DOI: 10.7860/JCDR/2026/81669.22232

Review Article

Surgery Section

Extraperitoneal Repair (TEP) versus Transabdominal Preperitoneal Repair (TAPP): A Comprehensive Review of Indications, Surgical Techniques and Patient Outcomes

SHRADDHA GAJBHIYE[1], IMRAN ALI KHAN[2], ANUP ZADE[3]

ABSTRACT

Laparoscopic inguinal hernia repair is now favoured over open surgery due to quicker recovery and better outcomes. The two main laparoscopic techniques are Totally Extraperitoneal (TEP) and Transabdominal Preperitoneal (TAPP) repair, chosen based on patient and procedural factors. TEP avoids the peritoneal cavity, making it suitable for primary, uncomplicated hernias, while TAPP enters the peritoneal cavity, providing better visualisation for complex or recurrent cases. Both techniques yield low recurrence rates and similar recovery profiles, though TEP may cause less chronic pain and adhesions. TAPP, however, offers greater flexibility and clearer intra-abdominal access. TEP requires advanced skill, whereas TAPP involves risks of peritoneal injury. Ultimately, the choice depends on patient-specific factors and surgical expertise, with ongoing research needed to improve and combine these approaches.

Keywords: Minimally invasive surgical procedures, Postoperative complications, Treatment outcome

INTRODUCTION

Laparoscopic inguinal hernia repair has revolutionised the management of inguinal hernias, offering a minimally invasive alternative to traditional open techniques. Introduced in the 1990s, laparoscopic methods utilise advanced surgical instrumentation and imaging to enable precise dissection and repair within the preperitoneal space [1]. These techniques are associated with reduced postoperative pain, faster recovery, and improved cosmetic results compared to open surgery. Two techniques have become predominant in laparoscopic approaches: TEP repair and the TAPP repair [2]. While both involve placement of a mesh to reinforce the hernia defect, their methodologies differ significantly. TEP avoids entry into the peritoneal cavity, minimising the risk of intraperitoneal complications. In contrast, TAPP accesses the preperitoneal space through the peritoneal cavity, making it more versatile for complex hernias or cases with prior abdominal surgeries. Understanding these differences is vital for selecting the most suitable approach for patients [3].

The comparison of TEP and TAPP holds excellent significance in surgical decision-making. The choice of technique depends on various factors, including patient anatomy, previous surgical history, and surgeon expertise, each impacting outcomes such as operative time, postoperative pain, recurrence rates, and complications [3]. TEP is often favoured for its reduced invasiveness and lower risk of intraperitoneal adhesions, while TAPP is preferred for its superior visualisation and adaptability in addressing complex or recurrent hernias. However, more consensus is needed regarding the superiority of one method over the other, highlighting the importance of detailed comparative analyses [4]. The primary objective of this review is to comprehensively analyse the indications, surgical techniques, and outcomes associated with TEP and TAPP. This includes identifying the specific scenarios where each technique is most appropriate, detailing the procedural nuances, and comparing patient outcomes such as pain levels, complication rates, recurrence, and recovery times. By examining these aspects, the review seeks to establish a framework for tailoring surgical approaches to individual patient needs, thereby enhancing the practice of laparoscopic hernia repair.

General indications for laparoscopic hernia repair: Laparoscopic hernia repair is indicated for various inguinal hernias. Recurrent hernias can be effectively treated using laparoscopic techniques, which provide minimally invasive treatment with reduced recovery time [4]. For bilateral hernias, simultaneous repair through minimally invasive techniques shortens surgical time and enhances recovery [5,6]. Symptomatic primary hernias are also suitable for laparoscopic intervention, which minimises postoperative complications [Table/Fig-1] [7,8].

Specific indications for TEP and TAPP: When considering the specific techniques of TEP (TEP repair) and TAPP (TAPP repair), certain patient factors are crucial in determining the most appropriate method. TEP is ideally suited for patients with no prior abdominal surgeries. This technique allows surgeons to create a preperitoneal space without entering the abdominal cavity, which can help avoid complications related to previous operations, such as adhesions. The extraperitoneal approach also tends to result in lower postoperative pain levels and a reduced risk of complications associated with visceral injury [9]. On the other hand, TAPP is particularly beneficial for patients with prior lower abdominal surgeries or those presenting with complex hernias. This method involves entering the abdominal cavity, which provides better access for visualisation and management of complicated cases. TAPP is especially useful in situations involving large scrotal or incarcerated hernias, where direct access to the abdominal cavity is necessary for effective repair [10,11]. Ultimately, the choice between TEP and TAPP should be guided by individual patient history and the complexity of the hernia being addressed, ensuring optimal outcomes tailored to each patient's needs [Table/Fig-2] [3,12].

Surgical Techniques

Technical overview of TEP: The TEP technique begins with the placement of three ports: one for the camera and two for working instruments. These ports are typically positioned in the lower abdomen to facilitate access to the extraperitoneal space. The initial step involves creating this space without entering the peritoneal cavity, which is achieved using a balloon dissector or a finger [10].

Category	Subcategory	Specific indications	Examples/Scenarios	Clinical rationale
Patient factors [7]	Age	Young and active individuals	Athletes, manual labourers	Need for faster recovery and return to activity.
	General health	Patients without significant contraindications to general anaesthesia	Patients with good cardiovascular health	Tolerability of pneumoperitoneum and laparoscopic procedures.
Hernia characteristics [8]	Recurrent hernia	Recurrence after open surgical repair	Recurrent inguinal hernia	Laparoscopy allows better access and visualisation of recurrence.
	Bilateral hernias	Hernias on both sides of the groin	Bilateral inguinal hernias	Simultaneous repair with minimal additional operative time.
	Large hernia defects	Large but reducible hernias	Reducible ventral hernia	Enables mesh placement over a wider area.
Type of hernia [8]	Inguinal hernias	Commonly recommended for inguinal hernia repair	Direct and indirect inguinal hernias	Better cosmetic and functional outcomes.
	Ventral and umbilical hernias	Small to medium-sized ventral or umbilical hernias	Small ventral hernia in a healthy adult	Minimally invasive approach reduces complications.
	Femoral hernias	Femoral hernia repair	Women with reducible femoral hernia	Laparoscopy provides enhanced view of femoral canal.

[Table/Fig-1]: General indications for laparoscopic hernia repair [7,8].

Category	Indication	TEP	TAPP	Rationale for choice
Hernia type [12]	Primary inguinal hernia	Preferred due to limited anatomical dissection	Suitable for better visualisation of the abdominal cavity	TEP avoids peritoneal entry, reducing the risk of complications; TAPP allows comprehensive anatomical view.
	Bilateral hernia	Highly effective for simultaneous repair	Equally effective for bilateral repair	Both techniques minimise additional operative time for bilateral cases.
	Recurrent hernia	After the previous open repair	More effective after failed TEP or open repair	TAPP provides superior visualisation in recurrent cases.
	Femoral hernia	Feasible but technically challenging	Preferred approach due to improved access	TAPP ensures better visualisation of the femoral canal.
	Large hernias	Can be performed with expertise	Preferred for larger defects	TAPP offers easier handling of large defects.
Patient factors [7]	Obese patients	Feasible but may be technically challenging due to limited working space in the preperitoneal space	Preferred due to easier access and larger working space	TAPP minimises the technical difficulties posed by obesity.
	Thin patients	Preferred due to minimal abdominal trauma	Equally suitable	TEP avoids unnecessary entry into the peritoneal cavity.
	Previous abdominal surgery	Less suitable if significant abdominal adhesions are expected	Better suited as it allows safe navigation around adhesions	TAPP facilitates assessment and safe dissection in patients with prior abdominal surgery.
Procedural considerations [13]	Need for diagnostic evaluation	Not suitable	Suitable for concurrent diagnostic evaluation of intra-abdominal pathologies	TAPP allows both diagnostic and therapeutic interventions.
	Emergency surgery	Not ideal due to a lack of access to the abdominal cavity	More suited for incarcerated or strangulated hernias requiring abdominal evaluation	TAPP ensures evaluation of bowel viability and repair.
	Surgeon expertise	Requires expertise in creating and maintaining the preperitoneal space	Slightly easier learning curve	TAPP is more forgiving for less experienced surgeons.
	Postoperative pain	Associated with slightly reduced postoperative pain due to no entry into the peritoneal cavity	Slightly higher postoperative pain due to peritoneal dissection	TEP minimises peritoneal trauma.
Cosmetic outcomes [14]	Patient preference for minimal scars	Preferred due to fewer incisions	Suitable, but additional port placement may leave more scars	TEP offers better cosmetic outcomes in highly cosmetic-conscious patients.

[Table/Fig-2]: Specific indications for TEP and TAPP: comparative analysis based on clinical scenarios [3,7,12].

This extraperitoneal approach minimises the risks associated with intra-abdominal manipulation and significantly reduces the likelihood of adhesion formation post-surgery. Once the extraperitoneal space is adequately developed, the surgeon reduces the hernia sac and places a mesh prosthesis over the hernia defect. The mesh is fixed using tacks or surgical glue, ensuring stability and preventing recurrence. This technique's focus on avoiding peritoneal entry contributes to its advantages, including lower rates of postoperative complications related to intra-abdominal organs [13].

Technical overview of TAPP: In contrast, the TAPP technique involves an initial entry into the abdominal cavity through a trocar, allowing for direct visualisation of intra-abdominal structures [3]. This access facilitates the creation of a peritoneal flap by incising the peritoneum, which is dissected away from the abdominal wall to expose the preperitoneal space. After establishing this access, a mesh prosthesis is placed over the hernia defect like TEP. However, in TAPP, the peritoneal flap is carefully closed after mesh placement to restore the integrity of the peritoneum. This technique offers distinct advantages, such as improved visibility of both inguinal regions and easier management of bilateral hernias, making it particularly useful in complex cases [3].

Comparison of intraoperative challenges: Both TEP and TAPP present unique intraoperative challenges that can influence surgical outcomes. The learning curve associated with each technique varies;

TEP may require more specialised training due to its extraperitoneal approach, which can be technically demanding for some surgeons [14]. Conversely, TAPP may be more intuitive for those familiar with traditional laparoscopic methods because it involves accessing the peritoneal cavity. In terms of complications, both techniques carry risks, including bowel and vascular injuries. While bowel injury is a concern during TAPP due to its entry into the peritoneal cavity, TEP poses risks during dissection within the extraperitoneal space. Although both techniques have low rates of vascular injury, TAPP may have a slightly higher incidence due to its deeper access to abdominal structures [14].

Advantages and limitations: The advantages and limitations of TEP and TAPP further differentiate these techniques. TEP's primary advantage lies in its avoidance of entry into the peritoneal cavity, which leads to fewer adhesions and related postoperative complications [14]. Additionally, it is generally associated with shorter operative times and reduced postoperative pain compared with TAPP. However, TEP can be technically challenging for inexperienced surgeons and may have higher conversion rates to open surgery in some cases. On the other hand, TAPP provides better visualisation of both inguinal regions and allows easier management of bilateral hernias, making it suitable for complex surgical scenarios. However, this technique carries an increased risk of seromas, potential complications related to peritoneal closure, and longer operative times that could affect overall surgical efficiency [14].

Patient Outcomes in TEP vs. TAPP

Postoperative pain and recovery: Comparative data on postoperative pain scores show that patients undergoing TEP repair generally report lower pain levels than those undergoing TAPP repair. TEP patients experience less severe pain on the Visual Analog Scale (VAS), particularly during the first week after surgery. This difference in pain perception contributes to a more comfortable recovery for TEP patients. Regarding return to daily activities, the time course is relatively similar between the two techniques [15]. For instance, one study indicated that patients returned to walking at approximately 8.5 days post-TEP and 8.6 days post-TAPP, while the mean time to return to work was about 4.9 weeks for TEP and 5.0 weeks for TAPP [16].

Recurrence rates: When analysing recurrence rates, both TEP and TAPP demonstrate comparable outcomes. A meta-analysis has indicated no significant difference in recurrence rates between the two methods, with both techniques showing low recurrence rates over various follow-up periods [17]. Specifically, one study found no statistically significant differences in recurrence rates between TEP and TAPP repairs, with a p-value of 0.471, suggesting that both approaches are equally effective in preventing hernia recurrence [18].

Complication rates: The incidence of short-term complications, such as seromas and haematomas, between TEP and TAPP techniques appears similar. Research comparing intraoperative complications has reported seroma formation in one patient from the TAPP group and none from the TEP group; however, overall complication rates remain low for both methods. Long-term complications are also a concern, particularly chronic pain [19]. Research indicates that chronic groin pain occurs at similar rates for both techniques, with no significant differences found (p-value=0.593). Additionally, while adhesion formation is generally considered more prevalent in TAPP due to its entry into the peritoneal cavity, specific long-term data directly comparing adhesion-related complications between the two techniques remains limited [16].

Quality of life assessments: Quality-of-life assessments following inguinal hernia repair reveal that both techniques yield high patient satisfaction rates. Patients typically report significant improvements in their quality of life after surgery, with many studies indicating no substantial differences in patient-reported outcomes or satisfaction levels between those who underwent TEP versus TAPP repairs. The emphasis on minimising postoperative pain and facilitating a rapid return to normal activities contributes to overall patient satisfaction [20-22].

Cost-effectiveness and Training Requirements in TEP vs. TAPP

Cost implications: Several factors come into play when evaluating the cost implications of TEP and TAPP techniques for inguinal hernia repair. One significant aspect is the operative costs associated with each method [23]. Studies have shown that mean operative time tends to be longer for TAPP than TEP, with average times reported at approximately 99.73 minutes for TAPP versus 78.33 minutes for TEP. This difference in operative duration can lead to increased costs due to extended use of operating room resources, including staff time and equipment [24]. In addition to the direct costs of surgery, the length of hospital stay plays a crucial role in the overall financial implications of each technique. Research indicates that patients undergoing TAPP generally have a longer average hospital stay of around 2.80 days, compared with about 2.07 days for TEP [24]. Longer hospitalisations incur higher room charges and increase nursing care costs and other related expenses. Furthermore, the potential for complications, which may be slightly more prevalent in TAPP cases, can lead to additional long-term costs related to follow-up treatments or even reoperations [25].

Surgeon training and learning curve: The training requirements and learning curve associated with TEP and TAPP are critical considerations for surgical teams. The complexity of these procedures varies significantly: TEP is often viewed as more technically challenging because it requires precise dissection of the preperitoneal space without entering the peritoneal cavity. This complexity can result in a steeper learning curve for surgeons new to laparoscopic techniques. In contrast, TAPP may be easier to learn due to its direct access to the abdominal cavity, which allows for better visualisation and manipulation of tissues [26]. Structured training programs are essential to address the challenges posed by the learning curve in TEP. These programs should incorporate simulation-based learning and supervised practice to help surgeons gain proficiency in this technique. Less experienced surgeons should perform initial cases under mentorship or alongside colleagues who are well-versed in laparoscopic procedures. Ongoing education through workshops and hands-on training sessions can further enhance surgical skills in TEP and TAPP techniques [27].

CONCLUSION(S)

In conclusion, TEP repair and TAPP repair represent effective and widely accepted laparoscopic techniques for inguinal hernia repair, each with unique advantages and limitations. TEP is often preferred for its minimally invasive approach, avoiding entry into the peritoneal cavity and reducing the risk of intraperitoneal complications. Conversely, TAPP provides superior visualisation and is particularly beneficial for complex cases, such as recurrent or bilateral hernias, or when intra-abdominal evaluation is required. The choice between these techniques should be guided by patient-specific factors, such as anatomy, surgical history, and the nature of the hernia, alongside the surgeon's expertise and institutional resources. By understanding the nuances of each approach and their respective impacts on patient outcomes, clinicians can tailor their strategies to achieve optimal results, advancing the standard of care in laparoscopic hernia repair.

REFERENCES

[1] Carter J, Duh QY. Laparoscopic repair of inguinal hernias. World J Surg [Internet]. 2011 [cited 2024 Dec 7];35(7):1519-25. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3140939/.

[2] Iuamoto LR, Kato JM, Meyer A, Blanc P. Laparoscopic totally extraperitoneal (TEP) hernioplasty using two trocars: Anatomical landmarks and surgical technique. Arq Bras Cir Dig [Internet]. 2015 [cited 2024 Dec 7];28(2):121-23. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4737334/.

[3] Bittner R, Arregui ME, Bisgaard T, Dudai M, Fersli GS, Fitsgibbons RJ, et al. Guidelines for laparoscopic (TAPP) and endoscopic (TEP) treatment of inguinal Hernia [International Endohernia Society (IEHS)]. Surg Endosc [Internet]. 2011 Sept 1 [cited 2024 Dec 7];25(9):2773-843. Available from: https://doi.org/10.1007/s00464-011-1799-6.
[4] Bhandarkar DS, Shankar M, Udwadia TE. Laparoscopic surgery for inguinal hernia: Current status and controversies. J Minim Access Surg [Internet]. 2006 Sept [cited 2024 Dec 7];2(3):178-86. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2999782/.
[5] Doudakmanis C, Kolla C, Bouliaris K, Efthimiou M, Koukoulis GD. Laparoscopic bilateral inguinal hernia repair: Should it be the preferred technique? World J Methodol [Internet]. 2022 July 20 [cited 2024 Dec 7];12(4):193-99. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9350731/.
[6] Yang XF, Liu JL. Laparoscopic repair of inguinal hernia in adults. Ann Transl Med [Internet]. 2016 Oct [cited 2024 Dec 7];4(20):402. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5107402/.
[7] Lew MW, Sullivan MJ. Anesthesia for laparoscopic and robotic-assisted urological procedures. In: Gainsburg DM, Bryson EO, Frost EAM, editors. Anesthesia for Urologic Surgery [Internet]. New York, NY: Springer; 2014 [cited 2025 July 21]. p. 93-126. Available from: https://doi.org/10.1007/978-1-4614-7363-3_6.
[8] Hope WW, Pfeifer C. Laparoscopic inguinal hernia repair. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [cited 2025 July 21]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK430826/.
[9] Sharma D, Yadav K, Hasrah P, Borgharia S, Lal R, Thomas S. Prospective randomised trial comparing laparoscopic Transabdominal Preperitoneal (TAPP) and laparoscopic Totally Extra Peritoneal (TEP) approach for bilateral inguinal hernias. Int J Surg [Internet]. 2015 Oct 1 [cited 2024 Dec 7];22:110-17. Available from: https://www.sciencedirect.com/science/article/pii/S1743919115011036.
[10] Skolimowska-Rsewuska M, Romancsuk M, Mitura B, Wyrsykowska D, Mitura K. Laparoscopic transabdominal preperitoneal repair (umbilical TAPP) versus open ventral patch repair for medium sise umbilical hernias in overweight and obese patients. Wideochir Inne Tech Maloinwasyjne [Internet]. 2022 Mar [cited 2024 Dec 7];17(1):170-78. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8886470/.
[11] Bittner R, Montgomery MA, Arregui E, Bansal V, Bingener J, Bisgaard T, et al. Update of guidelines on laparoscopic (TAPP) and endoscopic (TEP) treatment of inguinal hernia (International Endohernia Society). Surg Endosc [Internet]. 2015 [cited 2024 Dec 7];29(2):289–321. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4293469/.
[12] Lari A, Alherz M, Hussain S, Burhamah W, Alabbad F, Jarragh A, et al. The Importance of scar cosmesis across the surgical specialties: Factors, perceptions, and predispositions. Plast Reconstr Surg Glob Open. 2022;10(3):e4219.
[13] Farmer L, Ayoub M, Warejcka D, Southerland S, Freeman A, Solis M. Adhesion formation after intraperitoneal and extraperitoneal implantation of polypropylene mesh. Am Surg. 1998;64(2):144-46.
[14] Köckerling F, Bittner R, Jacob DA, Seidelmann L, Keller T, Adolf D, et al. TEP versus TAPP: Comparison of the perioperative outcome in 17,587 patients with a primary unilateral inguinal hernia. Surg Endosc [Internet]. 2015 [cited 2024 Dec 7];29(12):3750–60. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4648956.
[15] Rodha MS, Meena SP, Premi K, Sharma N, Puranik A, Chaudhary R. Pain after Transabdominal Preperitoneal (TAPP) or Totally Extraperitoneal (TEP) technique for unilateral inguinal hernia: A randomized controlled trial. Cureus. 2022 Apr;14(4):e24582.
[16] Wake BL, McCormack K, Fraser C, Vale L, Perez J, Grant A. Transabdominal Preperitoneal (TAPP) vs Totally Extraperitoneal (TEP) laparoscopic techniques for inguinal hernia repair. Cochrane Database Syst Rev. 2005;2005(1):CD004703.
[17] Aiolfi A, Cavalli M, Del Ferraro S, Manfredini L, Lombardo F, Bonitta G, et al. Total Extraperitoneal (TEP) versus laparoscopic Transabdominal Preperitoneal (TAPP) hernioplasty: Systematic review and trial sequential analysis of randomized controlled trials. Hernia. 2021;25(5):1147-57.
[18] Köckerling F, Bittner R, Kuthe A, Hukauf M, Mayer F, Fortelny R, et al. TEP or TAPP for recurrent inguinal hernia repair—register-based comparison of the outcome. Surg Endosc. 2017;31(10):3872–82.
[19] Bansal VK, Misra MC, Babu D, Victor J, Kumar S, Sagar R, et al. A prospective, randomized comparison of long-term outcomes: Chronic groin pain and quality of life following Totally Extraperitoneal (TEP) and transabdominal preperitoneal (TAPP) laparoscopic inguinal hernia repair. Surg Endosc. 2013;27(7):2373-82.
[20] Bilgin A, Ramoglu N, Ozben V, Çebi OH, Argun OB, Doganca TS, et al. Is previous radical prostatectomy an adversity for laparoscopic total extraperitoneal approach for inguinal hernia repair? A propensity score case matched study. Hernia. 2025;29(1):173.
[21] Verheij M, Abdalla AE, Chandran P. Comparative review of outcomes of totally extraperitoneal (tep) and Transabdominal Preperitoneal (TAPP) primary inguinal hernia repair. Cureus. 2023;15(12):e49790.
[22] Dal NA, Qureshi M, Memon S, Murtaza G, Ch TS, Azhar S. Postoperative outcomes and patient satisfaction following laparoscopic versus open inguinal hernia repair: A comparative study. Pakistan J Med Health Sci. 2023;17(10):67-67.
[23] Toi T, Paduraru M, Chotai R, Pandya A, Stolady D, Lillig K, et al. Impact on quality of life following inguinal hernia repair under local anaesthetic in a primary care setting. Hernia. 2024;28(4):1457-60.
[24] Nethaji K, Kumari R, Jaiswal P, Jha PK, Ranjan R, Akela A. Comparison of Extended Total Extraperitoneal (E-TEP) repair and trans-abdominal pre-Peritoneal (TAPP) Mesh repair in inguinal hernia repair. Cureus [Internet]. 2023 May 24 [cited 2024 Dec 7]; Available from: https://www.cureus.com/articles/156190-comparison-of-extended-total-extraperitoneal-e-tep-repair-and-trans-abdominal-pre-peritoneal-tapp-mesh-repair-in-inguinal-hernia-repair.
[25] Hashmi SA, Raja MHR, Arif A, Naseem Z, Pal KMB, Pal KMI. Reducing post-operative length of stay, is it worth the effort? World J Surg. 2024;48(5):1096-101.
[26] Andresen K, Rosenberg J. Transabdominal Pre-peritoneal (TAPP) versus Totally Extraperitoneal (TEP) laparoscopic techniques for inguinal hernia repair. Cochrane Database Syst Rev. 2024 July 4;7(7):CD004703.
[27] Samia H, Khan S, Lawrence J, Delaney CP. Simulation and Its Role in Training. Clin Colon Rectal Surg [Internet]. 2013 Mar [cited 2024 Dec 7];26(1):47-55. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3699140/.

PARTICULARS OF CONTRIBUTORS:
1. Junior Resident, Department of General Surgery, Datta Meghe Institute of Higher Education and Research, Wardha, Maharashtra, India.
2. Professor, Department of General Surgery, Datta Meghe Institute of Higher Education and Research, Wardha, Maharashtra, India.
3. Associate Professor, Department of General Surgery, Datta Meghe Institute of Higher Education and Research, Wardha, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Shraddha Gajbhiye,
Department of General Surgery, Datta Meghe Institute of Higher Education and Research, Sawangi, Wardha-442001, Maharashtra, India.
E-mail: gajbhiyeshraddha2@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Jul 02, 2025
- Manual Googling: Aug 28, 2025
- iThenticate Software: Aug 30, 2025 (11%)

ETYMOLOGY: Author Origin

EMENDATIONS: 6

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? NA
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Jun 29, 2025**
Date of Peer Review: **Jul 12, 2025**
Date of Acceptance: **Sep 02, 2025**
Date of Publishing: **Jan 01, 2026**