

# Laparoscopic TAPP vs TEP? What's Better for Hernial Repair-a Narrative Review

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## Abstract

Inguinal hernias are very common and most cases require surgical repair. Several different methods of open and laparoscopic hernia surgery are available. Laparoscopic incisions are minimally invasive and include two common operating types, the trans-abdominal preperitoneal (TAPP) and the total extraperitoneal repair (TEP). TAPP and TEP mainly differ in the use of a different access route and the inguinal surgical method is similar. Herein, the two laparoscopic types are reviewed and described.

**Keywords:** laparoscopic; TAPP; TEP; hernial

## Introduction

Inguinal hernias consist a relatively common medical issue. It is estimated that about 27 percent of men and 3 percent of women will develop an inguinal hernia at some point in their lives [1]. Inguinal Hernias are part of the complex spectrum of Inguinofemoral hernias related to weakness in the region of the myopectineal orifice, where tissue, usually part of the intestine, bulges through a weak spot in abdominal muscles and into the groin area [2].

Symptoms of inguinal hernia include discomfort in the groin, along with swelling(lump) or pain especially when lifting heavy objects, doing strenuous exercise or any action that increases the intra-abdominal pressure (e.g., cough etc.).

Treatment of Inguinal Hernia involves a surgical approach to repair the defect in the abdominal wall. Particularly, operating methods include the type of surgery your doctor recommends may depend on factors such as the size of the hernia and your age, health, and medical history [3-5].

1. Traditional Open Surgery for hernia repair, (eg. Lichenstein's tension-free mesh hernioplasty), or

2. Laparoscopic Surgery, in which small incisions are made and a camera is used to guide while repairing the defect.

Especially, laparoscopic surgery for inguinal hernia, in which small incisions are made and a camera is used to guide while repairing the defect, has several benefits over traditional open surgery, which include less pain, smaller incisions and less operating time, faster recovery time, cosmetically more suitable with less scarring. Additionally, laparoscopic surgery is usually done for Recurrent Inguinal Hernia and Bilateral Inguinal hernia as its ability to approach the contralateral groin simultaneously through the same incisions required to repair a unilateral hernia. Thus, a single unified access to the entire preperitoneal space can be obtained helping in the easy detection of nascent contra lateral hernias. The two most common laparoscopic techniques for inguinal hernia repair are (TAPP) Trans-abdominal Preperitoneal and (TEP) Total Extraperitoneal repair [6].

## TAPP

The TAPP technique involves entering the peritoneal cavity and repairing the hernia from the inside. The surgeon creates a flap in the peritoneum which is the

thin membrane that lines the abdominal cavity, which is then pushed aside to expose the hernia. The hernia is then repaired from the inside of the peritoneum, mesh is placed over the hernia defect to strengthen the abdominal wall. and the flap is then repositioned to close the peritoneal defect. In TAPP Peritoneum is breached as surgery is approached from beneath the peritoneum [7,8].

#### Advantages of the TAPP technique include

- Better visualization of the hernia defect and surrounding structures, which may reduce the risk of complications such as bladder injury.
- Help to address any concurrent intra-abdominal pathology that may be present.
- Recurrence rate is lower than open hernia repair surgery.
- The learning curve is easier than TEP and it's similar to Traditional Open Hernia surgery.

#### Disadvantages of the TAPP technique include

- Higher risk of adhesions due to entering the peritoneal cavity.
- Viscera Injury can also occur as Peritoneum is breached
- Longer recovery time and increased postoperative pain compared to TEP.
- Need for general anaesthesia and more complex surgical setup compared to TEP.

### TEP

The TEP technique involves creating a space between the abdominal wall and the peritoneum, which is the thin membrane that lines the abdominal cavity. The hernia is then repaired from the outside of the peritoneum, without entering the abdominal cavity. This "pure" laparoscopic technique as peritoneum is never breached. A mesh is placed over the hernia defect to strengthen the abdominal wall [8,9].

#### The advantages of the TEP technique include

- Avoidance entering the peritoneal cavity, reducing the risk of adhesions or any visceral injury.
- Reduced postoperative pain due to the avoidance of peritoneal trauma.
- Faster recovery and return to normal activities compared to open surgery or TAPP.

#### Disadvantages of the TEP technique include

- Higher risk of bladder injury due to limited visualization.
- Limited space to work in, which may increase the risk of complications such as bleeding.
- More Challenging learning curve for surgeons to have a grip on this method.

However, during any of these laparoscopic Hernia repair surgery techniques (TAPP or TEP), two places where stapes or trackers should not be applied are [10,11];

1. Triangle of Doom.
2. Triangle of Pain

Triangle of Doom is a specific area in the abdomen that is bounded medially by Vas deference, laterally by testicular vessels and superiorly by a deep inguinal ring. It contains the External iliac arteries, veins and Genital branch of the genitofemoral nerve. During surgery, accidental damage to any of the structures in the Triangle of Doom can lead to severe bleeding or nerve damage. The triangle of pain is an area in the abdomen that is bounded medially by testicular vessels, laterally by the lateral margin of peritoneal reflection and superiorly by the inferolateral margin of the ill pubic tract. It contains the Femoral branch of the Genitofemoral nerve, the Lateral cutaneous nerve of the thigh and the Femoral Nerve. This Triangle of pain is also known as Electrical Hazard Zone, as using cautery in this region may damage the nerves that are present in this region.

Medially Triangle of Doom and Laterally Triangle of Pain form the TRAPEZOID OF DISASTER.

### Conclusion

In summary, Laparoscopic Hernia Repair Surgery include TAPP and TEP, both minimally invasive procedures [12], perform through small incisions in the abdomen. In TAPP, the surgeon creates a space between the abdominal wall and the peritoneum (the lining of the abdomen). The hernia is then repaired using a mesh that is placed in this space. In TEP, the surgeon does not enter the peritoneum. Instead, the hernia is repaired using a mesh placed outside the peritoneum.

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