

**Comparative Study between the Use of Self-Fixating Mesh  
and Non Self-Fixating Mesh in Laparoscopic Inguinal  
Hernia Repair Transabdominal Preperitoneal (TAPP)  
Technique**

Thesis

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General Surgery*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا انك لا تعلم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

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## *List of Abbreviations*

<b>Abb.</b>	<b>Full term</b>
<i>ASIS</i> .....	<i>Anterior Superior Iliac Spine</i>
<i>C</i> .....	<i>Cord Structures</i>
<i>COPD</i> .....	<i>Chronic Obstructive Pulmonary Disease</i>
<i>CPSP</i> .....	<i>Chronic Postsurgical Pain</i>
<i>EHS</i> .....	<i>European Hernia Society</i>
<i>IC</i> .....	<i>Inguinal Canal</i>
<i>IEHS</i> .....	<i>International Endohernia Society</i>
<i>IEV</i> .....	<i>Inferior Epigastric Vessels</i>
<i>IH</i> .....	<i>Inguinal Hernia</i>
<i>IR</i> .....	<i>Internal Ring</i>
<i>MFT</i> .....	<i>Monofilament Polyethylene Terephthalate</i>
<i>ML</i> .....	<i>Medial Umbilical Ligament</i>
<i>MMPs</i> .....	<i>Matrix Metalloproteinases</i>
<i>MPO</i> .....	<i>Myopectineal Orifice</i>
<i>MUL</i> .....	<i>Medial Umbilical Ligament</i>
<i>OIH</i> .....	<i>Oblique Inguinal Hernia</i>
<i>PDB</i> .....	<i>Preperitoneal Distention Balloon</i>
<i>PLA</i> .....	<i>Poly-lactic Acid</i>
<i>PPL</i> .....	<i>Parietex ProGrip Laparoscopic</i>
<i>RIH</i> .....	<i>Recurrent Inguinal Hernia</i>
<i>SGM</i> .....	<i>Self-Gripping Mesh</i>
<i>TAPP</i> .....	<i>Trans Abdominal pre Peritoneal Repair</i>
<i>TEP</i> .....	<i>Total Extra Peritoneal Repair</i>
<i>TV</i> .....	<i>Testicular Vessels</i>
<i>VAS</i> .....	<i>Visual Analogue Scale</i>
<i>VD</i> .....	<i>Vas Deferens</i>

## ABSTRACT

**Background:** Hernia is a common problem of the modern world with an incidence ranging from 5%-7%. Of all groin hernias, around 75% are inguinal hernias. Recently with advancement in laparoscopy, endoscopic repairs seem to offer better quality of life, decreasing hospital stay and early return to work.

**Aim of the Work:** to compare between self fixating mesh and fixation of non self fixating mesh with absorbable tacks in laparoscopic inguinal hernia repair transabdominal preperitoneal (TAPP) approach as regards intraoperative time, complications, postoperative pain, return to normal activity and incidence of recurrence.

**Patients and Methods:** Our study is a randomized prospective study. It was conducted in El Demerdash, Ain- Shams University Hospital on 30 patients with inguinal hernia who were operated upon between September 2018 and December 2018 with minimal follow up of 3 months.

**Results:** Our study demonstrates that laparoscopic inguinal hernia repair using the TAPP technique with implantation of a new Parietex™ ProGrip™ laparoscopic self-fixation mesh is a fast, effective and reliable method in experienced hands, which combines the advantages of laparoscopic approach with simple and practical implantation of self-fixation mesh, which, according to our results, reduces the occurrence of chronic pain and the recurrence rate.

**Conclusion:** after this comparative study, both the use of SGM and fixation of mesh by absorbable tacks approaches are similarly effective in terms of operative time, the incidence of recurrence, complications and chronic pain coinciding with all the available literature.

**Keywords:** *Transabdominal Preperitoneal - Laparoscopic Inguinal Hernia Repair*

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## INTRODUCTION

**H**ernia is a common problem of the modern world with an incidence ranging from 5%-7%. Of all groin hernias, around 75% are inguinal hernias (*Ruhl and Everhart, 2007*).

Recently with advancement in laparoscopy, endoscopic repairs seem to offer better quality of life, decreasing hospital stay and early return to work (*Chung et al., 2011*).

Herniorrhaphy techniques include: Bassini repair; Shouldice repair; McVay repair. Hernioplasty techniques include: Anterior (Lichtenstein repair; Plug and patch repairs; Double layer hernia repair); Posterior (pre-peritoneal) repairs {Rieves repair; Stoppa repair; Laparoscopic/endoscopic repair [Total extra peritoneal repair (TEP); Trans abdominal pre peritoneal repair (TAPP)]} (*Shouldice, 2003*).

American college of surgeons and National Institute of Clinical Excellence consider Lichtenstein repair as gold standard open repair of inguinal hernia (*Akinci et al., 2010*).

In the early *1990's Arregui and Doin*, described the techniques of the laparoscopic inguinal hernioplasty including: trans-abdominal pre-peritoneal repair (TAPP) around the same time Phillips and McKernan described the totally extra-peritoneal (TEP) technique of endoscopic hernioplasty. In both these repairs, the mesh in direct contact with the fascia of the

transversalis muscle in the pre-peritoneal space, allows tissue ingrowths leading to the fixation of the mesh (*Arregui and Young, 2005*).

The general indications for laparoscopic inguinal hernia repair as opposed to watchful waiting are the same as those for open inguinal hernia repair. Classically, the existence of an inguinal hernia has been considered sufficient reason for operative intervention (*Chung and O'Dwyer, 2007*).

Some reports have listed specific indications for laparoscopy over open repair, including recurrent hernias, bilateral hernias, and the need for earlier return to full activities (*Demetrashvili et al., 2011*).

Several studies have demonstrated salutary outcomes for laparoscopic repair of recurrent hernias (*Tantia et al., 2009*).

In TAPP repair, titanium tacks also have traditionally been used to fix the mesh and can also be used to close the peritoneal flap. However, a 2011 report showed that acute pain was increased when more than 10 tacks were placed. A number of surgeons have now switched to using absorbable tacks to fix the mesh and close the peritoneum. Sutures or hernia stapling devices can also be employed (*Belyansky et al., 2011*).

Some authors have advocated the use of fibrin glue to fixate the mesh (*Novik et al., 2006*).

Still other authors use no fixation at all but instead rely on peritoneal pressure to maintain the mesh in proper position (*Taylor et al., 2008*).

Other surgeons use Self- fixating mesh (progrid mesh): Self-adhesive meshes are a relatively new advancement in inguinal hernia repair. They have been on the market since 2006 and have been used in both open and laparoscopic operations. Their use eliminates the complication risk, increased operation time, and expense that come with the mechanical fixation of implanted mesh. The popularity and increased use of self-adhesive mesh have been attributed to growing evidence of low rates of recurrence and postsurgical pain (*Birk et al., 2013*).

## **AIM OF THE WORK**

**T**his study aims to compare between self fixating mesh and fixation of non self fixating mesh with absorbable tacks in laparoscopic inguinal hernia repair transabdominal preperitoneal (TAPP) approach as regards intraoperative time, complications, postoperative pain, return to normal activity and incidence of recurrence.