

## بسم الله الرحمن الرحيم



-Call 4000





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





## جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

### قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة يعبدا عن الغبار













بالرسالة صفحات لم ترد بالأصل



# New techniques in the repair of anal sphincter between success and failure

#### AThesis

Submitted for partial fulfilment of master degree in General Surgery

#### By Elnageh Abd Alkarem Khalf Abd Alrahem

M.B.B.Ch

Under Supervision of

#### **Prof. Ahmed Adel Darwish**

Assistant Professor of General Surgery Faculty of Medicine – Ain Shams University

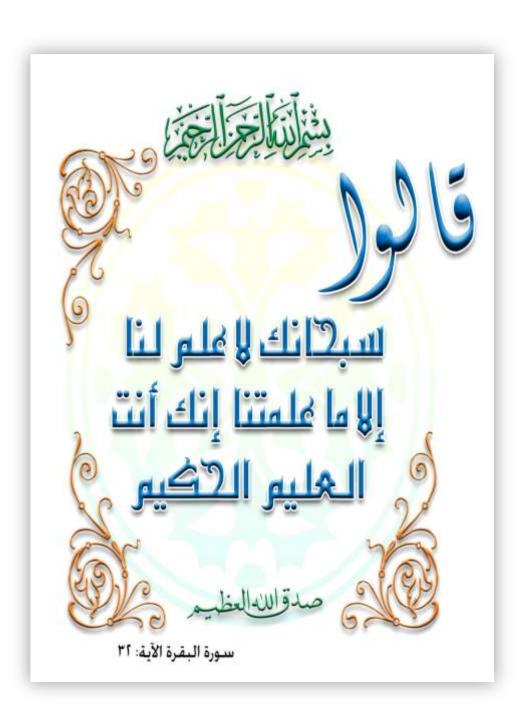
#### **Dr. Ahmed Aly Khalil**

Lecturer in General Surgery
Faculty of Medicine – Ain Shams University

#### Dr. Mohamed Abd Almeged Al Saed

Lecturer in General Surgery
Faculty of Medicine – Ain Shams University

Faculty of Medicine Ain Shams University 2019





I would like to acknowledge and extend my heartfelt gratitude and deep thanks to **Allah**, who made all things possible and then to the following persons who helped me for completion of this essay.

I would like to express and offer my deepest thanks, grateful appreciation and my gratitude to **Prof. Dr. Ahmed Adel Darwish**, Professor of General Surgery, Faculty of Medicine, Ain Shams University, for his constant support and much needed motivation and encouragement. He was always there to give advice which helped me in the time of research to accomplish my goal.

I would like to express my thanks to **Dr. Ahmed Aly Khalil**, Lecturer of General Surgery, Faculty of Medicine, Ain Shams University, for his effective, unlimited help, support and valuable advices.

I can't forget to thank with all appreciation **Dr. Mohamed Abd Almeged Al Saed,** Lecturer of General Surgery, Faculty of Medicine, Ain Shams University, for the efforts and time he has devoted to accomplish this work.

Last, but not least. I thank all members of my Family, specially my **Parents** and my **Wife**, for pushing me forward in every step of my life.

🗷 Elnagheh Abd AlXarem Khalaf

#### **List of Contents**

Subject	Page No.
List of Abbreviations	i
List of Tables	ii
List of Figures	iii
Introduction	1
Aim of the Work	4
Review of Literature	
Anatomy of the Anal canal	5
Aetiology of Anal Incontinence	13
Diagnosis and Grading of Anal Incontinence	20
Surgical Management of fecal Incontinence	34
Patients and Methods	48
Results	56
Discussion	60
Summary	65
Conclusion	69
References	70
Arabic Summary	

#### **List of Abbreviations**

#### Abbr. Full-term

**ABS** : Artificial Bowel Sphincter

**AI** : Anal Incontinence

AMS : American medical systemARM : Anorectal Manometry

ASRS : American Soceity of Colon and Rectal Surgeon CCF-FIS : Clevland Clinic Florida Fecal Incontinence Score

**CCIS** : Clevland Clinic Incontinence Score

**DRE** : Digital Rectal Examination

**EAMRI**: Endo Anal Magnetic Resonance Imaging

EAS : External Anal SphincterEAUS : Endo Anal UltrasoundEMG : Electromyography

**FDA** : Food and Drug Adminstration

HPZ
IAS
Internal Anal Sphincter
IBS
Irritable Bowel Syndrome
IMA
Inferior Mesentric Artery

L : Lumbar nerve

MRI : Magnetic Resonance ImagingPAS : Prosthetic Anal Sphincter

**PNE** : Percutaneous Nerve Evaluation

**PO**: Postoperative

PTNM : Posterior Tibial Nerve modulationPTNS : Posterior Tibial Nerve Stimulation

P-value : Prevalence value S : Sacral nerve

SNM : Sacral Nerve ModulationSNS : Sacral Nerve Stimulation

T : Thoracic nerve

**TPFR**: Total Pelvic Floor Repair

**US** : Ultrasound

**VBS** : Vaginal Bowel control System

#### **List of Tables**

Table No	o. Title	Page No.
<b>Table (1):</b>	The symptoms of the underlying cause AI	
<b>Table (2):</b>	Browning and Parks scale	30
<b>Table (3):</b>	Cleveland Clinic Incontinence Score (Continence Score) is the most popular student in detecting the grade of AI.	scale
<b>Table (4):</b>	Vaizey score	33
<b>Table (5):</b>	Demographic characteristics among t studied cases	
<b>Table (6):</b>	US measurement of tear (circumferent %) among the studied cases	
<b>Table (7):</b>	Wexner score among the studied cases.	58
<b>Table (8):</b>	Postoperative wound infection among t studied cases	

#### **List of Figures**

Figure No.	Citle	Page No.
Figure (1):	Arterial supply of the colon, rectuanal canal	
Figure (2):	Venous drainage of the colon, and the anal canal	
Figure (3):	EAUS showing anterior defect in EAS	
Figure (4):	AUS showing an injury in IAS&EAS	
Figure (5):	EAMRI for women with AI	29
Figure (6):	Injection of adrenaline around the sphincter	
<b>Figure (7):</b>	Dissection of the anal sphincter	36
Figure (8):	Suturing of the muscle end horizontal mattress sutures	
Figure (9):	Deformed internal sphincter from o'clock To 4 o'clock (1/3 of the sphincter)	nincter
<b>Figure (10):</b>	Overlapping of both healthy ends Internal sphincter	
<b>Figure</b> (11):	After closure of the wound (T appearance of the skin closure)	
<b>Figure (12):</b>	Complete wound healing after 6 m	onths 40
Figure (13):	Intraoperative illustration of overlatechnique	

Figure (14):	Intraoperative illustration of overlapping technique	52
Figure (15):	Sex distribution among the studied cases	
Figure (16):	US measurement of tear (circumference %) among the studied cases	57
<b>Figure (17):</b>	Wexner score among the studied cases	58
Figure (18):	Postoperative wound infection among the studied cases	59

#### **Abstract**

**Background:** Fecal incontinence is a frequent and debilitating condition that may result from a multitude of different causes. It is defined as the uncontrolled passage of feces or gas over at least 1 month's duration, in an individual of at least 4 years of age, who had previously achieved control. Aim of Work: to evaluate the outcome of overlap anal sphincter repair and value of this technique in our patients and demonstrate the improvement of the anal canal function after this technique. Patients and Methods: this randomized prospective clinical trial was conducted on thirty (30) patients presented to Ain-Shams University hospitals with anal sphincter injury that were operated upon by a modified overlap repair. Endoanal ultrasonography and anorectal manommetric studies were done and Wexner continence score was estimated for all cases preoperatively and postoperatively. All patients sharing in the study was fully informed about the procedure they had with a written informed consent. Results: In this study the mean preoperative Wexner score was 12.9 and the mean postoperative Wexner was 4.8; this reduction was found to be significant (p value=0.001). Also endoanal ultrasound showed that tear size significantly reduced among the studied cases. Also the relation of preoperative and postoperative anorectal manometry changes showed a significant increase (p value=0.001). **Conclusion:** from this study that significant drop of Wexner, combined with ultrasound and anorectal manometry variation between pre and post should be the core of follow up for patients with anal sphincter injury underwent overlap repair.

**Key words:** overlapping anal sphincter repair, outcome, anal function, endoanal US

#### Introduction

ecal incontinence is a frequent and debilitating condition that may result from a multitude of different causes. It is defined as the uncontrolled passage of faces or gas over at least 1 month duration, in an individual of at least 4 years of age had previously achieved control (*Paquette et al.*, 2015).

Fecal incontinence has a negative impact on self-esteem and quality of life and may result in significant secondary morbidity, disability, and cost. Reported prevalence rates vary widely depending on the method used and the target population examined but, in general, range between 1.4% and 18%. In institutionalized patients, however, incontinence may affect up to 50% and it is a frequent reason for transfer to nursing homes (*Paquette et al.*, 2015).

The anal sphincter may become weak either from direct damage to the muscle or from damage to the nerves that cause the muscle to contract normally. Damage to muscles can be caused by Childbirth (most common cause in women), another possible cause of sphincter damage is any type of injury to the anus. This may be from accidental damage during an anal or rectal operation such as hemorrhoidectomy or following an operation for anal fissure or fistula or trauma (*Rao and Siddique*, 2007).