بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني 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 بعيدا عن الغبار

MONA MAGHRABY

Laparoscopic versus Open Inguinal Hernia Repair

A Systematic Review

Submitted for Partial Fulfillment of
Master Degree in ***General Surgery***

By

Eman Kamel Youssef El Garan
MB.B., CH.

Under Supervision of

Prof.Dr./Khaled Mohamed Abd Elaziz Hosny
Professor of General Surgery
Faculty of Medicine – Ain Shams University

Dr. / Amr Hamed Afify
Lecturer of General Surgery
Faculty of Medicine – Ain Shams University

Faculty of Medicine
Ain Shams University
2020

سورة البقرة الآية: ٣٢

Acknowledgments

First and foremost, I feel always indebted to ***Allah*** *the Most Beneficent and Merciful.*

My deepest gratitude to my supervisor, ***Prof. Dr./ Khaled Mohamed Abd Elaziz Hosny****, Professor of General Surgery, Faculty of Medicine, Ain Shams University, for his valuable guidance and expert supervision, in addition to his great deal of support and encouragement. I really have the honor to complete this work under his supervision.*

I would like to express my great appreciation and thanks to ***Dr./ Amr Hamed Afify****, Lecturer of General Surgery, Faculty of Medicine, Ain Shams University, for his meticulous supervision, and his patience in reviewing and correcting this work.*

Thanks a lot to all my professors and colleagues for their considerable care and support.

Special thanks to my family for their mercy, love and great support, and lastly my gratitude is dedicated to the ones who are not with us, but they prayed for me, and I am sure they will always do.

Eman Kamel Youssef El Garran

List of Contents

List of Abbreviations

Abb.	Full term
ASIS	*Anterior superior iliac spine*
B.C.	*Before Christ*
CI	*Confidence interval*
CT	*Computed tomography*
E.A.	*External Iliac artery*
E.g.	*Exempli gratia*
E.O.	*External Oblique muscle*
E.V.	*External Iliac vein*
EHS	*European hernia society*
Fig.	*Figure*
HRQL	*Health-related quality of life*
I.C.	*Inguinal Canal*
I.O.	*Internal Oblique muscle*
IHR	*Inguinal hernia repair.*
L E	*Laparoendoscopic*
LHR	*Laparoscopic hernia repair*
MRC	*Medical Research Council*
MRI	*Magnetic resonance imaging*
mRNA	*Messenger ribonucleic acid*
NICE	*National Institute for Clinical Excellence*
OHR	*Open hernia repair*
OR	*Odd ratio*
P	*Peritoneum*

List of Abbreviations cont...

Abb.	Full term
RAND	*Corporation research and development Corporation*
RCT	*Randomized control trial*
SF 36	*Short form 36*
T.A.	*Transeverses Abdominis muscle*
TAPP	*TransAbdominal Preperitoneal*
TEP	*Totally Extra Peritoneal*
UK	*United Kingdom*
US	*Ultrasonography*
USA	*United state of America*
VAS	*Visual Analogue scale*
VD	*Vas defference*

List of Tables

Table No.	Title	Page No.

List of Figures

List of Figures cont...

INTRODUCTION

A hernia is defined as a protrusion or projection (prolapse) of an organ through the wall of the cavity where it is normally contained. There are many types of hernia, mostly classified according to the physical location, with the abdominal wall being the most susceptible site. Specifically, reports show that the most frequently seen hernia is the inguinal hernia (70-75% of cases), followed by femoral (6-17%) and umbilical (3-8.5%) hernias. Hernias are also found in other sites such as the ventral or epigastric hernia, located between the chest cavity and the umbilicus ***(Williams and Hopper, 2015)***.

Hernias can be uncomfortable and are sometimes accompanied by severe pain, which worsens during bowel movements, urination, heavy lifting, or straining. Occasionally, a hernia can become strangulated, which occurs when the protruding tissue swells and becomes incarcerated. Strangulation will interrupt blood supply and can lead to infection, necrosis, and potentially life-threatening conditions ***(Heniford, 2015; Baylón et al., 2017)***.

Hernia formation is a multifactorial process involving endogenous factors including age, gender, anatomic variations, and inheritance and exogenous factors such as smoking, comorbidity, and surgical factors. However, these factors alone do not explain why some develop abdominal wall hernias ***(Jansen et al., 2004).***

Already in 1924, the anatomist Sir Arthur Keith proposed that surgeons should try to perceive tendons and fascia as living structures in order to understand the hernia disease properly. Research on synthesis and breakdown of connective tissue in relation to pathophysiological mechanisms of hernia formation is important to comprehend herniogenesis and to select a proper treatment strategy for the individual patient ***(Henriksen et al., 2017).***

Some patients seem to be especially susceptible to hernia development ***(Zöller et al., 2013).*** Patients operated on for abdominal aortic aneurysms have a higher risk of developing an incisional hernia postoperatively as opposed to patients operated on for aortoiliac occlusive disease ***(Henriksen et al., 2013).*** Patients with rare connective tissue disorders such as Marfan's syndrome and Ehlers–Danlos syndrome have an earlier onset and a higher risk of hernia development. Further, patients with direct inguinal, bilateral inguinal, or recurrent inguinal hernia are at higher risk of ventral hernia formation, suggesting a systemic predisposition to hernia formation ***(Henriksen et al., 2017).***

Emerging evidence suggests that inguinal hernias represent an inherited disease; however the inheritance pattern remains to be clarified. There is increased risk of developing an inguinal hernia, if a first-degree relative has a history of inguinal hernia repair ***(Burcharth et al., 2013).***

Studies on the morphology of the fascial tissue surrounding inguinal hernias found lower total collagen content in patients with inguinal hernias compared with individuals without inguinal hernia. Furthermore, the fascial collagen architecture appears altered as described histologically by an uneven distribution of collagen fibers, thinner collagen fibers, inflammation, and degeneration of muscle fibers. The collagen quality seems to be more important than the collagen quantity. In fascia from hernia patients, there is less type I collagen relative to type III collagen resulting in a decreased type I to III collagen ratio and thinner collagen fibers with less tensile strength. These alterations are also present at the mRNA level suggesting that the problem appears during collagen synthesis. A decreased type I to III collagen ratio is also present in skin biopsies from hernia patients, suggesting that the connective tissue alterations are systemic ***(Wagh et al., 1974; Szczesny et al., 2012).***

The reason for the altered collagen quality and the decreased type I to III ratio remains to be clarified. It has been suggested that altered activity levels of the enzymes involved in the collagen synthesis and maturation process may play a role. Decreased activity of lysyloxidase results in decreased cross-linking of collagen fibrils, which is essential for collagen strength and stability. In addition, recent studies found systemically decreased turnover of type V collagen both in patients with inguinal hernia and in patients with incisional