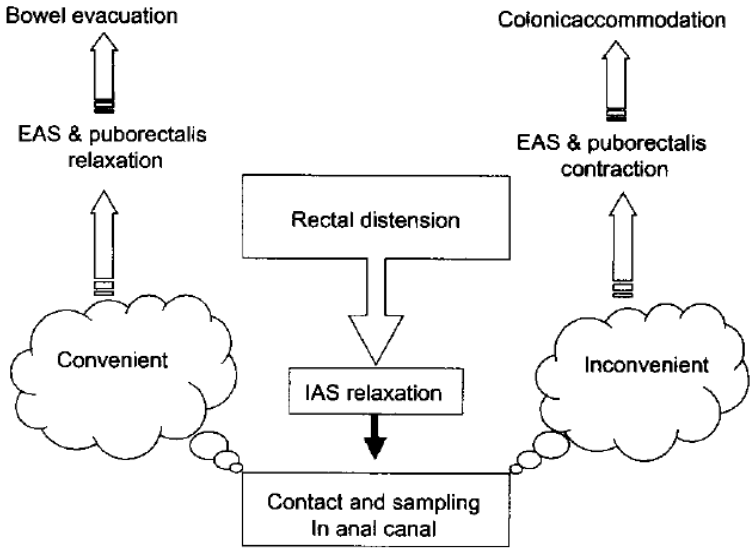

Figure 1: The mechanism of maintaining continence and defecation [1]

In normal defecation, the internal anal sphincter, external anal sphincter and puborectalis muscle are relaxed. Puborectalis relaxation allows widening and lowering of the anorectal angle, with perineal descent. Simultaneously, pubococcygeus muscle