LATERAL SPHINCTEROTOMY COMPARED TO FISSURECTOMY AND ANAL ADVANCEMENT FLAP IN TREATMENT OF CHRONIC ANAL FISSURE

Protocol of thesis
in partial fulfillment of MD degree
in General Surgery

By

Dr. Amgad Mohamed El Eryan
MB Bch. MS (General Surgery)

Supervised By

Prof Dr. Ahmed Mohamed Lotfy
Professor of General Surgery - Ain Shams University

Dr. Ahmed Mohamed El-Melegie
Assistant Professor of General Surgery - Ain Shams University

Dr. Hossam Ahmed Fouad
MS., FRCS Eng., FRCS Glasg.-Senior Lecturer in Military Medical Academy
Consultant of General Surgery-Kobri El Koppa Military Medical Complex

Dr. Ahmed Alaa
Lecturer in General Surgery - Ain Shams University

Ain Shams University
2005

ACKNOWLEDGMENT

*First and foremost thanks to **"God"** for his great help to fulfill this work.*

*Iam extremely grateful to **Professor Dr. Ahmed Mohamed Lotfy**, for his kind supervision, guidance and continuous support through this work.*

*I wish to express my sincere gratitude for **Professor Dr. Ahmed Mohamed El-Melegie** for his advice, valuable observation that made it possible to complete this work.*

*Iam deeply indebted to **Dr. Hossam Ahmed Fouad** and **Dr. Ahmed Alaa** for their valuable suggestion, guidance, advice and kind instructions.*

My deep thanks to all staff members and colleagues in General surgery department for their co-operative spirit and encouragement. Also my deepest gratitude to my family whom I can not forget their support.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBRVIATIONS

ASA	*American Society of Anesthesiologist*
CIS	*Closed internal sphincterotomy*
FBT	*Fissurectomy-Botulinum toxin*
FBM	*First bowel movement*
FPSA	*Fissurectomy with posterior midline sphincterotomy and anoplasty*
GTN	*Glyceryl trinitrate*
IAS	*Internal anal sphincter*
ISDN	*Isosorbid dinitrate*
LIS	*Lateral internal sphincterotomy*
MRAP	*Maximum resting anal pressure*
NO	*Nitric oxide*
OIS	*Open internal sphincterotomy*
PBD	*Pneumatic balloon dilatation*
PDE-5	*Phosphodiestrase enzyme 5*

INTRODUCTION

Anal fissure is common disorder, which may cause symptoms at any age ***(Keighley and Williams, 1995).*** Chronic anal fissure is a tear in the lower half of the anal canal that is maintained by contraction of the internal anal sphincter ***(Maria et al., 1998).*** The etiology of anal fissure is unclear but there is an association with high maximum resting pressure ***(Watson et al., 1996)***.

The posterior commissure of the anal canal is less well perfused than the other segments of the anoderm. There is a growing evidence that the increased activity of the internal anal sphincter which is found in almost all patient with chronic anal fissure, further decreases the anodermal blood supply specially at the posterior midline ***(Schouten et al., 1996).***

The principal symptoms of anal fissure are anal pain (specially during defecation), bright red bleeding per rectum, perineal swelling and occasionally mucus discharge ***(Keighley and Willing, 1995).***

Sphincterotomy is the operation of choice for patients with fissures that have not responded to conservative treatment ***(Neufeld et al., 1995).***

Anal mucosal advancement flap may be used alone or in addition to fissure excision and posterior sphinchterotomy ***(Leong et al., 1995)***.

Local application of isosorbid dinitrate **(ISDN**) or glycerine trinitrate (**GTN**) reduces anal pressure and improves anodermal blood flow. This is anew and simple modality that seems to be an attractive alternative for anal fissure surgery ***(Schouten et al., 1996).***

Intrasphincteric injection of botulinum toxin is a reliable new option in the treatment of uncomplicated chronic anal fissure ***(Mingues et al., 1999).***

AIM OF THE WORK

This study aims to assess the differences between lateral sphincterotomy (with or without excision of the sentinel pile) versus fissurectomy followed by anal advancement flap for the treatment of chronic anal fissure.

ANATOMY OF THE ANAL CANAL

The anal canal is the last 4 cm of the alimentary tract. Like the rest of the gut, it is a tube of muscles, but most of the fibers are circular, consisting of the internal and external anal sphincters, which are composed of visceral and skeletal muscles respectively ***(McMinn, 1994)*** Fig (1).

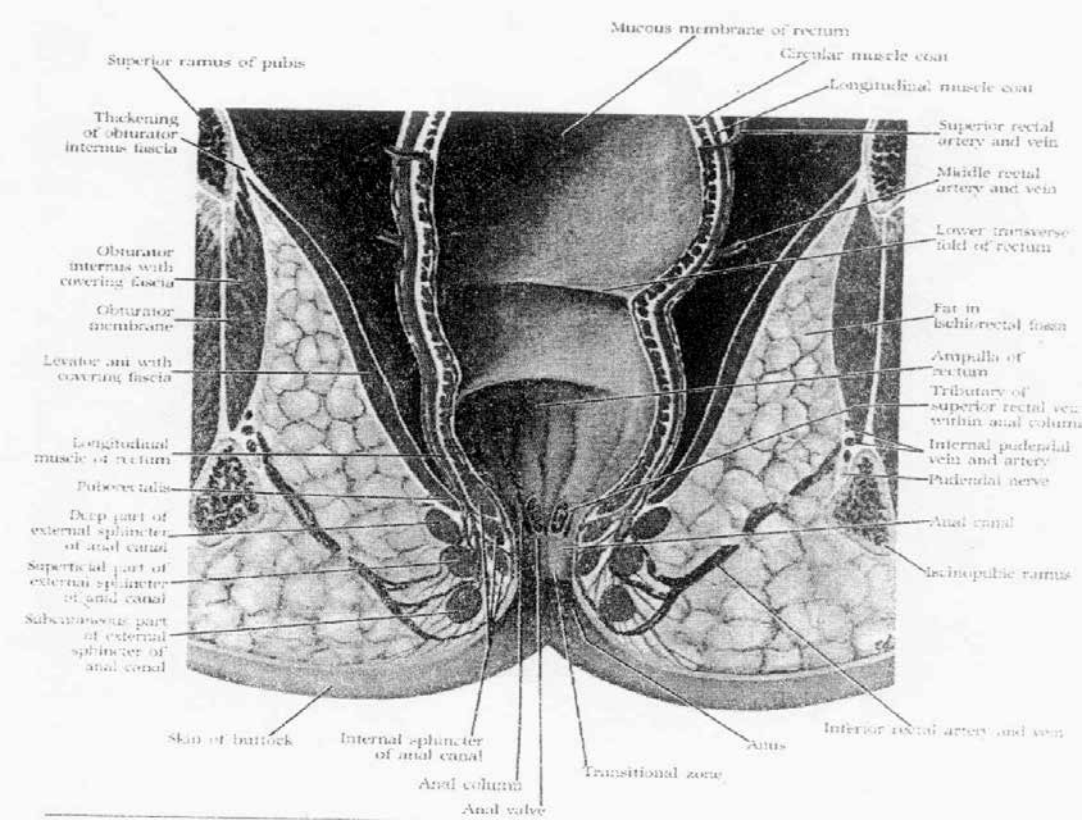

Fig (1): *The anatomy of the anal canal (Quoted from Snell Atlas of Human Anatomy).*

The anal canal is completely collapsed owing to the tonic contraction of the anal sphincters surrounding it and the anal canal orifice is made by an anteroposterior slit in the anal skin ***(Fry, 1997).***

It has been described that, there are two anal canal; a longer one about 4-4.5 cm long which is referred to as surgical or clinical anal canal, and a shorter one 2 cm long, referred to as anatomical or embryological anal canal ***(Nivatvongs et al., 1981).***

The short anal canal extends from the anal valves down to the anal margin, the surgical or clinical which is the longer begin just below the level of puborectalis muscles and extend down the anal verge, which is the site depends upon the state of contraction of external sphincter ***(Siddharth and Ravo, 1988).***

The junction of the anal canal and the rectum, called the anorectal junction lies at the pelvic floor 2-3 cm in front and slightly below the tip of the coccyx, the puborectalis muscle at this level clasps the gut and angles it forwards, from this slight angled junction with the rectum, the anal canal passes downwards and some what backwards to the skin of the perineum ***(Mc Minn, 1994).***

Shafik, (1977) reported that the anal canal proper is the part below the pectinate line and varies in length in adult from

0.5-0.75 inches, and ends by anal outlet taking of anteroposterior slit and he named the part which extend from the medial border of the levator ani muscle to the pectinate line as the rectal neck which considered as a part from the rectum

Relations of the Anal Canal (Fig 2):

§ ***From behind:***

It is in contact with a mass of fibrous and muscular tissue termed the anococcygeal ligament, which separates it from tip of coccyx.

§ ***Infront:***

The anal canal is separated by perineal body from membranous part of the urethera and bulb of penis in the male and lower end of vagina in the female.

§ ***Laterally:***

It is related to the ischiorectal fossae on both sides, the ischiorectal fossae contains fat and Inferior haemorrhoidal vessels and nerves which cross it and enter the wall of the canal***(Mc Minn, 1994).***

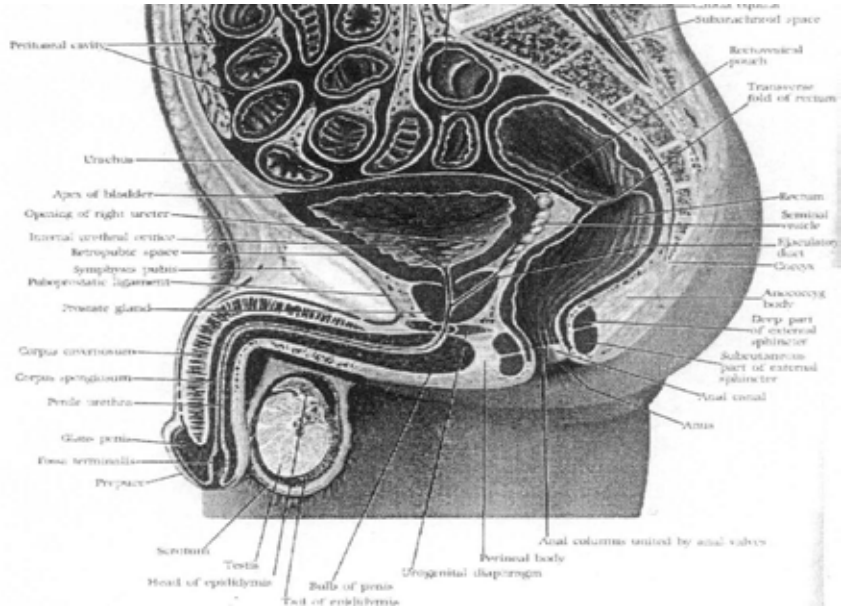

Fig (2): *The anatomy of the anal canal in Male (Quoted from Snell Atlas of Human Anatomy).*

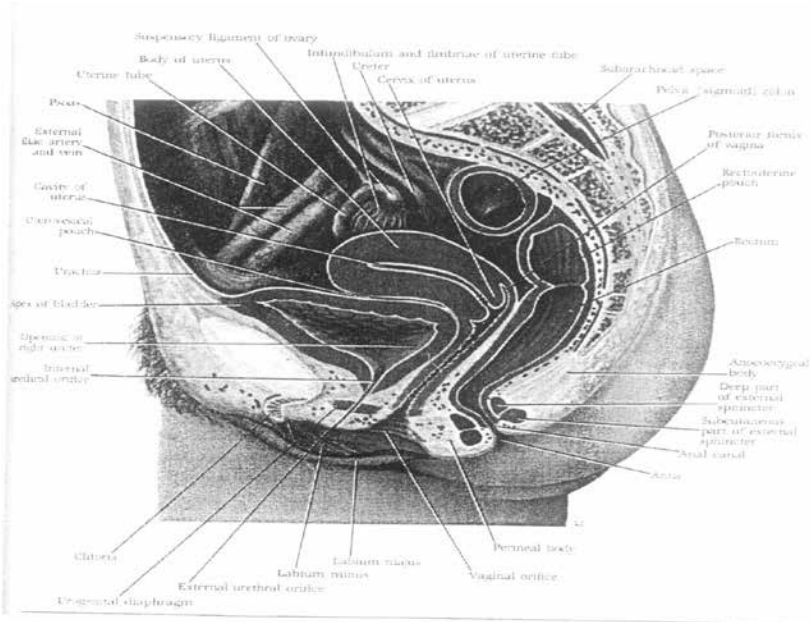

Fig (3): *The anatomy of the anal canal in female (Quoted from Snell Atlas of Human Anatomy).*

The Mucous Membrane (Fig 4, 5):

In the upper third of the anal canal the mucous membrane shows up to ten longitudinal ridges, called the anal columns. They are prominent in children but often not in adults. At their lower ends adjacent columns are joined together by small horizontal folds, the anal valves. The pockets so formed above the valves are anal Sinuses into which open up to 10 mucous secreting anal glands. Some anal glands are submucosal and some penetrate into the internal sphincter. The level of anal valves is the pectinate line (sometimes called the dentate line) below which is a smooth surface area (the pectin) which extends down to the inter-sphincter groove, below the groove is truly cutaneous area, continuous at the anus (the anal margin) with the skin of the buttock ***(Mc Minn, 1994)***

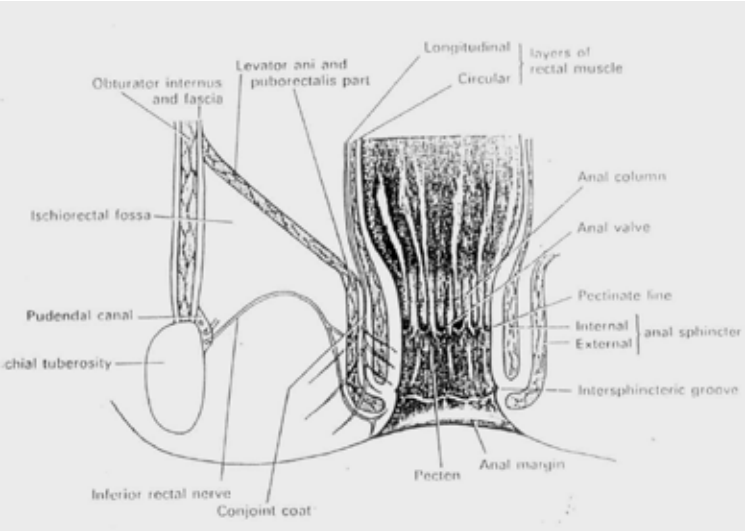

Fig (4): *The anatomy of the anal canal in Female (Quoted from Snell Atlas of Human Anatomy).*