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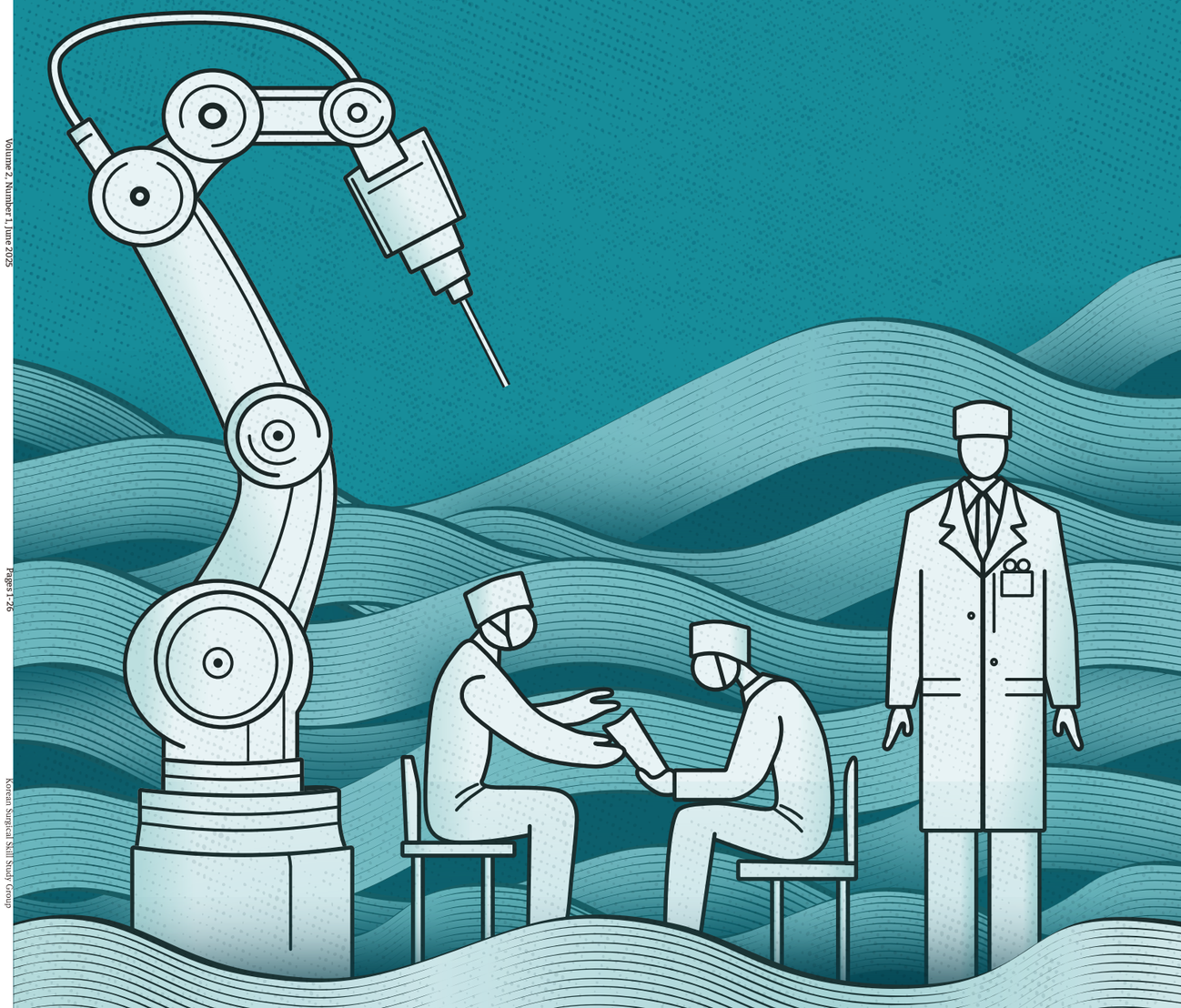

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Aims and scope

Journal of Surgical Innovation and Education (JSIE) is an official and peer-reviewed journal of the Korean Surgical Skill Study Group. As an open-access scientific journal, JSIE is committed to promoting the transfer of cutting-edge and novel surgical techniques, as well as advancing surgical education. The journal is designed to serve as an indispensable resource for surgeons, trainees, and healthcare professionals seeking to refine their surgical practice and embrace innovation in all areas of surgery.

JSIE aims to:
• Provide the development of innovative surgical procedure and technology
• Ensure a more effective transfer of surgery-related detail and knowledge
• Provide an immersive learning experience through high-definition surgical video demonstrations.
• Bridge the gap between traditional surgical education and the evolving demands of modern surgical practices.

Our scope encompasses:
• Newly emerging surgical technologies and techniques
• Tutorials on essential surgical skills, catering to a range of expertise from novice to expert
• Practice and research in minimally invasive or open surgery
• Surgical endoscopy
• Other techniques in the fields of general/thoracic/traumatic/pediatric/neuro/orthopedic surgery, obstetrics, gynecology, and urology.

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A Practical Guide to Robotic Transabdominal Preperitoneal Repair for Inguinal Hernia

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Robotic transabdominal preperitoneal (R-TAPP) inguinal hernia repair offers enhanced visualization, ergonomic comfort, and improved instrument control compared to conventional laparoscopy. Although laparoscopic transabdominal preperitoneal repair has known benefits, its adoption remains limited due to technical challenges and a steep learning curve. The robotic platform addresses these limitations, making it well-suited for safe, precise dissection in the preperitoneal space. This article presents a practical, step-by-step guide to R-TAPP, highlighting key anatomical landmarks, standardized dissection techniques, and tension-free mesh placement without fixation.

Keywords: Inguinal hernia; Robotic surgical procedures; Herniorrhaphy; Minimally invasive surgical procedures

Introduction

Inguinal hernia repair is one of the most common surgeries worldwide, with millions performed annually [1]. Surgical approaches have evolved from open techniques to minimally invasive methods like transabdominal preperitoneal and totally-extraperitoneal repair, which offer benefits such as less postoperative pain, faster recovery, and better cosmetic results [2]. However, widespread adoption of laparoscopic repair remains limited due to a steep learning curve, unfamiliar anatomy, and technical challenges like intracorporeal suturing [3].

Robotic-assisted surgery has emerged as a promising solution, offering enhanced three-dimensional (3D) visualization, wristed instruments for better dexterity, and improved ergonomics—particularly beneficial in the confined preperitoneal space [4]. These advantages make robotic platforms well-suited for inguinal hernia repair.

Recent studies confirm the safety and feasibility of robotic inguinal hernia repair, with outcomes comparable or superior to conventional laparoscopy [3]. Despite concerns over cost and operative time, the robotic approach may offer better precision and a shorter learning curve for selected surgeons [5,6]. This article provides a practical, step-by-step guide to robotic transabdominal preperitoneal (R-TAPP) repair, focusing on key anatomical landmarks and technical strategies to improve surgical outcomes.

Case Presentation

Patient

A 66-year-old man presented with a right inguinal mass

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noted one month prior. He had a history of gastric perforation in 2020, treated conservatively, and was not on medication. His body mass index was 23.4 kg/m^2, and preoperative labs were normal. Computed tomography showed a right indirect inguinal hernia with preperitoneal fat. After discussing options, the patient chose robotic repair, and a right-sided R-TAPP was planned. This study was approved by the Institutional Review Board of National Health Insurance Ilsan Hospital (NHIMC2025-04-003). Written informed consent was waived because of the retrospective nature of the study.

Patient positioning and preparation

Surgical procedure video is edited and presented (video). Patients were placed supine with a 15° Trendelenburg tilt and arms tucked. After general anesthesia, a Foley catheter was inserted if needed. The surgical field was prepped from the subxiphoid area to the proximal thighs for adequate exposure.

Port placement and docking

A three-port technique is used. An 8 mm optical trocar is inserted at the umbilicus via open technique, with pneumoperitoneum set at 12 mmHg (Fig. 1). Two additional 8 mm trocars are placed under direct vision, about 10 cm from the camera port. The da Vinci Xi system is docked from the patient's right side, and a 30-degree camera provides a wide view of the lower abdomen (Fig. 2).

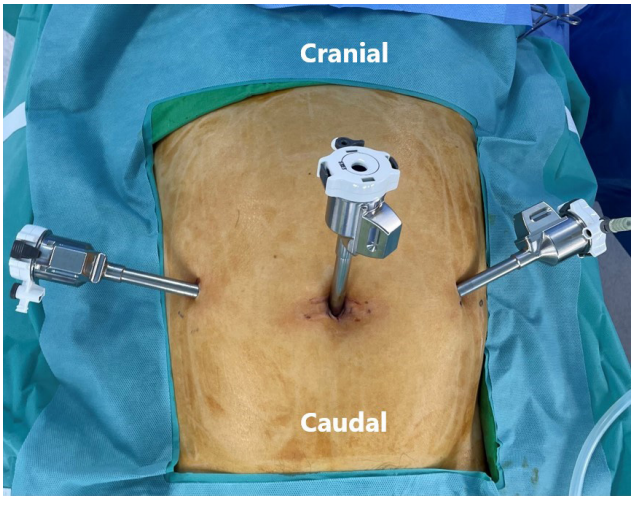

Fig. 1. Port placement in robotic transabdominal preperitoneal repair.

Peritoneal incision and exposure

A peritoneal incision is made 3–4 cm above the hernia defect, from the medial umbilical ligament to the anterior superior iliac spine, providing space for mesh placement and flap closure. The preperitoneal space is developed with blunt and sharp dissection, preserving key structures like the inferior epigastric vessels and vas deferens or round ligament.

Hernia sac reduction and dissection

For indirect hernias, the sac is separated from the cord structures and reduced toward the internal ring. In direct hernias, the transversalis fascia is reinforced, and redundant sac contents are reduced. Large lipomas or sliding components are thoroughly dissected to minimize recurrence risk. In this case, the patient had a lateral hernia classified as L1 according to the European Hernia Society (EHS) classification, with a defect size of 1.5 cm or less.

Mesh placement

After confirming the absence of occult hernias, a preshaped 3DMax^{TM} mesh (15×10 cm; Bard Davol Inc.) was inserted through the 8 mm port. The mesh was carefully positioned to wrap around the spermatic cord and cover all hernia-prone areas—direct, indirect, and femoral. No fixation was needed, as the mesh's contour and surrounding anatomy secured it in place. It was

Fig. 2. Da Vinci Xi docked with three active arms.

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laid tension-free, extending from the pubic symphysis to beyond the anterior superior iliac spine, ensuring full coverage without folding or migration.

Peritoneal closure

The peritoneal flap is reapproximated using a running 4-0 absorbable barbed suture in a continuous fashion. Tension-free closure is essential to prevent mesh exposure to intra-abdominal contents, which may increase the risk of adhesions or erosion.

Final Inspection and desufflation

After ensuring hemostasis and confirming mesh position and flap integrity, pneumoperitoneum is reduced. The robotic instruments and ports are removed under direct visualization, and the fascial defect at the camera port. Skin incisions are closed with absorbable sutures or skin adhesive.

Discussion

R-TAPP inguinal hernia repair offers improved dexterity, ergonomics, and visualization over conventional laparoscopy [1]. Although laparoscopic TAPP provides benefits like less pain and quicker recovery, its adoption is limited by technical challenges such as intracorporeal suturing and a steep learning curve, especially for posterior groin anatomy [2,7]. The robotic platform mitigates many of these challenges by offering wristed instrumentation, a stable 3D magnified view, and a more intuitive control system [4]. These features facilitate precise dissection in the preperitoneal space and meticulous peritoneal flap closure, which is often a limiting step in laparoscopic TAPP [2,4]. As noted in recent Korean studies and international literature, R-TAPP has demonstrated safety and feasibility in both primary and complex hernias, with acceptable short-term outcomes and low complication rates [8].

Moreover, robotic hernia repair appears to offer a faster learning curve compared to laparoscopic techniques [5]. Studies suggest that surgical proficiency may be achieved within 20–35 cases depending on prior robotic experience, compared to significantly more cases required for laparoscopic mastery [6]. This technical accessibility, especially for surgeons already trained in robotic platforms, is a significant driver of its increasing adoption.

However, R-TAPP is not without limitations. Increased operative time, particularly in early cases, and higher costs compared to laparoscopic or open techniques remain areas of concern [3]. Nonetheless, emerging data—including meta-analyses—show that robotic repairs may yield lower recurrence rates and improved perioperative outcomes in select populations, particularly in complex or recurrent cases [9].

Finally, it is worth noting that robotic hernia surgery is primarily performed by specialized surgeons, with limited exposure for trainees [10]. As robotic systems become more integrated into surgical training programs, developing structured educational pathways will be essential to ensure broader, safe adoption of this technique.

In conclusion, R-TAPP represents a valuable addition to the surgical armamentarium for inguinal hernia repair. It combines the benefits of minimally invasive surgery with enhanced surgical control and precision. With appropriate case selection, standardized technique, and structured training, R-TAPP has the potential to become a standard approach for inguinal hernia repair in the modern era.

Disclosure

No potential conflict of interest relevant to this article was reported.

Author contributions

Conceptualization: HSL; Writing–original draft: SJ, HSL; Writing–review & editing: SJ, HSL.

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Laparoscopic Extended Totally Extraperitoneal Hernia Repair with Posterior Component Separation with Transversus Abdominis Release for a Recurrent Incisional Hernia

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A patient with multiple comorbidities, including hypertension, type 2 diabetes, hyperlipidemia, and edema, and a prior history of abdominal surgery presented to the gastrointestinal department with a recurrent incisional hernia larger than 10 cm. The patient underwent laparoscopic extended totally extraperitoneal (e-TEP) hernia repair under general anesthesia. The bilateral retrorectal spaces were accessed via three trocars, followed by midline crossover in the upper abdomen and caudal dissection along the fascial defect. Due to the large size of the defect and the anticipated tension, posterior component separation (PCS) with transversus abdominis release (TAR) was performed, with careful preservation of the neurovascular bundles running anterior to the head of the transversus abdominis muscle. After separate closure of the posterior and anterior layers using barbed sutures, a mesh was placed in the intercomponent space to avoid direct contact with intraperitoneal structures. Closed-suction drains were placed bilaterally to prevent seroma formation. The procedure was completed successfully, and the patient experienced no complications. The patient was discharged without complications. A follow-up computed tomography scan demonstrated the integrity of the hernia repair, with progressive resolution of fat infiltration and fluid collection. Laparoscopic e-TEP hernia repair with PCS and TAR provides a safe and effective approach for managing complex recurrent incisional hernias. This technique enables tension-free closure with mesh placement while minimizing intra-abdominal complications.

Keywords: Incisional hernia; Laparoscopy; Minimally invasive surgical procedures

Introduction

Incisional hernia is one of complications following abdominal surgeries, including open and minimally invasive surgery. This case report presents a patient in the sixth decade of life, with a complex surgical and medical history, who underwent laparoscopic extended totally extraperitoneal (e-TEP) hernia repair with posterior component separation (PCS) with transversus abdominis release (TAR) for a large recurrent incisional hernia.

PCS, derived from the principles of the Rives–Stoppa repair, involves dissection of the retrorectal space from the posterior rectus sheath toward the semilunar line, creating a broad and well-vascularized plane suitable

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for mesh placement. The transversus abdominis (TA) and internal oblique muscles (IO) serve as key structural components that contribute to abdominal wall integrity. Mobilizing the TA from the overlying IO allows for expansion of the abdominal cavity while preserving the function of the IO. Additional TAR, incising the head of the TA, allowing dissection to the preperitoneal plane and facilitating extensive medialization of the abdominal wall. It is important to be cautious to avoid injury to the neurovascular bundles, which run just anterior to the head of the TA and perforate into the rectus muscle, as these are essential for maintaining rectus muscle function [1].

Case Presentation

The patient had a history of distal pancreatectomy followed by open incisional hernia repair without mesh several years ago. The patient had multiple comorbidities, including hypertension (managed with antihypertensive agents), type 2 diabetes mellitus (treated with oral hypoglycemics and insulin), hyperlipidemia (treated with lipid-lowering medication), and peripheral edema (managed with diuretics).

Considering the patient's complex medical and surgical history, along with a large recurrent hernia defect measuring approximately 10 cm, a laparoscopic e-TEP hernia repair was planned.

Surgical procedure

In the supine position, the surgical site was prepared and draped for laparoscopic surgery under general anesthesia. The patient was positioned with hyperextension of the lower back and hip joint, using the hernia site as a reference point, in order to optimize access of laparoscopic instruments and facilitate optimal access to the hernia defect. A 12-mm trocar was inserted in the left upper quadrant of the abdominal wall to access the left retrorectal space and enable dissection of the preperitoneal area. CO_2 was insufflated into the retrorectal space to create working space, after which an additional 5 mm trocar was inserted into the left abdomen through the expanded retrorectal area. Additionally, a 12-mm trocar was inserted in the right upper quadrant, providing access to the right retrorectal space for further dissection (Fig. 1).

Midline crossing was performed to access the contralateral retrorectal space without entering the intraperitoneal cavity. During this step, a yellow fat pad representing the falciform ligament was visualized and served as an anatomical guide. This step is essential in the extended TEP approach, as it connects the bilateral retrorectal spaces, allowing for a wider working space and appropriate mesh placement. Extensive postoperative adhesions were noted and required meticulous adhesiolysis. A large incisional hernia was identified, approximately 10 cm in size, and the hernia sac was carefully dissected along its margin at the fascial defect (Fig. 2). Owing to the large size of the hernia defect, even a minimal PCS from posterior rectus sheath laterally toward the linea semilunaris permitted direct visualization of the head of the TA. TAR, involving careful division of the head of the TA, was performed to achieve adequate tension-free closure of the posterior layer (Fig. 3). The posterior component was closed with a barbed suture. The anterior component was also closed with a barbed suture, incorporating plication of the redundant

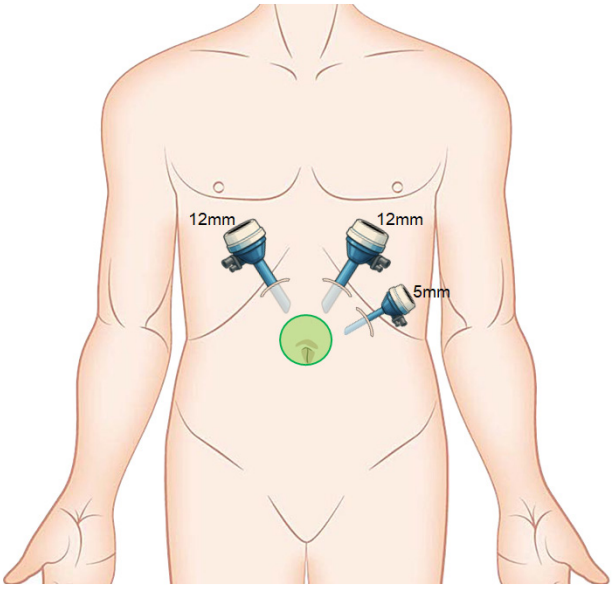

Fig. 1. Trocar placement on the abdominal wall. A 12-mm trocar was inserted in the left upper quadrant to access the left retrorectal space. A 5-mm trocar was placed in the left abdomen, and another 12-mm trocar was inserted in the right upper quadrant for access to the right retrorectal space. The green circle indicates the location of the incisional hernia sac.

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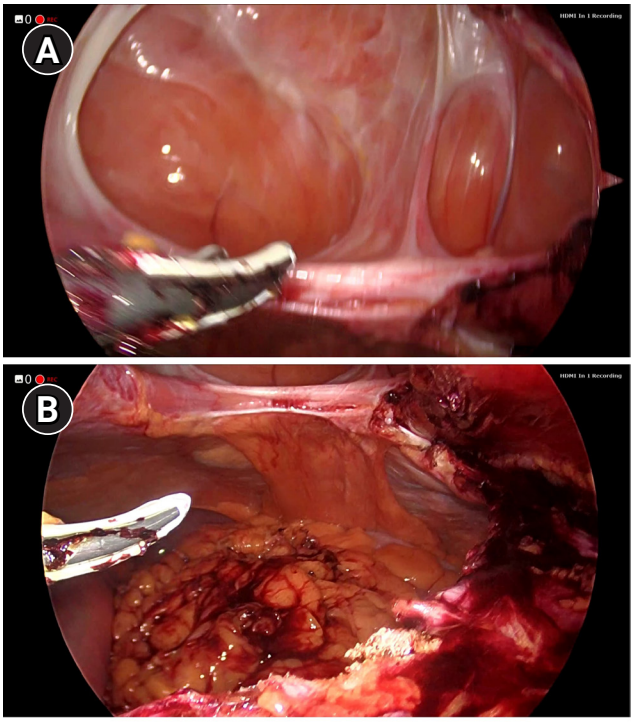

Fig. 2. Intraoperative findings of recurrent incisional hernia. (A) A large recurrent incisional hernia was identified following adhesiolysis. (B) The posterior component was dissected from the margin of the hernia sac.

hernia sac beneath the skin flap to minimize dead space and reduce the risk of seroma formation (Fig. 4). A mesh with two anchoring threads was placed in the intercomponent space, between the anterior and posterior component, and transfascial fixation was performed. Closed-suction drains were placed bilaterally within the intercomponent space to prevent seroma formation. A detailed surgical procedure is illustrated in video.

Postoperative course

The postoperative course was uneventful, followed by discharge after a short hospital stay. Initial follow-up computed tomography (CT) confirmed the integrity of the hernia repair, with mild fat infiltration and a small fluid collection between the anterior compartment and the hernia sac. No symptoms or signs of infection were observed. Subsequent follow-up CT demonstrated decreased fat infiltration and fluid collection, with no abnormal findings on physical examination.

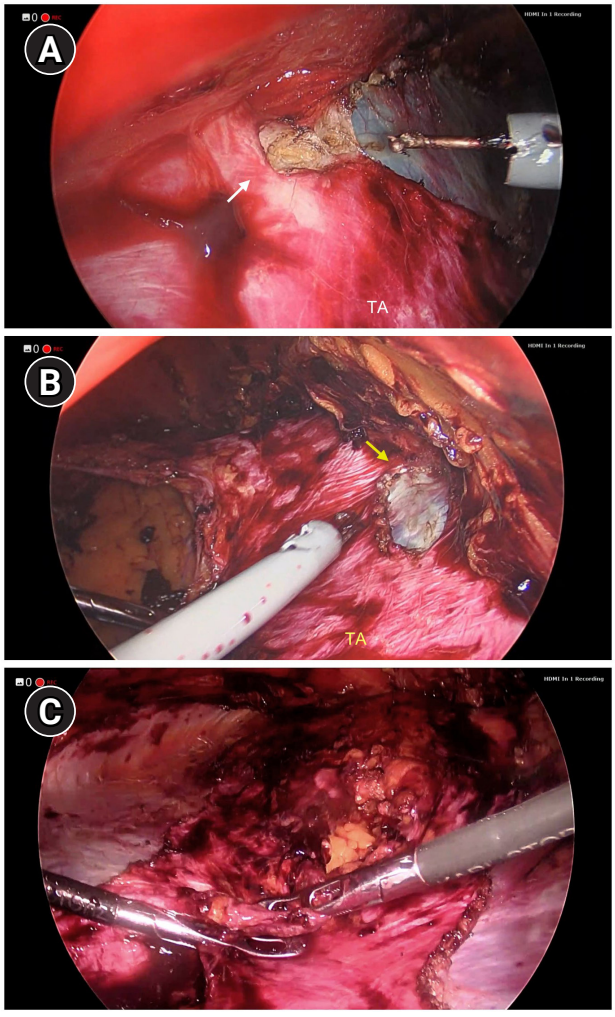

Fig. 3. Posterior component separation with transversus abdominis release (TAR). (A) Division of the head of the transversus abdominis muscle (TA) on the left side (white arrow). (B) Division of the head of the TA on the right side (yellow arrow). (C) Tension-free approximation of the bilateral posterior components after TAR.

Discussion

This case highlights the challenges of managing recurrent incisional hernia in patients with complex medical and surgical histories. Laparoscopic e-TEP hernia repair offers several advantages: 1) In cases of recurrent hernias, which are often associated with extensive adhesions that increase the risk of iatrogenic bowel injury [2], accessing the space between the anterior and posterior components rather than directly entering the intraperitoneal space reduces the risk of direct bowel injury

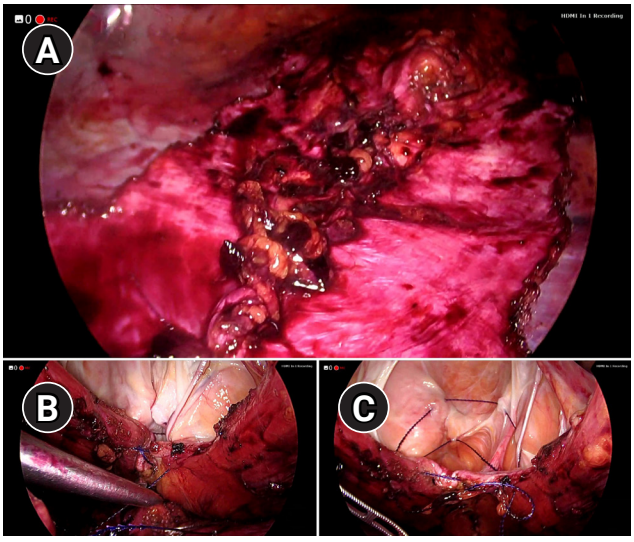

Fig. 4. Closure of the posterior and anterior components. (A) The posterior component was closed with a barbed suture. (B, C) The anterior component was closed with a barbed suture, incorporating plication of the redundant hernia sac to minimize dead space and reduce the risk of seroma formation.

even when adhesiolysis is required; 2) when the defect is large and fascial approximation would result in excessive tension, simultaneous PCS with TAR can be performed immediately to achieve a tension-free closure [1]; 3) by closing the anterior and posterior components separately and placing the mesh within the intercomponent space, direct contact between the mesh and intraperitoneal structures is avoided, thereby minimizing the risk of adhesion formation [3]; 4) e-TEP repair is also associated with less postoperative pain, faster recovery, and lower recurrence rate compared to open hernia repair [4,5].

Given these benefits, laparoscopic e-TEP hernia repair with PCS with TAR serves as a promising approach for managing recurrent incisional hernias, even in patients with complex surgical and medical histories. Careful patient selection, precise surgical technique, and consistent postoperative monitoring with imaging are essential to optimize surgical outcomes. Nevertheless, this report describes a single case without long-term follow-up or comparative data, which limits the generalizability of the findings. Further studies involving larger patient cohorts and extended follow-up are warranted to validate the broader applicability of this technique.

Disclosure

No potential conflict of interest relevant to this article was reported.

Author contributions

Conceptualization: SHK (Kong); Data curation: SHK (Kim); Formal analysis: SHK (Kim); Investigation: SHK (Kim); Methodology: SHK (Kim); Writing–original draft: SHK (Kim); Writing–review & editing: KP, CK, JK, DJP, HJL, SHK (Kong)

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Biologic Mesh Augmentation for Repairing Diaphragmatic Hernia

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Diaphragmatic hernias, whether congenital or acquired, often require surgical intervention to prevent life-threatening complications. The use of biologic mesh has gained increasing attention due to its favorable integration with host tissue and lower recurrence rates. This article presents a reproducible and effective method for diaphragmatic hernia repair using a biologic mesh via a laparoscopic approach. The technique emphasizes anatomical restoration and durable fixation, while minimizing tension and postoperative complications.

Keywords: Diaphragmatic hernia; Surgical mesh; Hernia, diaphragmatic; Herniorrhaphy; Hernia, hiatal

Introduction

Diaphragmatic hernias result from a defect or disruption in the diaphragm, allowing abdominal contents such as the stomach and colon to migrate into the thoracic cavity. Traditional repairs usually involve primary suturing, but large or tension-prone defects often require additional reinforcements such as mesh, which can be synthetic or biologic in nature. Biologic mesh (hereafter, simply biomesh), which is an allograft or xenograft mesh biologically compatible with surrounding tissues, has enabled more robust repairs, particularly in contaminated fields or in cases where synthetic meshes are contraindicated [1,2]. In comparison to primary closure, biomesh repair is known to have a lower recurrence rate of paraesophageal hernias (9% vs. 24%) [3]. Through this paper and video, I would like to share our experience of using biomesh for effectively repairing a large delayed-presentation diaphragmatic hernia.

Case Presentation

An 83-year-old female with abdominal pain and vomiting was referred to the gastrointestinal surgery department due to a large diaphragmatic hernia causing gastric outlet obstruction. The patient's body mass index was 21.1 kg/m^2 with a height of 143.0 cm and weight of 42.4 kg. Her medical history included diabetes mellitus and hypertension with no history of surgery or trauma, family disease, alcohol consumption, and smoking.

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Preoperative chest radiography and computed tomography (CT) confirmed a very large left-sided diaphragmatic hernia, approximately 5.5 cm in diameter, of the stomach and transverse colon (Fig. 1A, B). Esophagogastroduodenoscopy (EGD) showed an abnormal stomach body shape with large amount of food contents, making further evaluation difficult (Fig. 1C). After discussing the results and risk with the patient and her family, the patient agreed to proceed with surgical reduction.

After general anesthesia, laparoscopic exploration (as shown in the video) confirmed that the stomach and transverse colon had been herniated into the thoracic cavity. The ports were positioned similar to those of laparoscopic gastrectomy, but with the operator's ports placed slightly more medial and upwards (Fig. 2) considering the left-sidedness of the diaphragmatic hernia. Had the diaphragmatic hernia been right-sided, the author would have placed the ports slightly more lateral and lower. Using laparoscopic graspers, the stomach and transverse colon were carefully pulled back into the abdominal cavity (Fig. 3A). Adhesions around the stomach, which were severe most likely due to the chronic herniation, were carefully dissected using a laparoscopic electrode device (Fig. 3B). After meticulous dissection, the stomach was finally mobilized from the thorax and successfully pulled back into the abdominal cavity. Hernia sac was then meticulously dissected, allowing the esophagus to be identified (Fig. 3C). During this procedure, the distal esophagus was injured, creating an iatrogenic hole, which was repaired using 3-0 continuous absorbable barbed suture (Monofix®; Hanmi Healthcare) (Fig. 4). Endoscopic stent or endo-vac therapy, which have been reported to be effective in treating

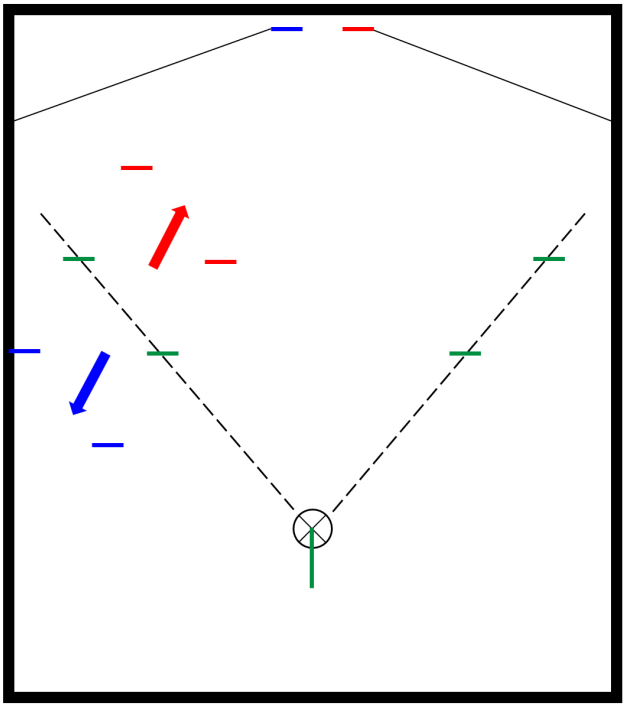

Fig. 2. Laparoscopic port positions. The typical gastrectomy ports are shown in green, while red shows the author's preferred positions for left-sided diaphragmatic hernia and blue represents the positions for right-sided diaphragmatic hernia.

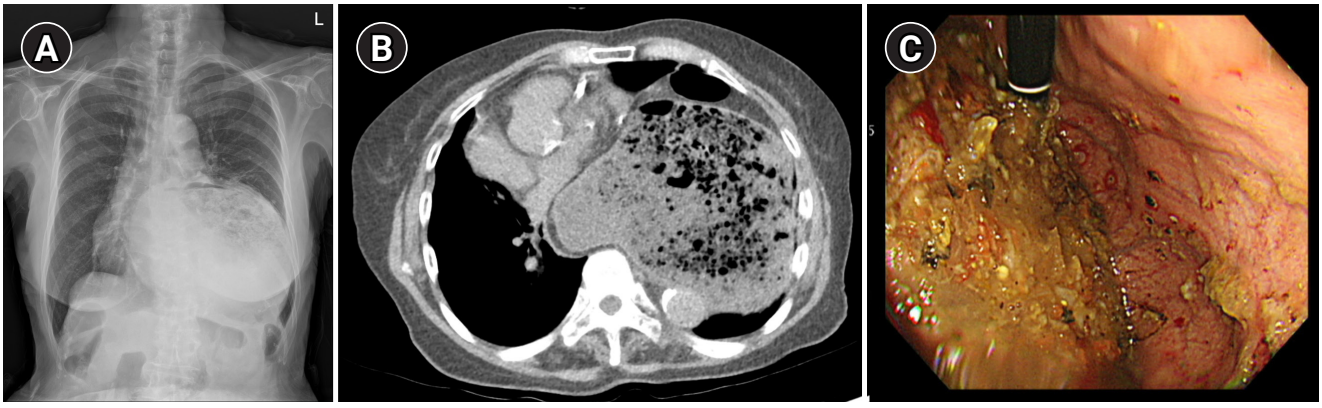

Fig. 1. Preoperative imaging evaluation. (A) Chest radiography showing a left-sided diaphragmatic hernia, (B) abdominal computed tomography showing a diaphragmatic hernia measuring approximately 5.5 cm in diameter. (C) Esophagogastroduodenoscopy showing a large amount of food contents due to gastric outlet obstruction.

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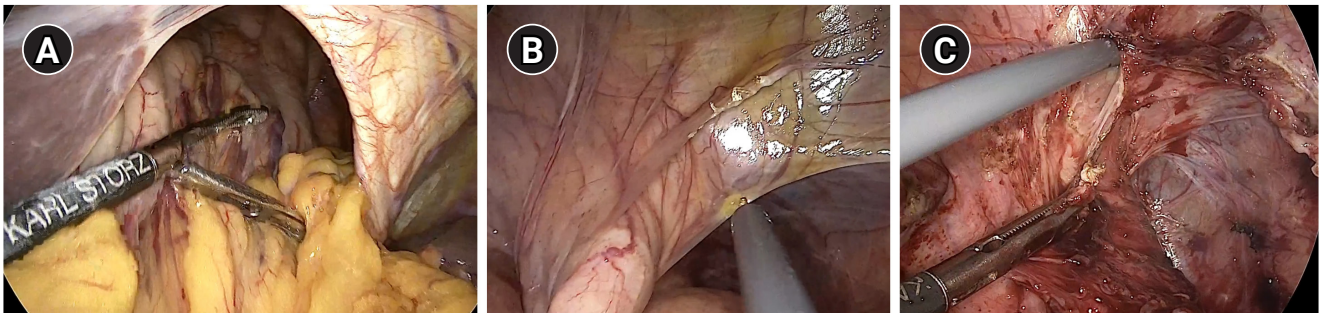

Fig. 3. Laparoscopic exploration and reduction. (A) Reduction of the herniated stomach and transverse colon, (B) adhesiolysis around the stomach, and (C) circumferential dissection of the hernia sac.

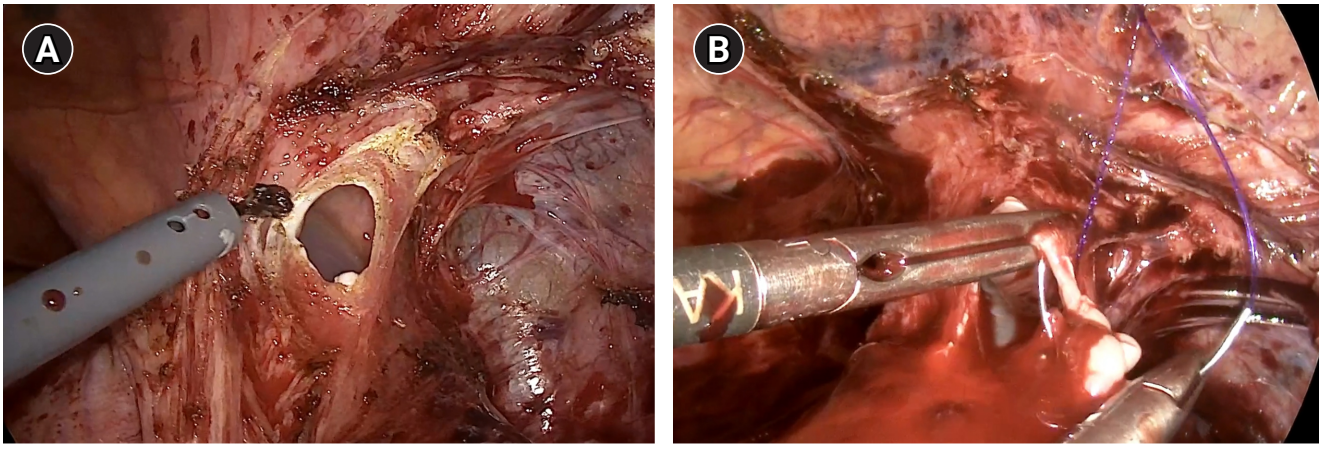

Fig. 4. Esophageal injury. (A) Iatrogenic injury caused during dissection of the hernia sac. (B) Continuous suture repair using 3-0 Monofix®.

esophageal perforations after paraesophageal hernia operations, was planned to be used postoperatively if necessary [4,5].

The diaphragm defect was measured to be approximately 5 cm in diameter, which was to be repaired using a biomesh (Fig. 5A). The biomesh chosen for this case was a human acellular dermal matrix measuring 3.0×4.0 cm in dimension with a thickness of 1.0–2.0 mm (SC Derm®; DOF Inc.). Using this biomesh, the diaphragm was augmented and repaired by circumferentially anchoring the biomesh to the diaphragm wall using 3-0 continuous Monofix® (Fig. 5B). After checking that there was no significant tension, no residual herniation or bleeding and that the lung expanded back well, the operation was deemed successfully complete and the patient was extubated uneventfully (Fig. 5C).

Following surgery, the patient underwent endo-vac therapy and endoscopic stent insertion due to leakage from the esophageal injury site. After approximately three months of nutritional support and conservative care, follow-up CT and EGD showed that there was no herniation and that the perforation site had been sealed with no signs of fistula (Fig. 6).

This case report was exempted from review by the Institutional Review Board of Asan Medical Center. Informed consent from the patient was waived due to anonymized data.

Discussion

In this rare and large diaphragmatic hernia case, laparoscopic repair was successfully performed using biomesh augmentation. Laparoscopic approach in comparison to open surgery not only offers enhanced visualization

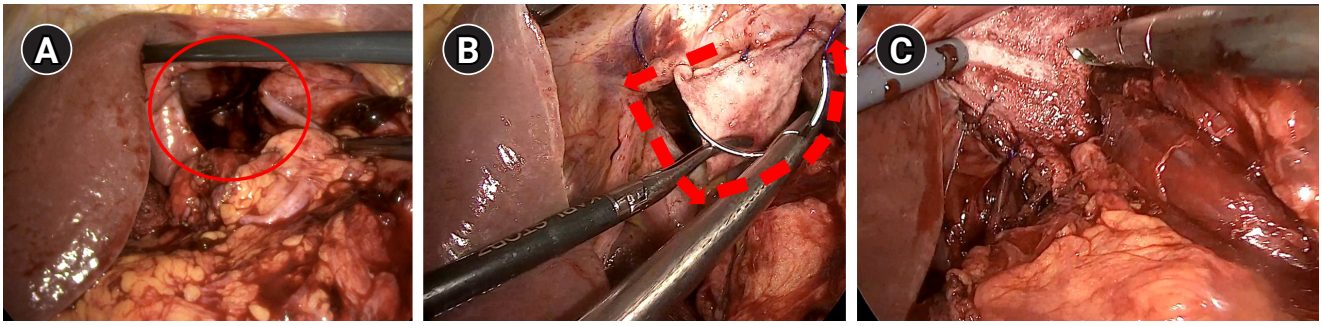

Fig. 5. Biomesh repair procedure. (A) Evaluation of the herniated space after reduction (circle). (B) 360° continuous suture fixation of the biomesh to the diaphragm (dotted arrow line). (C) Confirmation of repair.

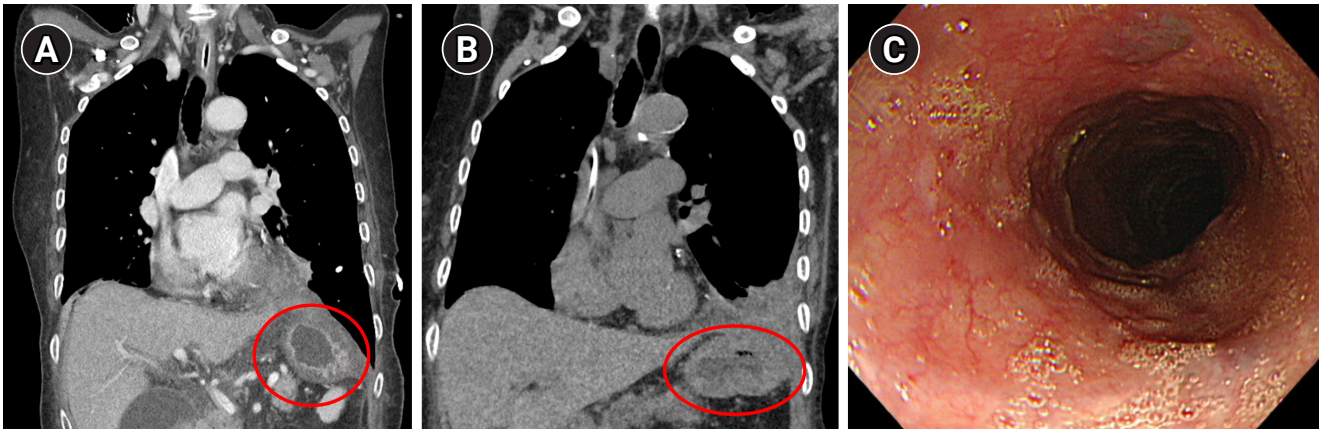

Fig. 6. Follow-up computed tomography at postoperative day 17 (A) and 3 months (B), showing no herniation of the stomach and bowel contents (circles). (C) Esophagogastroduodenoscopy finding at postoperative 3 months, showing no clear trace of the previous perforation site.

of the surgical field, which is crucial for safe and successful repair, but it is also known to significantly reduce hospital stay and recurrence rate [6,7]. Since the hernia defect measured over 5 cm, we decided to use a biomesh made from human acellular dermal matrix with dimension of 3.0×4.0 cm, which was sufficient for tension-free anchorage to the diaphragm wall. We chose biomesh over synthetic mesh because of the potential risk of mesh migration and erosion into the surrounding esophagus and lungs, which could be life threatening [7].

The surgeon must be aware of the following factors prior to entering the operating room. First, severe adhesions exist around the herniated contents due to prolonged herniation, as a result of asymptomatic and delayed presentation [7,8]. This creates a problem because adhesiolysis in this space can easily lead to iatrogenic injury of the esophagus. Since, esophageal injury is quite common in this surgical field, the surgeon must be ready to repair an unexpected esophageal injury using the proper suture materials and technique [5]. Before ending the operation, the surgeon must confirm that there is no residual herniation or bleeding, and that the lung expansion is recovered. Second, considering the circular shape of diaphragmatic hernias, biomesh must be meticulously sutured 360° around the defect. Keeping in mind that this is a laparoscopic approach, the surgeon must be well prepared and confident in laparoscopic suture.

In conclusion, biomesh repair can be effectively and safely applied for large diaphragmatic hernias which cannot be simply repaired by primary sutures. In this context, biomesh provides a scaffold that facilitates tis-

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sue integration while lowering recurrence and avoiding complications associated with synthetic materials [1]. In contaminated or chronic cases, such as post-traumatic diaphragmatic hernias, biomesh demonstrates lower infection rates and improved healing by reducing the risk of erosion into the surrounding organs [2]. While long-term data is still evolving, biomesh appears promising for not only complex hernia repairs, such as patients with prior infections, comorbidities, or trauma history, but also for elective surgeries dealing with large hernias.

Disclosure

In-Seob Lee (editor-in-chief) and Sa-Hong Min (associate editor) were not involved in the evaluation or decision-making process of this article, which adhered to decisions made by independent reviewers. There are no other potential conflicts of interest relevant to this article.

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Author contributions

Conceptualization: JY, CSG; Data curation: JY, CSG; Formal analysis: JY, CSG; Investigation: JY, CSG; Methodology: JY, CSG; Supervision: CSG, CSK, SHM, ISL, MWY, JHY, BSK; Writing–original draft: JY, CSG, BOS, CSK, SHM, ISL, MWY, JHY, BSK; Writing–review & editing: CSG, CSK, SHM, ISL, MWY, JHY, BSK.

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How to Perform Single-Incision Laparoscopic Totally Extraperitoneal Hernia Repair

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Surgery for inguinal hernia has made significant progress over a period of more than a century. The advent of minimally invasive techniques prompted further innovations. Among these, single-incision surgery offers significant advantages in creating the preperitoneal space. Therefore, it is essential for surgeons to understand and be able to perform single-incision laparoscopic totally extraperitoneal (SIL-TEP) hernia repair. This article presents a detailed description of the surgical technique for SIL-TEP.

Keywords: Inguinal hernia; Herniorrhaphy; Laparoscopy

Introduction

Since tension-free hernia repair using mesh became the gold standard procedure for inguinal hernia surgery [1], there have been numerous advancements in inguinal hernia surgery. The most significant advancement is the application of laparoscopy to the posterior approach [2]. Compared to anterior approaches like Lichtenstein's tension-free hernioplasty, posterior approaches such as laparoscopic totally extraperitoneal (TEP) or transabdominal preperitoneal (TAPP) hernia repair offer the following advantages: (1) clearer identification of anatomical structures and the hernia with minimal ambiguity, and (2) the ability to use a large mesh that sufficiently covers the entire myopectineal orifice.

Although relatively high technical difficulty of single incision laparoscopic surgery has limited its widespread adoption, there is a consensus among many hernia surgeons regarding the efficiency and safety of the technique, supported by research findings [3-5].

Case Presentation

Patient

The patient is a 64-year-old male with a 6-month history of right inguinal hernia. A reducible soft mass, approximately 3×3 cm, was observed in the right inguinal region. In typical cases, no specific imaging tests are required for inguinal hernia, and diagnosis based on physical examination is sufficient. This study was approved by the Institutional Review Board of Incheon St. Mary's Hospital (approval number: OC25ZASI0061). Informed consent was waived due to the retrospective study design and use of anonymized data.

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Surgical procedure of single-incision laparoscopic totally extraperitoneal hernia repair

Skin incision

A 2–2.5 cm trans-umbilical skin incision is typically used. The trans-umbilical incision is chosen to minimize scarring, but any incision providing access to the retro-rectus space is acceptable. When using a trans-umbilical incision, a subcutaneous flap is created along the anterior rectus sheath toward the hernia site after the skin incision. Then, the anterior rectus sheath is incised, the rectus muscle is identified, and a wound protector is inserted between the rectus muscle and posterior rectus sheath (Fig. 1).

Fundamental technique of single-incision laparoscopic surgery

Proper positioning of the laparoscope and two working instruments within the single-port platform is essential. As illustrated in Fig. 2A, the laparoscope should be placed centrally within the single-port platform, with the left-hand instrument inserted to the left of the scope and the right-hand instrument inserted to the right of the scope, both passing through the umbilicus into the abdominal cavity. However, as shown in Fig. 2B, the instruments should not be crossed within the single-port platform (i.e., prior to transumbilical entry), as this significantly limits the range of motion of the instruments. It is acceptable for the instruments to cross after enter-

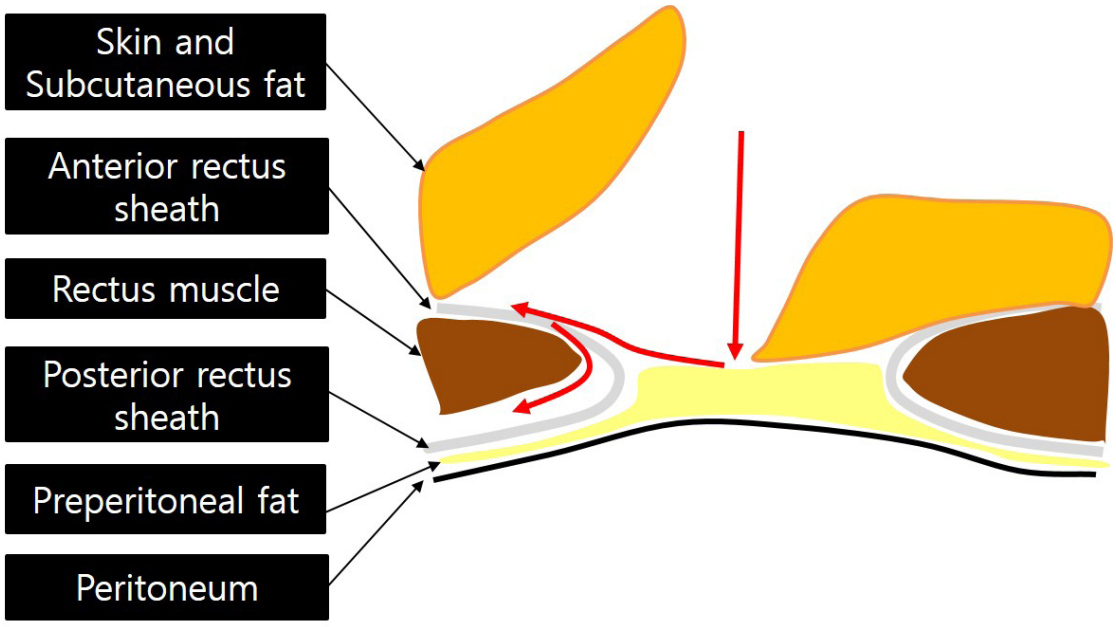

Fig. 1. Diagram illustrating the approach to the retro-rectus space via a trans-umbilical skin incision. The red arrowline indicates the direction of surgical progression.

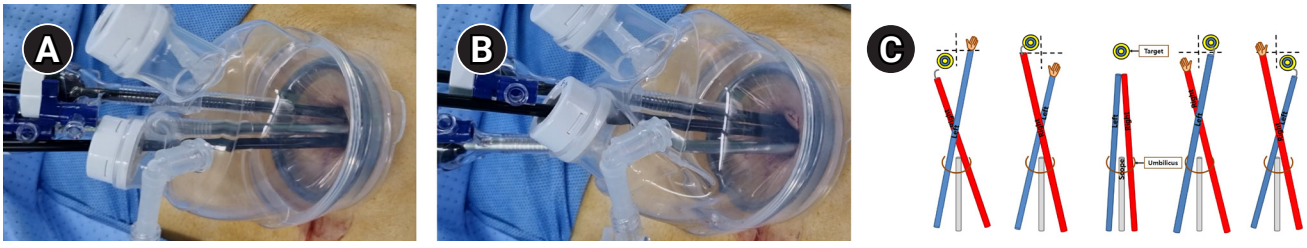

Fig. 2. (A) Proper positioning of the scope and the two instruments. (B) Improper instrument alignment. (C) Schematic illustration of instrument positioning based on the target anatomy.

ing the abdominal cavity (Fig. 2C).

Intraperitoneal procedure (video)

(1) Step 1. Space making (preperitoneal space dissection)

Surgery is performed using a 5 mm rigid, 30-degree long scope and conventional straight instruments. The extent of space creation should include identification of the symphysis pubis medially and extend laterally beyond the level of the anterior superior iliac spine. Inferiorly, dissection should reach the space of Retzius, and inferolaterally, it should extend to the psoas muscle and Bogros space. The most critical anatomical landmarks in this process are the inferior epigastric vessels and pubic bone.

The video shows multiple small communicating vessels between the posterior rectus sheath and rectus muscle, which can be managed without bleeding using coagulation under direct vision. The video also shows the arcuate line and transversalis fascia below it. The transversalis fascia typically tears naturally, allowing access to the preperitoneal space. In the space of Retzius on the medial side of the spermatic cord, dissection should be performed just above the preperitoneal fat. In the space of Bogros on the lateral side of the spermatic cord, dissection should be performed just below the preperitoneal fat (immediately above the peritoneum).

(2) Step 2. Identify the anatomy and hernia

The following structures must be identified during surgery: inferior epigastric vessels, pubic bone, Cooper's ligament, spermatic cord, myopectineal orifice, and three hernia sites (deep inguinal ring, Hesselbach's triangle, femoral ring). While external iliac vessels do not require direct visualization, their location beyond the spermatic cord must be noted.

(3) Step 3. Handling of hernia sac

For indirect inguinal hernia, the hernia sac must be separated from the spermatic cord structures using sharp dissection. Within the spermatic cord, the internal spermatic vessels are located on the lateral side, and the ductus deferens is on the medial side. For indirect inguinal hernia, it is not necessary to completely separate the entire hernia sac from the spermatic cord; as shown in the video, it can be divided midway and ligated. However, when the sac is preserved entirely without transection and inverted into the peritoneal cavity, ligation is not necessarily required.

For direct inguinal hernia, the hernia sac consists of preperitoneal fat and peritoneum, appearing as fat, and can be separated from surrounding tissues (transversalis pseudosac) relatively easily using blunt dissection (Fig. 3). For a large direct hernia pseudosac (stretched transversalis fascia), it is recommended to pull and fix it to Cooper's ligament, although no clear size criteria exist (Fig. 4).

(4) Step 4. Parietalization

This is the most critical step in preventing hernia recurrence. Adequate preperitoneal (space of Retzius) and peritoneal (space of Bogros) dissection ensures the mesh covers the myopectineal orifice (Fig. 5). The extent of parietalization should be determined under the assumption that the mesh is in place, ensuring that an appropriate distance is maintained between the mesh's inferior margin and the peritoneal reflection. Although no clear guideline exists for the appropriate distance, many experts suggest approximately 2 cm (Fig. 6).

(5) Step 5. Placement of the mesh

A 15-×10-cm mesh is typically recommended. The mesh should cover all fascial defects in the groin without wrinkles, including Hesselbach's triangle, the deep inguinal ring, and the femoral ring. The use of tacks for mesh fixation is discouraged, and atraumatic mesh fixation (e.g., fibrin glue) is recommended. After placing the

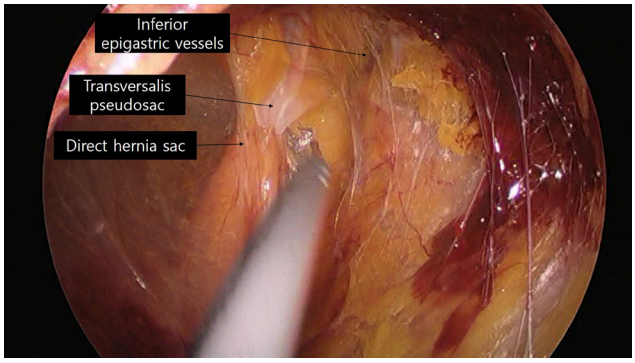

Fig. 3. Surgical view of a direct hernia. The outer layer of the hernia sac consists of preperitoneal tissue.

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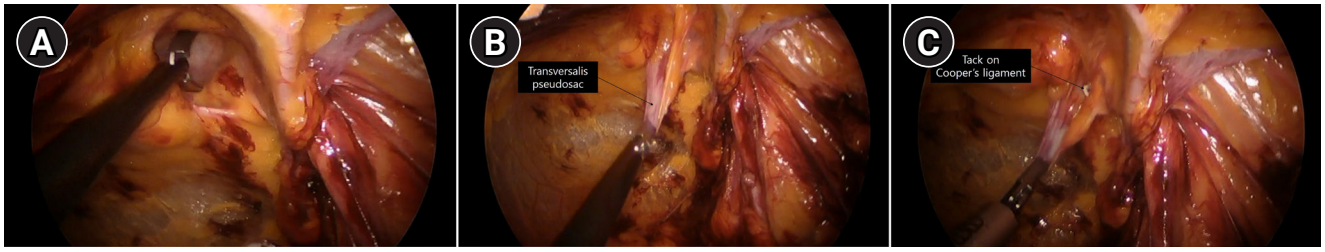

Fig. 4. (A) Appearance after reducing the direct hernia sac. A hernia defect is observed within Hesselbach's triangle on the medial side of the inferior epigastric vessels. (B) The transversalis pseudosac is pulled. (C) The pseudosac is fixed to Cooper's ligament using a tack.

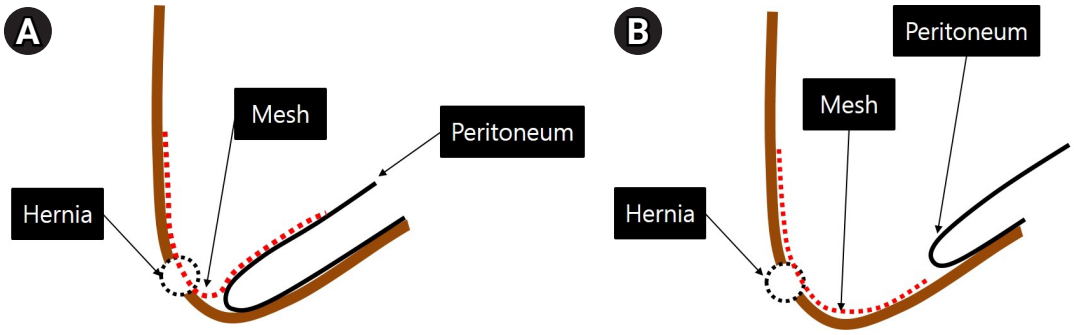

Fig. 5. (A) Insufficient parietalization results in mesh folding after surgery. (B) Adequate parietalization ensures the peritoneum naturally covers the mesh without folding.

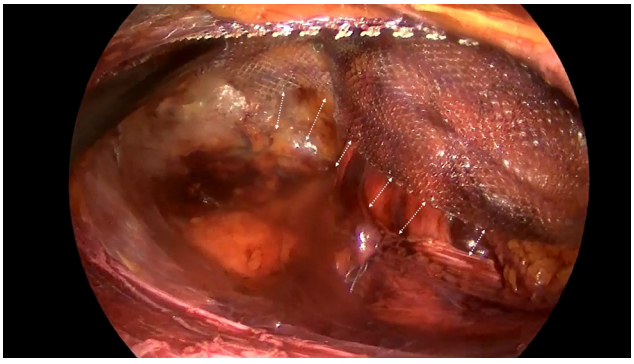

Fig. 6. Maintaining an appropriate distance between the mesh and peritoneal reflection prevents mesh folding after gas removal from the surgical space.

mesh in the correct position, the gas is removed from the operative field, ensuring the mesh remains unfolded until the end.

Discussion

Single-incision laparoscopic (SIL)-TEP is a safe and technically feasible surgical method compared to conventional TEP [4,5]. The greatest advantage of SIL-TEP lies in the space-making step among the five surgical steps. The advantage of single-incision laparoscopic surgery is the ability to expand a small space into a larger one. Through the scope and two working instruments, appropriate traction and counter-traction under direct vision enable delicate dissection. This delicate dissection allows surgery to proceed in a more precise surgical plane, referring to surgery through an embryological avascular plane. Less blood contamination in the operative field enhances surgical precision synergistically. Another technical advantage is during mesh placement. The absence of a supra-pubic port facilitates mesh placement in that area.

Although the indications and contraindications for SIL-TEP are identical to those of conventional TEP and TAPP, the procedure is relatively more technically challenging. For beginners, it is advisable to perform the surgery under the supervision of an experienced hernia surgeon. Additionally, accumulating appropriate

surgical experience before performing the procedure is crucial. Practice in both single-incision surgery and laparoscopic hernia repair techniques is necessary.

Disclosure

No potential conflict of interest relevant to this article was reported.

Author contributions

Conceptualization: MJK, JHK, JMS, CDL; Supervision: MJK, JMS; Writing–original draft: MJK; Writing–review & editing: MJK, JHK, JMS, CDL.

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Technique of Temporary Abdominal Closure Using Negative-Pressure Wound Therapy

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Temporary abdominal closure (TAC) is an abridged technique used after damage control surgery when primary closure is unattainable or can place patients at risk of complications such as intra-abdominal hypertension. Several techniques have been described for TAC. The ideal method should prevent bowel evisceration, prevent abdominal wall retraction or loss of domain, allow removal of infected fluids, and facilitate early definitive closure. Herein, we present a case where negative-pressure wound therapy was used for TAC. We describe the technique's steps, aiming to simplify the procedure for experienced surgeons.

Keywords: Open abdomen techniques; Negative-pressure wound therapy; Intra-abdominal hypertension

Introduction

Temporary abdominal closure (TAC) is the chosen procedure to temporarily cover the exposed area of the open abdomen [1]. Various techniques were employed by surgeons as TAC techniques with different outcomes. Those techniques might include dynamic retention sutures, silo techniques, mesh applications, and negative pressure wound therapy (NPWT) [2].

NPWT is having the advantage of actively removing the infected or the toxin-loaded fluids from the peritoneal cavity while preserving the fascia from major retraction. There are two subtypes of the NPWT: the towel-based NPWT like Barker's vacuum pack and sponge-based NPWT techniques including Ab-Thera Therapy (3M™) and Suprasorb-CNP (Lohmann and Rauscher®). Sponge-based NPWT refers to a method of wound management that involves placing a sponge-like foam interface directly over the wound bed, which is connected to a negative pressure system. We aim to present one of the cases herein explaining the surgical method using towel-based NPWT which is considered a simple and cost-effective method [3].

Ethical statements

With regard to the case report described, an exemption from review was granted by the Institutional Review Board of Asan Medical Center.

Case Presentation

A 54-year-old female with end-stage renal disease had been undergoing peritoneal dialysis since 2005 but was transitioned to hemodialysis in 2008 following an epi-

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sode of peritonitis. She subsequently underwent kidney transplantation in 2010. She presented to the emergency department with fever and was admitted for treatment of pneumonia, during which her ileus progressively worsened. Conservative measures failed to relieve the obstruction, necessitating surgical intervention.

Intraoperative findings revealed a frozen abdomen with extensive adhesions throughout the entire abdominal cavity. Two sites of bowel perforation were noticed, accompanied by severe fecal contamination. One of the perforations was managed with primary repair, while the other required segmental resection and anastomosis. The procedure was prolonged, with an estimated blood loss of approximately 3 L and persistent diffuse oozing noted at the conclusion of surgery. Abdominal gauze packing was performed, and the patient was transferred to the surgical intensive care unit (ICU) unit under vasopressor support.

Over the following 16 hours, the patient underwent aggressive resuscitation. However, her condition deteriorated, with escalating vasopressor requirements and rising serum lactate levels. Bedside re-exploration was performed, revealing a leak at one of the previous perforation sites. The defect was re-closed and reinforced, and NPWT was applied.

Two days later, the patient was returned to the operating room for a second look procedure. The previously repaired segment was resected, followed by stapled anastomosis and creation of end ileostomy. She was subsequently transferred back to the surgical ICU for ongoing postoperative management.

Surgical technique

The technique used is one of the various ways of negative pressure closures called Barker's vacuum pack technique which was first described in 1995 [4]. Our approach is composed of the following steps (video):

1. Bring a sterile, non-adherent, transparent sheet (Vi-Drap Isolation Bag; Cardinal Health™).
2. Trim away any unnecessary portions to create a single large sheet sufficient to cover the exposed bowel. With the assistance of the surgeon's assistant, extend the sheet and create multiple small perforations using a scalpel or scissors to facilitate intra-abdominal fluid drainage.
3. Place the fenestrated sheet over the bowel and under the peritoneum of the anterior abdominal wall.
4. Place a sterile surgical towel to cover the fenestrated sheet encompassing two nasogastric tubes.
5. Apply an outer transparent adhesive layer (Ioban 2 Antimicrobial Incise Drape; 3M™) over the skin and the towel to maintain a closed seal.
6. Connect the two nasogastric tubes to a continuous wall suction at 100–150 mmHg to expel the intra-peritoneal fluid.

Discussion

TAC is a procedure indicated following damage control surgeries in patients with severe abdominal sepsis, trauma and bowel ischemia. It is also recommended after surgical decompression of abdominal compartment syndrome [2,4]. TAC is an abridged technique aiming to decrease the intra-abdominal pressure to improve perfusion to vital intra-abdominal organs while preventing bowel evisceration, minimizing the abdominal wall retraction, and allowing the removal of intraabdominal fluids [2,3]. Most authors agree upon main goals in managing the open abdomen: achieving early definite closure with minimized complications such as enterocutaneous fistula or intra-abdominal collections [1]. However, the optimal management strategy remains controversial in the current literature.

NPWT compared to other types of TAC is considered advantageous in outcomes such as mortality, early definitive closure, fistula and peritoneal abscess formation rates. The lowest mortality rate was observed in patients who underwent NPWT along with a dynamic fascial traction (DFT) [5]. The mortality rate in patients with vacuum pack-only technique—without DFT—was around 27% compared to 17% in patients with DFT. Mortality rate was more prevalent in patients with skin-only closure [6]. Success of primary fascial closure was observed more often too in patients who underwent NPWT with dynamic fascial traction [5,6]. Vacuum pack alone has a lower fistula rate compared to NPWT with DFT [1]. Vacuum pack alone was noticed to be less in rate of peritoneal abscess formation compared to skin-only closure, Slio technique—Bogota bag—and

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DFT [6]. Those collected data might be biased as concluded by their authors, and further evidence is warranted.

Disclosure

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Author contributions

Conceptualization: YRC, SKH; Data curation: YRC, SKH; Supervision: YRC, SKH; Writing–original draft: AA, YRC; Writing–review & editing: AA, YRC, SKH.

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Dynamic Educational Manuscript

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Different Choices of Surgical Methods for Duodenal Gastrointestinal Stromal Tumors

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Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal (GI) tract. Although GISTs can occur anywhere along the GI tract, they are most frequently found in the stomach and small intestine. Duodenal GISTs are rare but clinically significant due to their symptomatology and potential for malignant transformation. Surgical resection remains the cornerstone of curative treatment. Laparoscopic surgery is now the main method for duodenal GIST due to its advantages, including a faster recovery, less pain, and shorter hospital stay. In this video, we demonstrate how we make different choices regarding the surgical methods for duodenal GIST during operation. The technical points are as follows: (1) preliminary judgment of the tumor location according to the preoperative computed tomography scan and gastroscopy findings, (2) fine dissection of the soft tissue and vessels around the duodenum, (3) intraoperative gastroscopy to confirm the tumor location, (4) the final decision regarding the surgical method according to the tumor location and size, (5) confirmation of luminal patency and hemostasis by intraoperative endoscopy.

Chapter Summary

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00:04:47 Mark the potential resection margin with the help of endoscopy
00:04:55 Isolate the duodenum and the tumor
00:06:03 Mark the starting point
00:06:15 Open the serosa of the duodenum near the tumor
00:06:25 Whole-layer resection of the tumor
00:06:35 Remove the tumor
00:06:37 Continuous suture the duodenum
00:07:02 Final pathology report

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Methods of Insertion and Examination in Esophagogastroduodenoscopy: A Comprehensive Video Guide

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Esophagogastroduodenoscopy (EGD) is a fundamental diagnostic and therapeutic modality for various gastrointestinal diseases. As endoscopic techniques evolve, mastering the step-by-step process of EGD—including insertion, navigation, and systematic observation—is essential for ensuring patient safety and diagnostic accuracy. This video article provides a comprehensive, narrated demonstration of the techniques involved in EGD, from patient preparation to scope control and anatomical orientation. It emphasizes key technical details such as endoscope handling, the role of hand movements in scope navigation, and systematic evaluation of the esophagus, stomach, and duodenum. All demonstrations were performed using a simulation model (UGI Endoscopy Simulator; MEDICAL IP, Korea) with an Olympus GIF-HQ290 endoscope. This educational video serves as a practical guide for trainees seeking to refine their technique and increase procedural efficacy.

Chapter Summary

Disclosure

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JSIE Journal of Surgical Innovation and Education

Instructions for authors

Enacted June 30, 2024

GENERAL INFORMATION

Journal of Surgical Innovation and Education (J Surg Innov Educ, JSIE; pISSN 3022-9065/eISSN 3022-9073) is the official journal of the Korean Surgical Skill Study Group. Launched on June 30, 2024, with its inaugural issue as volume 1, number 1, JSIE is published biannually in English on the last day of June and December. JSIE is a peer-reviewed scientific journal dedicated to the advancement of surgical education and the dissemination of innovative surgical techniques. The journal's goal is to serve as an indispensable resource for surgeons, trainees, and healthcare professionals seeking to embrace innovation and refine their surgical practice in all surgical disciplines.

- Promote the development of innovative surgical procedures and technology.
- Ensure more effective transfer of surgery-related details and knowledge.
- Provide an immersive learning experience through high-definition surgical video demonstrations.
- Bridge the gap between traditional surgical education and the evolving demands of modern surgical practices.

JSIE publishes Original Articles, Review Articles, Short Communications, Letters to the Editor, and Editorials. This journal follows the Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (https://www.icmje.org/) in cases not described otherwise below.

MANUSCRIPT PREPARATION

1. Reporting Guidelines for Specific Study Designs

Research reports frequently omit important information. Therefore, reporting guidelines have been developed for several study designs that some journals may ask authors to follow. JSIE encourages authors to consult the reporting guidelines relevant to their specific research design. A good source of reporting guidelines is the EQUATOR Network (https://www.equator-network.org/home/) and the United States National Institutes of Health/National Library of Medicine (https://www.nlm.nih.gov/services/research_report_guide.html).

2. Article Types

The journal welcomes high-quality papers, and the following article types are considered for publication:

A. Original Articles
- Clinical Trials
- Observational Studies (cohort, case-control)
- Innovative Technology/Procedure (including video)
  - Papers in this category describe new technologies/procedures and their evaluation. Any such manuscript must report data on the benefits, efficacy, and/or safety of the technology, regardless of whether it is experimental or clinical.
- How I Do It (include video)
- Dynamic Educational Manuscripts (video tutorial)
- Reviews (including systematic reviews and meta-analyses)

B. Case Reports
C. Short Communications
D. Letters to the Editor
E. Editorials

All manuscripts submitted to JSIE must be original, not published elsewhere, except in abstract form, and should not be under consideration for publication elsewhere.

JSIE will consider manuscripts prepared according to the instructions below. Other types are also negotiable with the Editorial Board.

3. Organization of the Manuscript

A. General Requirements and Manuscript Structure

Manuscripts should be composed in clear and concise English. Authors are encouraged to strive for clarity, brevity, and precision in both information

and language.

The main body and tables should be formatted as an MS Word file (.doc, .docx). Figures must be in .jpg, .gif, .tiff, or .pdf files. Use 12-point Calibri, Arial, or Times New Roman, double-spaced, with 3.0 cm margins on all four sides. Avoid using bold, italic, or underlining within the text, except for exceptional circumstances when this is necessary for clarity. Abbreviations should be generally avoided (except for units of measurement). When used, they should be defined the first time that they appear in the manuscript. Units of measurement must conform to the International System (SI) of Units, with the following abbreviations: year(s), yr; month(s), mo; day(s), day; hours, hr; minutes, min; second(s), sec; grams, g; liters, L; meters, m; sample size, n; degrees of freedom, df; standard error of the mean, SEM; standard deviation, SD; probability, p.

All original article manuscripts except for "How I Do It", "Dynamic Educational Manuscripts", and "Reviews" should be prepared as follows:

a. Title Page

- Article type
- Full title of the manuscript. The title should be as brief as possible. A running title should also be included, not exceeding 40 characters.
- List of authors: The first and last names of each author should be given, along with their highest academic degree. Authors should fulfill the International Committee of Medical Journal Editors (ICMJE) authorship criteria (https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html). All authors are recommended to provide an ORCID (Open Researcher and Contributor ID; to obtain an ORCID, authors can register at the ORCID web site: https://orcid.org).
- Authors' affiliations: The department and institutional affiliation for each author should be given.
- The name, address, telephone, and email of the author to whom correspondence being addressed should be provided.
- Funding information specific to this paper. For each source of funding, both the research funder and the grant number (if available) should be given.

b. Abstract

- The abstract should be structured (Background, Methods, Results, and Conclusions) and should not exceed 300 words.
- Up to six keywords from the MeSH (Medical Subject Heading) of Index Medicus should be given, separated by a semicolon.
- Abstracts for "How I Do It" and "Dynamic Educational Manuscripts" do not need to follow this structure; a free-form format is acceptable.

c. Main Text

The main text should be organized in the following order: Introduction, Materials and Methods, Results, Discussion, Disclosure, Acknowledgments, References, and Figure legends. The position of figures and tables should be indicated in the text. Tables and Figures should be prepared separately. The text should not exceed 3,500 words (excluding abstract, references, tables, figures, and legends to figures and illustrations), and there should be no more than seven tables and figures in total, if possible.

- Introduction: Briefly describe the purpose(s) of the investigation, including relevant background information.
- Materials and Methods: Describe the research plan, materials or subjects, and methods used. Explain in detail how the disease was confirmed and how subjectivity in observations was controlled. When experimental methodology is the main issue of the paper, describe the process in detail to enable a reader to recreate the experiment as precisely as possible. When quoting specific materials, equipment, or proprietary drugs, the name of the manufacturer must be given in parentheses. Generic names should be used instead of commercial names. Clearly describe the selection of observational or experimental participants (healthy individuals or patients, including controls), including eligibility and exclusion criteria and a description of the source population. Because the relevance of such variables as age,

sex, or ethnicity is not always known at the time of study design, researchers should aim for the inclusion of representative populations into all study types and at a minimum provide descriptive data for these and other relevant demographic variables.

Ensure correct use of the terms sex (when reporting biological factors) and gender (identity, psychosocial or cultural factors), and, unless inappropriate, report the sex and/or gender of study participants, the sex of animals or cells, and describe the methods used to determine sex and gender. If the study was done involving an exclusive population, for example in only one sex, authors should justify why, except in obvious cases (e.g., prostate cancer). Authors should define how they determined race or ethnicity and justify their relevance.

- Results: Results should be presented in logical sequence in the text, tables, and illustrations, and repetitive presentation of the same data in different forms should be avoided. Any data mentioned in the Methods must be presented in the Results section.
- Discussion: The results should be interpreted for readers. Emphasize new and important observations. Do not merely repeat the contents of the Results. Explain the meaning of the observations, along with relevant limitations. The answer to the purpose of the research should be connected to the results.
- Disclosures: Disclosures are required for each author, and every conflict of interest must be clearly disclosed.
- Acknowledgments: Individuals who contributed to the research but not significantly enough to be credited as authors can be acknowledged in this section.
- Author Contribution: Enter all author contributions in the submission system during submission.

  To qualify for authorship, all contributors must meet at least one of the seven core contributions by CRediT (conceptualization, methodology, software, validation, formal analysis, investigation, data curation), as well as at least one of the writing contributions (original draft preparation, review, and editing). Authors may also satisfy the other remaining contributions; however, these alone will not qualify them for authorship.

  Contributions will be published with the final article, and they should accurately reflect contributions to the work. The submitting author is responsible for completing this information at submission, and it is expected that all authors will have reviewed, discussed, and agreed to their individual contributions prior to manuscript submission.
- References: In the text, references should be cited with Arabic numerals in brackets, numbered in the order cited. In the References section, the references should be numbered and listed in order of appearance in the text. All references should be presented in English, including the author, title, and the name of the journal. In the References section, journals should be abbreviated according to the style used in the list of journals indexed in the NLM Journal Catalog (https://www.ncbi.nlm.nih.gov/nlmcatalog/journals). Journal titles that are not listed in the Catalog should follow the ISO abbreviation as described in Access to the LTWA (List of Title Word Abbreviations; https://www.issn.org/services/online-services/access-to-the-ltwa). If there are six or fewer authors, all the authors should be recorded, and if there are seven or more authors, “et al.” should be placed after the first six authors. Please see the following recommended citation style:

  The References follow the NLM Style Guide for Authors, Editors, and Publishers (https://www.ncbi.nlm.nih.gov/books/NBK7256/) if not specified below.

  In principle, the number of references is limited to 50 for original articles. Exceptions can be made only with the agreement of the Editor.

  • Journal articles

  1. Jung S, Lee HS. Robotic transabdominal preperitoneal repair for bilateral obturator hernia: a video vignette. J Minim Invasive

Surg. 2024;27:40-43.

2. Yang HJ, Lee H, Kim TJ, Jung DH, Choi KD, Ahn JY, et al. A modified eCura system to stratify the risk of lymph node metastasis in undifferentiated-type early gastric cancer after endoscopic resection. J Gastric Cancer. 2024 Jan 10 [Epub]. DOI: 10.5230/jgc.2024.24.e13

• Books and book chapters

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• Online sources

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- Tables: Present tables in consecutive order of their appearance in the main body, followed by table captions. Avoid explaining content in the tables that is already visible in figures. Ensure that the contents are presented clearly and concisely in English, allowing readers to understand the table without needing to refer to the main body. Include footnotes below the tables and define all abbreviations that are not standard in this field in footnotes. Indicate footnotes in tables in superscripts as a), b), c). Statistical values, such as standard error of the mean (SEM), should be presented. Omit vertical and horizontal lines in the tables.
- Figures: Figures include graphs or images. Authors are required to provide save each image in a separate file with either uncompressed TIFF, GIF, JPEG, or EPS format. When citing separate figures, supply captions such as “Figure 1A” and “Figure 1B.” JSIE encourages authors to use color to increase the clarity of figures. Provide brief and easy-to-read footnotes. The minimum resolution required is 300 dpi (dots per inch) or 3 million pixels, as per the Guidelines for Digital Art (http://art.cadmus.com/da/guidelines.jsp). To cite figures that have been previously published, a written consent is required, and a copy of the permission letter(s) must be attached. Figure legends should be typed double-spaced on a separate sheet at the end of the manuscript. Symbols, arrows, and letters should be used to indicate parts of illustrations. Each figure should be referred to in the text consecutively and should be numbered according in order of citation. All images must be correctly exposed, sharply focused, and prepared in files of 300 dpi or more.
- Videos: Video clips related to surgery and advanced surgical techniques can be submitted for placement on the Journal website. The video may be up to 15 minutes in duration with a maximum file size of 2 gigabytes. Video exceeding 2 gigabytes should be sent via email (support@m2-pi.com). The available video formats are Windows Media Player (.wmv), MPEG (.mpg, .mpeg), Audio Video Interleave (.avi), and QuickTime (.mov). Free video editing assistance will be provided for submitted videos. There should be no audio narration in the videos, except for Dynamic Educational Manuscripts. Only written scripts (subtitles) should be used.

B. How I Do It

Manuscripts for “How I Do It” should be organized in the following order: Title page, Abstract, Introduction, Case Presentation, Discussion, Disclosure, Acknowledgements, References, and Figure legends. The title page and abstract should meet the general requirements outlined in the section above. The position of figures and tables should be indicated in the text. Tables and Figures should be prepared separately. These should be presented as briefly as possible. Succinct articles are more likely to be accepted for publication. Manuscript should be no more than 1,000 words, with a maximum of 10 references and 5 tables/figures in total (i.e.,

the total number of tables and figures and tables should not exceed 5). The title page should be the first page. The Case Presentation section should not include any detailed information that can be used to identify the patient. Only a brief clinical information should be included that is relevant to the technique or procedure described in the paper. When using specific patient information and photos the Release Form for Photographs of Identifiable Patients or consent from the patient(s) and IRB approval might be required. All information that may reveal the patient identification or the hospital, including the date, must be omitted from images. Video clips that are presented in manuscripts should not exceed 15 minutes and must meet the requirements of video materials in the "Dynamic Educational Manuscripts" category, except for audio narration.

C. Dynamic Educational Manuscripts (video tutorials)

Dynamic manuscripts are submitted as video articles accompanied by regular text abstracts, which will play when the hyperlink is selected. A dynamic manuscript is recommended as a way for authors to demonstrate the details of surgical skill or technology with a video and explanation.

- Examples of this category could include: live demonstration or an intraoperative segment of the details of a surgical procedure/technology, a narrated educational lecture in any field of surgery, a surgical endoscopic procedure, a bed-side procedure, or a physical examination.
- References: Include no more than ten references below the chapter summary. Ensure all references follow the guideline stated in the Reference section above.
- Requirements:
- The video file resolution aspect ratio must be preferably 16:9 or alternatively 4:3.
- Video clips should not exceed 15 minutes in total.
- A high-quality audio narration in English must accompany the video. (Only for Dynamic Educational Manuscript)
- The maximum size for all files (including videos) in the submission is 2 gigabytes.
- Please submit a detailed chapter summary with time stamps and titles for key points in your video content.

  Ex) 00:00:01 Introduction
  00:00:10 Case summary
  00:00:26 History of present illness

- Do not use any soundtrack.
- Annotation of anatomic structurestructures or a brief explanation is encouraged.

D. Review Articles

Review articles provide concise reviews of subjects important to medical researchers and can be written by an invited medical expert. Both solicited and unsolicited review articles will undergo peer review prior to acceptance.

These have the same format as original articles, but the details may be more flexible depending on the content. The length of the manuscript should not exceed 5,000 words, 100 references, and no more than seven tables and figures in total, if possible. The abstract should not exceed 300 words and must be written as one unstructured paragraph.

E. Case Reports

Manuscripts for "Case Reports" should follow the same format and submission requirements as those for "How I Do It," including organization, word limits, references, and figure/table restrictions. The required sections are: Title page, Abstract, Introduction, Case Presentation, Discussion, Disclosure, Acknowledgements, References, and Figure Legends. However, unlike "How I Do It," video clips are not required and should not be submitted for Case Reports. All patient-identifiable information must be omitted or anonymized, and appropriate consent and IRB approval may be required for clinical images or details.

F. Short Communications

A Short Communication generally takes one of the following forms: A substantial re-analysis of a previously published article in JSIE or in another

journal; a brief report on the comments and discussion of a previously published article about the surgical techniques described in the "How I Do It" or "Dynamic Educational Manuscript" types; an article that may not cover "'standard research" but that is of general interest to the broad readership of JSIE; a brief report of research findings adequate for the journal's scope and of particular interest to the community.

An abstract is required in an unstructured format. The word count of the main text should not exceed 1,000, and the total number of references is recommended to be equal to or less than 10. A submission in this category may be edited for clarity or length and may be subject to peer review at the editors' discretion.

G. Letters to the Editor

Any opinion or inquiry on a published paper can be addressed to the Editorial Board. An abstract is not required. A title page, main text, and references are required. The total number of references is recommended to be equal to or less than 5. The word count of the main text should be equal to or less than 1,500.

H. Editorials

An Editorial is usually invited by the Editorial Board. An abstract is not necessary. Title page, main text, and references are required. The total number of references is recommended to be equal to or less than 10. The word count of the main text should be equal to or less than 1,500.

MANUSCRIPT SUBMISSION AND PEER REVIEW

1. Online Submission

Submission is processed online, via the electronic manuscript management system, https://submit.jsiejournal.org. Authors are required to attach the manuscript file, copyright form, and checklists. Every document, including the manuscript and tables, must be prepared in MS Word.

Questions regarding manuscript submission may be sent to the JSIE Editorial Office.

- Tel: 070-8691-1704, 1705
- E-mail: 2008surgeryedu@gmail.com

2. Peer Review Process

Each manuscript is reviewed by at least two independent reviewers. The reviewers of the journal are recruited from various specialties related to the topic. To ensure fair reviews, the process is double-blinded. Authors are required to complete revisions requested by the editors within 4 weeks. If the revised version is not submitted within 4 weeks, the submission will be considered as withdrawn by the author.

3. Cover Letter

The cover letter should inform the editor that neither the submitted material nor portions have been published previously or are under consideration for publication elsewhere. The authors should also explain why the submitted manuscript should be reviewed and considered for publication for JSIE.

4. Feedback after Publication

If authors or readers find any errors, or contents that should be revised, a request can be made to the Editorial Board. The Editorial Board may consider an erratum, corrigendum, or retraction. If a reader submits an opinion on a published article in the form of a letter to the editor, it will be forwarded to the authors. The authors are then able to respond to the reader's letter. Both the letters to the editor and the authors' replies may also be published.

5. Article Processing Charge

There are no author submission fees or other publication-related charges. All costs for the publication process are supported by the Publisher except for English editing service. JSIE is a platinum open-access journal that does not charge author fees.

JSIE Journal of Surgical Innovation and Education

Checklist

- ☐ Authors have written the manuscript in compliance with Instructions for Authors and Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (http://www.icmje.org) from the International Committee of Medical Journal Editors, and the Guideline of Committee on Publication Ethics (https://publicationethics.org).
- ☐ Authors have omitted names and organizations in the manuscript submitted for review.
- ☐ The title page should include the title, author(s) full name(s), written as First Name then Last Name, and the name(s) of the affiliation(s), contact information of the corresponding author(s), ORCID, and notes.
- ☐ A running title should be no more than 40 characters including spaces.
- ☐ For original articles, the abstract should be within 300 words in the structure of Background, Methods, Results, and Conclusions. For reviews articles, short communications, how I do it, and dynamic educational manuscript include an unstructured abstract of no more than 300 words.
- ☐ The abstract should be included in the manuscript, regardless of whether it is included in the submission system.
- ☐ Up to six keywords should be included (those recommended in MeSH; http://www.ncbi.nlm.nih.gov/mesh).
- ☐ Information regarding the approval of an institutional review board and obtaining informed consent should be mentioned in article.
- ☐ The number of references is limited to 50 (for original articles), 100 (for reviews), or 10 (for short communication, How I Do It, and Editorials).
- ☐ Each figure should be uploaded as a separate file and should not be included in the main text. The file name of each figure should be the figure number.
- ☐ Figures must be prepared in no less than 300 dpi.
- ☐ The video may be up to 15 minutes in duration with a maximum file size of 2 gigabytes.
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