COMPARISON BETWEEN RECURRENCE RATES OF FIXATION VERSUS NON-FIXATION OF THE MESH IN CASES OF TAPP LAPAROSCOPIC REPAIR OF INGUINAL HERNIA

Thesis

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Mourad Mohamed Fathey

Dedications

To my dear Father and Mother

who supported me in my whole life

To my faithfull Wife and dear Kids
who encouraged me to achieve my aims

✍. Mourad Mohamed Fathey

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INTRODUCTION

The surgical history of inguinal hernias dates back to ancient Egypt ***(Lau, 2002)***. The Egyptians (1500 BC), the Phoenicians (900 BC), and the Ancient Greeks (Hippocrates, 400 BC) diagnosed hernia. During this period a number of devices and operative techniques have been recorded. Attempted repair was usually accompanied by castration, and strangulation was usually a death sentence. The word "hernia" is derived from the Greek (Hernios), meaning a bud or shoot ***(Read, 1984).***

Accounting for 75% of all abdominal wall hernias, and with a lifetime risk of 27% in men and 3% in women, inguinal hernia repair is one of the most commonly performed surgeries in the world ***(Jenkins and O'Dwyer, 2008).***

From Bassini's heralding of the modern era to today's mesh-based open and laparoscopic repairs, this history parallels closely the evolution in anatomical understanding and development of the techniques of general surgery ***(Gray et al., 2008).***

Five principles of modern hernia repair developed through these periods of development: antiseptic/aseptic hernia operation, high ligation of the sac, tightening of the internal ring, reconstruction of the posterior inguinal floor, and tensionless

repair. Interestingly, many of the initial attempts at laparoscopic hernia repair did not adhere to the recognized principles of hernia surgery learned from open surgery. It is only when the trans-abdominal preperitoneal mesh repair and the totally extra-peritoneal approach, which adhere to the basic principles, are considered that the results of laparoscopic hernia repair procedures can improve and the recurrence of hernia decrease ***(Lau, 2002).***

In 1975, researchers introduced the use of a large unsutured polyester mesh prosthesis placed in the preperitoneal space for inguinal hernia repair. Different stapling devices have been used to secure this mesh, and the most common complication of the procedure is nerve damage secondary to the staples. The necessity of stapling has never been demonstrated ***(George et al., 1999).***

The laparoscopic trans-abdominal pre- peritoneal (TAPP) repair was a revolutionary concept in the hernia surgery and was introduced by ***Arregui et al. (1992) and Dion & Morin (1992)*** in the early 1990s.As a result laparoscopic herniorraphy, with advantages related to postoperative pain, earlier return to work and normal activities, and an improved quality of life in the postoperative period has emerged as an effective alternative to open repairs. With comparable recurrence rates and complications in experienced hands ***(Rajinder et al., 2005).*** Cost concerns remain the main caveat in extending its benefits

unhindered to the general population ***(Voyles et al., 2002).***

Conventionally, in a laparoscopic hernia repair, staples or tacks are used to fix the mesh to avoid mesh migration and consequent recurrence. However, the staplers besides being expensive are also associated with complications ***(Khajanchee et al., 2001).*** Thus; unstapled laparoscopic hernia repair has emerged as a preferable alternative. It avoids the complications associated with stapling and has attractive economic logistics, because a significant bulk of the cost consumed in laparoscopic repairs is reflected in the need for a stapler ***(Farinas and Griffen, 2000).***

Controversy exists regarding whether it is necessary to secure the mesh prosthesis during laparoscopic trans-abdominal preperitoneal (TAPP) inguinal hernia repair. It is unknown whether stapling the mesh affects recurrence rate ***(Smith, 1999).***

AIM OF THE WORK

The aim of this work is to compare the recurrence rate between fixation and non fixation of the mesh in cases of TAPP (trans-abdominal preperitoneal) laparoscopic repair of inguinal hernia.

LAPAROSCOPIC ANATOMY OF THE INGUINAL REGION

"I know more than 100 surgeons whom I would cheerfully allow to remove my gall bladder but only one to whom I would like to expose my inguinal canal." William Heneage Ogilvie 1887–1971.

"No disease of the human body, belonging to the province of the surgeon, requires in its treatment a better combination of accurate anatomical knowledge with surgical skill than hernia in all its variants." ***(Cooper, 1807).***

Since laparoscopy has been used in the treatment of patient with inguinal hernia, new interest has developed in the anatomy of inguinal region of the posterior aspect of the abdominal wall. Anatomists and laparoscopists have published interesting articles on the surgical anatomy of this region, which they call the laparoscopic inguinal anatomy ***(Claude, 2000).***

Inguinal anatomy as viewed through the laparoscope is unfamiliar to most surgeons ***(Spaw et al., 1991).***

A safe and successful outcome of any surgical procedure is dependent upon the clear understanding of the surgical anatomy of the relevant area.

The laparoscopic view of the groin anatomy is quite different:

- The laparoscopic view is essentially a posterior approach view. Most surgeons are well versed and used to the anterior approach. Changing to a laparoscopic approach needs knowledge of the posterior approach.
- Certain structures that are clearly visible during the open approach (such as the ilioinguinal nerve, inguinal ligament, pubic tubercle and lacunar ligament) are not as clearly visible with the laparoscope
- Conversely structures that would require additional dissection during an open approach (such as Cooper's ligament and the ilio-pubic tract) are clearly visible with a laparoscope.
- The laparoscopic view is a 'virtual view' with a '2-dimensional' handicap. There is the additional loss of tactile feedback ***(Brick et al., 1995).***

Guidelines for the performance of a safe and secure laparoscopic inguinal hernia repair mandate the following structures should be clearly identified:

- Cooper' s ligament
- The Epigastric vessels
- The spermatic cord or the round ligament
- The femoral canal and the iliac vessels

In addition, the laparoscopic anatomical distinction between direct, indirect and femoral hernias should be well understood ***(Rosenberger et al., 2000).***

The peritoneal landmarks

Since the growth and development of the laparoscopic method for treating groin hernia an increased attention is being paid to 'pure anatomy' issues such as the infraumbilical fossae. These types of fossae have two important roles:

1. The fossae delineate the sites of groin herniation.
2. They are an essential landmark for orientation during hernia repairs.

The fossae are created by the presence of peritoneal folds, which radiate from the umbilicus or umbilical area.

Median Umbilical Ligament

This ligament ascends within the median plane in the apex of the bladder towards the umbilicus. It represents the obliterated allantoic duct and its lower part may be the site for the unusual urachal cyst.

It is the initial landmark that must be recognized. With the recognition of this landmark, we have established the medial boundary of our dissection. You cannot dissect medial to this structure without risking injury to the bladder.