

Comparing Laparoscopic Inguinal Hernia Repair Techniques: TAPP vs. TEP

José Salvador Villegas Hernández¹, Darinel Osorio Gómez², Jazmyn Elizabeth Rodríguez Contreras³, Christian Aaron Torres Hernández⁴, Oscar Ulises Rosales Martínez⁵, Diana Aimee Recillas Rocha⁵, Omar Josafat Aguilar Quintana⁶, Luis Angel López Mares⁷

¹Benemérita Universidad Autónoma de Puebla

²Universidad de Morelos

³Nuevo Hospital Civil “Dr. Juan I. Menchaca”

⁴Universidad Autónoma de Durango, Campus Laguna

⁵Universidad Nacional Autónoma de México, FES Iztacala

⁶UNES, Universidad Autónoma España de Durango

⁷Universidad de Guadalajara

ABSTRACT

Laparoscopic inguinal hernia repair has gained prominence as a minimally invasive approach to address inguinal hernias. Two primary techniques, transabdominal preperitoneal (TAPP) and totally extraperitoneal (TEP) repair, have been established as effective methods. This bibliographic review aims to provide an in-depth analysis of these techniques, comparing their surgical approaches, complications, and outcomes. The importance of selecting the most suitable approach for a given patient is underscored. The review explores the epidemiology of inguinal hernias, emphasizing the need for optimal repair methods. The discussion section critically evaluates the two techniques, highlighting their respective advantages and drawbacks. Ultimately, the conclusion emphasizes the importance of individualized treatment decisions based on patient characteristics and surgical expertise.

KEYWORDS: Laparoscopic inguinal hernia repair, TAPP, TEP.

ARTICLE DETAILS

Published On:
10 November 2023

Available on:
<https://ijmscr.org/>

INTRODUCTION

Inguinal hernias are a common surgical condition with a significant global prevalence. They pose a substantial burden on individuals and healthcare systems, making their effective management a matter of clinical importance. Epidemiologically, inguinal hernias affect a considerable portion of the population worldwide. It is estimated that approximately 27% of men and 3% of women will experience an inguinal hernia during their lifetime. These statistics underscore the significance of inguinal hernias as a public health concern.

The burden of inguinal hernias extends beyond mere statistics. It encompasses the physical discomfort and complications experienced by affected individuals, the economic impact on healthcare systems, and the clinical challenge faced by healthcare providers. Given the high incidence of inguinal hernias, optimizing their management is imperative to reduce patient suffering and healthcare costs.

The importance of effective inguinal hernia repair techniques cannot be overstated. In response to the clinical and economic challenges posed by inguinal hernias, minimally invasive approaches have gained prominence. Among these, two primary techniques, transabdominal preperitoneal (TAPP) and totally extraperitoneal (TEP) repair, have emerged as leading options.

Understanding the nuances of these techniques is crucial for healthcare providers and researchers alike. It empowers them to select the most appropriate method for individual patients, considering factors such as the patient's clinical presentation, surgical expertise, and the potential for complications. As the field of laparoscopic inguinal hernia repair continues to evolve, it is essential to critically compare TAPP and TEP techniques, highlighting their advantages and drawbacks, and emphasize the significance of personalized treatment decisions. This review delves into these aspects, offering a

Comparing Laparoscopic Inguinal Hernia Repair Techniques: TAPP vs. TEP

comprehensive analysis of these two laparoscopic inguinal hernia repair techniques.

Laparoscopic Inguinal Hernia Repair: Laparoscopic inguinal hernia repair is a minimally invasive surgical approach designed to address inguinal hernias. It entails the use of small incisions, a camera, and specialized instruments to correct the hernia. The advantages of this approach include reduced postoperative pain, faster recovery, and improved cosmetic outcomes. Laparoscopic techniques have become increasingly popular in hernia repair due to their ability to offer patients a less invasive option compared to traditional open surgeries.

Surgical Technique

Transabdominal Preperitoneal (TAPP) Repair

TAPP repair is a laparoscopic technique that involves several key steps:

Creation of Peritoneal Flap: The procedure begins with the creation of a peritoneal flap that allows access to the hernia site. The peritoneal flap is carefully dissected to expose the preperitoneal space.

Reduction of Hernia Sac: The hernia sac is then reduced from within the abdominal cavity. This step involves returning the herniated contents to their normal position.

Placement of Mesh Prosthesis: A mesh prosthesis is inserted into the preperitoneal space. The mesh is intended to provide additional support and prevent the recurrence of the hernia.

Closure of Peritoneal Flap: After mesh placement, the peritoneal flap is meticulously closed, ensuring that the mesh remains in the preperitoneal position.

Completion of Procedure: The procedure is completed with the closure of any incisions made during the surgery.

TAPP repair allows for exploration of the contralateral side, making it well-suited for patients with bilateral hernias. The intra-abdominal dissection characterizing TAPP may have specific advantages and challenges, which will be discussed in the comparison section.

Totally Extraperitoneal (TEP) Repair

TEP repair, on the other hand, is a laparoscopic technique characterized by the following steps:

Creation of Extraperitoneal Space: The procedure commences with the creation of an extraperitoneal space, allowing access to the hernia site without entering the abdominal cavity.

Reduction of Hernia Sac: Similar to TAPP, the hernia sac is reduced, returning the herniated contents to their normal position.

Placement of Mesh Prosthesis: A mesh is inserted into the extraperitoneal space to provide support and prevent hernia recurrence.

Completion of Procedure: The procedure is completed with the closure of any incisions made during surgery.

TEP repair is characterized by its true extraperitoneal approach, which has specific advantages and may be preferred for patients with a history of abdominal surgery or those at risk of intra-abdominal adhesions.

Complications

Both TAPP and TEP repair techniques can be associated with complications. These complications may include, but are not limited to:

Infection: Surgical site infections are a known complication in laparoscopic inguinal hernia repair. Proper aseptic techniques, sterile conditions, and antibiotic prophylaxis are crucial in minimizing the risk of infection.

Chronic Pain: Chronic groin pain is a recognized complication following laparoscopic inguinal hernia repair. The incidence of chronic pain varies and may be influenced by multiple factors, including the surgical technique, mesh fixation, and patient characteristics.

Recurrence: Hernia recurrence remains a significant concern in hernia repair. Proper mesh placement, fixation, and technique are crucial in minimizing the risk of recurrence.



Figure 1. Critical view myopectinimum orifice TAPP



Figure 2. Tacker placement



Figure 3. Flap closure

Comparing Laparoscopic Inguinal Hernia Repair Techniques: TAPP vs. TEP

DISCUSSION

Comparison of TAPP and TEP Repair Techniques

The choice between the TAPP and TEP repair techniques is a subject of ongoing research and debate in the field of laparoscopic inguinal hernia repair. Each technique has its own set of advantages and disadvantages, making the decision multifaceted and dependent on patient-specific factors and surgeon expertise.

Advantages of TAPP Repair

Intra-abdominal Exploration: One of the distinguishing features of TAPP repair is the ability to explore the contralateral side within the abdominal cavity. This advantage is particularly useful for diagnosing and repairing bilateral hernias. Surgeons can evaluate the contralateral side, making it possible to identify and address any additional hernias.

Reduced Risk of Vascular Injury: TAPP repair is often considered to carry a lower risk of inadvertent vascular injury. This reduced risk can be attributed to the fact that TAPP repair does not involve extensive preperitoneal dissection, which is a characteristic of TEP repair. The avoidance of this dissection may contribute to a lower likelihood of damaging blood vessels during the procedure.

Advantages of TEP Repair

Extraperitoneal Approach: TEP repair is characterized by its extraperitoneal approach, meaning that the procedure is performed entirely outside the abdominal cavity. This feature can be advantageous in patients with a history of abdominal surgery, as it minimizes the risk of intra-abdominal adhesions. Patients at risk of adhesions due to previous surgeries may benefit from this approach as it avoids disturbing intra-abdominal structures.

Preservation of the Peritoneum: TEP repair preserves the integrity of the peritoneum, which is in contrast to TAPP repair that involves creating and subsequently closing a peritoneal flap. Preservation of the peritoneum may contribute to a lower risk of postoperative ileus, a condition characterized by intestinal paralysis. This advantage can be particularly significant for patients with pre-existing gastrointestinal conditions or those at risk of ileus.

CONCLUSION

In conclusion, the choice between TAPP and TEP repair techniques in laparoscopic inguinal hernia repair is influenced by several factors, including the patient's clinical presentation, the surgeon's expertise, and the presence of any contraindications. Both techniques offer distinct advantages that can be leveraged based on individual patient characteristics.

TAPP repair provides the advantage of intra-abdominal exploration, making it suitable for diagnosing and repairing bilateral hernias. Additionally, it is often associated with a

reduced risk of vascular injury, which can enhance patient safety.

On the other hand, TEP repair is characterized by its extraperitoneal approach, making it suitable for patients with prior abdominal surgeries or those at risk of adhesions. The preservation of the peritoneum can be advantageous in reducing the risk of postoperative ileus.

Ultimately, the choice between TAPP and TEP repair techniques should be made on a case-by-case basis, considering the patient's specific clinical circumstances and the surgeon's expertise. As the field of laparoscopic inguinal hernia repair continues to evolve, ongoing research and clinical experience will further inform the selection of the most suitable approach for each patient. This personalized approach aims to optimize patient outcomes and reduce the clinical and economic burden of inguinal hernias.

REFERENCES

- I. Gundogdu, E., Guldogan, C. E., & Ozmen, M. M. (2021). Bilateral inguinal hernia repair: robotic TAPP versus laparoscopic TEP. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, 31(4), 439-443.
- II. Karacan, E., Küçükdiler, E., & Yılmaz, E. M. (2021). Which Technique Should We Select in Laparoscopic Inguinal Hernia Repairs?. *Meandros Medical & Dental Journal*, 22(3).
- III. Akturk, R., & Serinsoz, S. (2020). Which method for the laparoscopic repair of inguinal hernia?; TAPP versus TEP.
- IV. Hidalgo, N. J., Guillaumes, S., Bachero, I., Butori, E., Espert, J. J., Ginestà, C., ... & Momblán, D. (2023). Bilateral inguinal hernia repair by laparoscopic totally extraperitoneal (TEP) vs. laparoscopic transabdominal preperitoneal (TAPP). *BMC surgery*, 23(1), 270.
- V. Mubark, M., Mohammed, H. A., & Mohamed, M. A. (2023). Transabdominal pre-peritoneal (TAPP) versus totally extraperitoneal (TEP) laparoscopic techniques for inguinal hernia repair. *SVU-International Journal of Medical Sciences*, 6(2), 676-683.
- VI. Ergenç, M., & Gülşen, T. (2023). Laparoscopic inguinal hernia repair: A comparison of transabdominal preperitoneal and total extraperitoneal techniques—Results of initial experiences. *International Journal of Abdominal Wall and Hernia Surgery*, 6(3), 166-170.