Publisher Name: Zentoks Publication
Editorial Book: Issues on Health Science
Volume: 2
Pages: 6-10
ISBN: 978-81-997107-5-7
DOI:https://doi.org/10.5281/zenodo.24521802

Chapter 2

The Management of Complicated Inguinal Hernia: A Review

Kumar Hari Rajah[1*]

[1]*Associate Professor of Surgery,Taylor's University School of Medicine and Health Science, 47500 Subang Jaya, Malaysia.*
[*]*Corresponding Author.*

Abstract

The management of complicated inguinal hernias in adults presents a considerable surgical challenge, often leading to increased morbidity and mortality if diagnosis or treatment is delayed. These hernias encompass both incarcerated and strangulated types. Early diagnosis and risk stratification necessitate prompt clinical evaluation, supported by appropriate imaging. Emergency surgical intervention is fundamental to treatment, with the timing of repair being pivotal to patient outcomes. Various open and minimally invasive techniques have been documented, with the choice of method contingent upon patient factors, surgeon expertise, hernia characteristics, and the presence of contamination or bowel resection. The use of prosthetic mesh in emergency contexts remains contentious; however, emerging evidence indicates that mesh repair can be safely executed in selected patients without gross contamination, thereby reducing recurrence rates. A multidisciplinary approach, coupled with timely diagnosis and suitable operative intervention, is crucial for optimizing outcomes. Further high-quality studies are required to establish standardized protocols and elucidate the role of minimally invasive techniques and mesh implantation in contaminated surgical fields. This chapter reviews the current evidence on the operative management of complicated inguinal hernias and the roles of open and laparoscopic repairs. Additionally, it explores the role of mesh in the management of complicated inguinal hernias in adults.

Keywords: Emergency hernia, Strangulated hernia, Complicated hernia, Incarcerated hernia, TAPP, TEP, Mesh, and Sutured repair.

Introduction

Complicated inguinal hernias refer to those that have become either incarcerated or strangulated. Incarceration is characterized by inguinal hernias that cannot be reduced and remain within the anterior abdominal wall, representing the initial stage for patients presenting with a complicated inguinal hernia. Strangulation involves the compromise of blood supply to the hernia sac's contents, which may include the intestine or omentum. Complicated inguinal hernias constitute 5% to 10% of all inguinal hernia repairs, with risk factors including hernia type, duration, age, gender, and obesity (Kulacoglu, 2023). Diagnosis is primarily clinical, supplemented by blood tests such as a complete blood count to detect leukocytosis and elevated inflammatory markers like C-reactive protein. Imaging techniques, including ultrasound and computerized tomography, are also employed to assist in diagnosis. Surgical management of complicated inguinal hernias can be categorized into open approaches, performed via inguinal or midline laparotomy depending on contamination level, and laparoscopic techniques. Hernia repair may involve mesh-based or suture-based methods, contingent on contamination level. Laparoscopic repairs, such as transabdominal preperitoneal (TAPP) or total extraperitoneal (TEP) approaches, are also applicable for complicated inguinal hernias (Tiernan et al., 2010; Towfigh, 2019).

The HerniaSurge guidelines for managing complicated inguinal hernia in adults recommend prompt diagnosis through clinical examination of the groin to identify strangulation. Surgical intervention should be conducted without delay, with a tailored decision on whether to employ an open or laparoscopic technique and the use of mesh. For clean or clean-contaminated complicated inguinal hernia repair, the use of monofilament large pore mesh is advised. Prophylactic antibiotics are recommended, transitioning to therapeutic antibiotics if extensive wound contamination occurs (Tran, 2018). The World Society of Emergency Surgeons (WSES) guidelines for emergency repair of complicated abdominal wall hernias advocate for emergency inguinal hernia surgery when strangulation is suspected. A laparoscopic approach is feasible in the absence of strangulation and when bowel resection is unnecessary. Mesh may be utilized for repairing complicated inguinal hernias in cases of incarceration and strangulation with minimal contamination (Simone et al., 2020).

How To Cite: K. H. Rajah. *The Management of Complicated Inguinal Hernia: A Review.* In A. Sreenivasan (Ed). Issues on Health Science. Volume 2. Pages 6-10, 2026. Zentoks Publication, India. DOI:https://doi.org/10.5281/zenodo.24521802

Currently, there is no consensus regarding the management of complicated inguinal hernia in adults. This chapter explores the roles of open and laparoscopic inguinal hernia repairs, assessing their respective advantages and disadvantages. Additionally, the chapter examines the application of mesh-based repairs in the management of complicated hernias. A comprehensive literature review was conducted using PubMed, Google Scholar, Semantic Scholar, and Cochrane databases to identify original articles, observational studies, clinical trials, clinical reviews, review articles, and meta-analyses published between 1990 and 2026. The search employed the following keywords: "Emergency hernia," "Complicated hernia," "Strangulated hernia," "Incarcerated hernia," "TAPP," "TEP," and "Sutured repair." All articles were in English, and additional articles were identified through manual cross-checking. Case reports, commentaries, and editorials were excluded, while all articles involving adult patients, including elderly individuals, were included in this review.

Discussion

The Open Mesh-Based Repairs for Complicated Inguinal Hernia

Abu Ellatif et al. conducted a prospective study to assess the feasibility of mesh repair for strangulated inguinal hernia. The study included 163 patients, of whom 48 underwent bowel resection, while 115 did not require this procedure. All patients subsequently received the Lichtenstein hernia repair. The study found no significant differences in postoperative complications, wound infection, or recurrence rates between the procedures (Abd Ellatif et al., 2012). Bessa et al. investigated the early outcomes of the Lichtenstein repair for strangulated inguinal hernia in adults. This study involved 50 patients, comparing 25 with strangulated hernia to 25 with uncomplicated inguinal hernia. No significant differences were observed in postoperative complications or infection rates between the groups (Bessa et al., 2007). Furthermore, Bessa et al. examined the long-term effects of prosthetic mesh repair in the emergency management of incarcerated and strangulated inguinal hernia. This study included 234 patients, with 32 undergoing bowel resection. Postoperative complications occurred in 17.5% of cases, and the wound infection rate was 6%. The recurrence rate was 0.9% after a follow-up period of 35 months (Bessa et al., 2007).

Ozbagriacik et al. investigated the management of strangulated abdominal wall hernia using mesh. A total of 40 patients underwent mesh repair for strangulated inguinal hernia, resulting in a postoperative infection rate of 6.2%. No significant differences were observed in the length of hospital stay (Ozbagriacik, 2015). Pandey et al. conducted a prospective observational study on the application of mesh in contaminated and strangulated inguinal hernias. Among the 21 patients with strangulated inguinal hernias, the wound infection rate was 26.6%. However, mesh removal was not necessary in all cases, and there was one instance of recurrence (Pandey et al., 2018). Topcu et al. performed a prospective clinical study on mesh repair for incarcerated and strangulated inguinal hernias. This study included 153 patients, with 53 undergoing bowel resection and 100 not requiring bowel resection. The Lichtenstein repair was employed for all patients, resulting in an overall infection rate of 3.3%, with no mesh removals or recurrences reported (Topcu et al., 2013). Wysocki et al. examined the safety of the Lichtenstein repair for strangulated inguinal hernia in adults. In this study, 56 patients were included, with superficial wound infection and hematoma formation each occurring in 2 patients. There was no mortality or recurrence associated with the procedures (Wysocki et al., 2006).

Comparison of the open mesh -based and suture-based repairs for complicated inguinal hernia

Karatepe et al. conducted a randomized controlled trial to compare the open preperitoneal and Lichtenstein repair techniques for incarcerated inguinal hernia in adults. The study included 40 patients, with 21 undergoing the Lichtenstein repair and 19 undergoing the preperitoneal repair. The results indicated no significant differences in the duration of surgery or complications between the two procedures. However, 10.5% of patients who underwent the Lichtenstein repair required an additional incision (Karatepe et al., 2008). In a separate study, Kancharia et al. conducted a randomized comparative study to evaluate the Desarda repair versus mesh hernioplasty for strangulated inguinal hernia. This study involved 121 patients, with 60 undergoing mesh repair and 61 undergoing Desarda repair. The findings revealed a higher wound infection rate in the mesh repair group (35.4% compared to 9.6%), as well as a higher rate of seroma formation (35.4% compared to 19.3%). Additionally, the mesh repair group exhibited a higher recurrence rate (22.5% compared to 3.2%) (Kancharla et al., 2022).

In a comparative study by Papaziogas et al., the outcomes of tension-free repair were evaluated against those of modified Bassini repair for strangulated inguinal hernia. The study comprised 75 patients, with 33 undergoing tension-free repair and 42 undergoing modified Bassini repair. Although no differences in postoperative complications were observed, the tension-free mesh repair was associated with reduced hospital stay and operative time (Papaziogas et al., 2005). Similarly, Tomaoglu et al. conducted a retrospective study comparing prosthetic mesh repair with primary repair for incarcerated and strangulated inguinal hernias. This study involved 141 patients, of whom 114 underwent mesh repair and 27 underwent primary repair. The findings indicated no significant differences in postoperative complications between the two procedures (Tomaoglu & Okmen, 2021). Elsebae et al. performed a randomized controlled study to compare tension-free repair with Bassini repair for strangulated inguinal hernia. This study included 54 patients, evenly divided between the two repair methods. While postoperative complications did not differ significantly between the groups, the recurrence rate was notably higher in the Bassini group (11% vs. 0%) (Elsebae et al., 2008).

Lin et al. conducted a systematic review and meta-analysis to evaluate the safety and effectiveness of mesh repair for incarcerated and strangulated inguinal hernia. This review included eight studies with a total of 978 patients, and it found no significant differences in surgical site infection rates between mesh and suture-based repairs. However, the recurrence rate was notably lower in the mesh-based group (OR: 0.08, 95% CI: 0.01-0.45) (Lin et al., 2020). Similarly, Hentati et al. conducted a systematic review and meta-analysis comparing mesh repair to non-mesh repair for strangulated inguinal hernia. This review encompassed nine studies and demonstrated a lower wound infection rate in the mesh repair group (OR: 0.46, 95% CI: 0.20-1.07), as well as a reduced recurrence rate (OR: 0.2, 95% CI: 0.05-0.78) (Hentati et al., 2014). Furthermore, Ekwesianya et al. conducted a systematic review and meta-analysis to assess the safety of mesh repair in strangulated groin hernia. This review included seven studies with 1,159 patients and found no significant differences in surgical site infection rates (OR: 0.88, 95% CI: 0.39-1.96), seroma formation (OR: 3.39, 95% CI: 0.70-16.43), and recurrence rates (OR: 0.33, 95% CI: 0.05-2.22) between mesh and non-mesh-based procedures (Ekwesianya et al., 2024).

Sakamoto et al. conducted a comparative analysis of postoperative infection rates following emergency inguinal hernia surgery with

enterectomy, contrasting mesh and non-mesh repair techniques. The study encompassed 668 patients, with 223 undergoing mesh repair and 445 receiving non-mesh repairs. The findings indicated no significant differences in surgical site infection rates between the two procedures, with rates of 2.5% and 2.8%, respectively (Sakamoto et al., 2022). Similarly, Tastaldi et al. carried out a retrospective study on emergency groin hernia repair, involving 257 patients, of whom 190 underwent mesh repair and 67 underwent tissue repair. The study revealed no significant differences in postoperative complications and mortality between the procedures. Additionally, recurrence rates were comparable between the procedures, recorded at 6.3% and 6.8%, respectively, with a median follow-up period of 48 months (Tastaldi et al., 2019).

Table 1

Study	Study Type	N=numbers	Wound infection	Recurrence
Hentati et al., 2014	Systematic Review & Meta-analysis	620	Lower wound infection rate in the mesh-based repair (OR 0.42)	Lower recurrence rate in the mesh-based repair (OR 0.2)
Lin et al-2020	Systematic Review & Meta-analysis	978	No differences regarding wound infection rate between the procedures	Lower recurrence rate in the mesh-based repair (OR 0.08)
Ekwesianya et al.- 2024	Systematic Review & meta-analysis	1159	No differences regarding the wound infection rate between the procedures (OR-0.88)	No differences regarding the recurrence rates between the procedures (OR-0.33)

Table showing the wound infection and recurrence rate between the open mesh-based and suture-based repairs for complicated inguinal hernia.

The Laparoscopic repair for complicated inguinal hernia

The transabdominal preperitoneal (TAPP) and total extraperitoneal (TEP) repairs are laparoscopic techniques applicable to complicated hernias. The TAPP repair offers the advantage of accessing the peritoneal cavity, allowing for the assessment of intestinal viability. The surgeon's expertise and the potential need for conversion to open surgery are critical considerations when undertaking laparoscopic repair for complicated hernias (Yang, 2017). Legnani et al. conducted a retrospective study on laparoscopic TAPP repair for strangulated inguinal hernia, involving 13 patients. The study reported no intraoperative or postoperative complications, no conversions to open repair, and no recurrences (Legnani et al., 2008).

Zanoni et al. conducted a retrospective study to evaluate the outcomes of laparoscopic transabdominal preperitoneal (TAPP) repair in emergency inguinal hernia cases. The study included 47 patients, with a mean operative time of 64 minutes. Conversion to an open procedure occurred in 4% of cases, and bowel resection was necessary in 8.5% of cases. Patients were followed for up to 1718 days, during which no recurrences were observed (Zanoni et al., 2022). Similarly, Gokdere et al. investigated the feasibility of TAPP repair for strangulated inguinal hernias. In their study, 51 patients underwent the procedure, with bowel resection performed in 9.8% of cases. After a median follow-up period of 16 months, the recurrence rate was 11.8%. This study concluded that laparoscopic TAPP is a safe and feasible option for complicated inguinal hernias (Gökdere & Kesikli, 2026).

Comparison between the open and laparoscopic repair for complicated inguinal hernia

Sbacco et al. conducted a retrospective study to compare the open and laparoscopic techniques for managing complicated inguinal hernia. The study included 66 patients, with 29 undergoing Transabdominal Preperitoneal (TAPP) repair and 37 undergoing Lichtenstein repair. The findings indicated that TAPP repair was associated with fewer postoperative complications and a shorter hospital stay compared to the Lichtenstein repair (Sbacco et al., 2024). Similarly, Chihara et al. performed a comparative study on laparoscopic versus open approaches for acute incarcerated and strangulated inguinal hernia in adults. This study involved 106 patients, with 54 undergoing the open approach and 52 undergoing the laparoscopic approach. The laparoscopic approach resulted in a longer operative time but was associated with a lower incidence of postoperative complications and a reduced length of hospital stay (Chihara et al., 2019).

Yang et al. conducted a retrospective study to compare laparoscopic and open repair techniques for strangulated inguinal hernia. The study included 188 patients, with 57 undergoing laparoscopic repair and 131 undergoing open repairs. The findings indicated that laparoscopic repair was associated with a lower wound infection rate and a shorter hospital stay compared to open repair (G. P. C. Yang, 2017). Similarly, Moreno-Suero et al. performed a retrospective study comparing laparoscopic and open repair for emergency inguinal hernia in adults. This study involved 463 patients, with 454 undergoing open repair and 36 undergoing laparoscopic repair. The results showed a higher wound infection rate in the open repair group (5.9% vs. 2.7%), and mortality was also higher in the open repair group (0% vs. 2.2%) (Moreno-Suero et al., 2023).

Lai et al. conducted a systematic review and meta-analysis comparing laparoscopic and open repair for complicated inguinal hernias. The analysis included 13 studies with a total of 38,659 patients, of whom 34,983 underwent open repair, and 3,676 underwent laparoscopic repair. The findings indicated that laparoscopic repair was associated with a shorter hospital stay (MD -2.96, 95% CI, -4.91 to -1.01) and a lower wound infection rate (RR 0.29, 95% CI, 0.20 to 0.43). No significant differences were observed in operative time and seroma formation between the two procedures (Lai et al., 2025). Coco et al. also conducted a systematic review and meta-analysis, focusing on laparoscopic versus open inguinal hernia repair for strangulated inguinal hernias. This review encompassed 10 studies with 1,250 patients. The results demonstrated that laparoscopic repair was associated with a shorter hospital stay (1.2 days, 95% CI, 0.6 to 1.8) and a lower wound infection rate (OR 0.45, 95% CI, 0.28 to 0.72). However, the operative time was longer in the laparoscopic group (MD 15.3 min, 95% CI, 8.2 to 22.4) (Coco & Leanza,2025.). In a retrospective study by Aragone et al., the comparison between laparoscopic and open repair for complicated inguinoscrotal hernia involved 162 patients, with 83 undergoing open repair and 79 undergoing laparoscopic repair. The study found that laparoscopic repair resulted in a reduced length of hospital stay and operative time. There were no differences in recurrence rates

between the procedures (1.2% vs. 1.2%) (Aragone et al., 2025).

Table 2

Study	Study Type	N=numbers	Wound infection rate	Operative time
Lai et al-2025	Systematic review & Meta-analysis	3676	Laparoscopic repair was associated with a lower wound infection rate (RR-0.29)	No differences in the operative time between laparoscopic & open repair
Coco et al-2025	Systematic review & meta-analysis	1250	Laparoscopic repair was associated with a lower wound infection rate (RR-0.45)	The operative time was longer in the laparoscopic group (MD-15.3 mins)

Table comparing the wound infection rate and operative time between the laparoscopic and open repair for complicated inguinal hernia.

Conclusion

Complicated inguinal hernia constitutes a potentially life-threatening surgical emergency that necessitates immediate recognition and intervention. Clinical evaluation, augmented by laboratory and radiological investigations, facilitates timely diagnosis and preoperative optimization. Emergency surgical management remains the standard practice, involving the assessment of bowel viability and resection when indicated. There is growing evidence supporting the selective application of prosthetic mesh in emergency scenarios, provided there is no gross contamination. Laparoscopic techniques are increasingly recognized as safe and effective alternatives when performed by experienced surgeons. Future research should aim to refine criteria for patient selection for mesh implantation, assess minimally invasive techniques, and enhance perioperative care pathways to further decrease morbidity and mortality.

Declaration

Conflict of interest: There is no conflict of interest

References

[1] Abd Ellatif, M. E., Negm, A., Elmorsy, G., Al-Katary, M., Yousef, A. E. A. M., & Ellaithy, R. (2012). Feasibility of mesh repair for strangulated abdominal wall hernias. International Journal of Surgery, 10(3), 153–156. https://doi.org/10.1016/j.ijsu.2012.02.004

[2] Aragone, L., Rosasco, N., Gutierrez, J., Croceri, R., Medina, P., & Pirchi, D. (2025). Complicated Inguinocrural Hernias: Laparoscopic Vs. Open Surgery in the Emergency Setting. Journal of Abdominal Wall Surgery, 4. https://doi.org/10.3389/jaws.2025.14408

[3] Bessa, S. S., Abdel-fattah, M. R., Al-Sayes, I. A., & Korayem, I. T. (2015). Results of prosthetic mesh repair in the emergency management of the acutely incarcerated and/or strangulated groin hernias: a 10-year study. Hernia, 19(6), 909–914. https://doi.org/10.1007/s10029-015-1360-y

[4] Bessa, S. S., Katri, K. M., Abdel-Salam, W. N., & Abdel-Baki, N. A. (2007). Early results from the use of the Lichtenstein repair in the management of strangulated groin hernia. Hernia, 11(3), 239–242. https://doi.org/10.1007/s10029-007-0207-6

[5] Chihara, N., Suzuki, H., Sukegawa, M., Nakata, R., Nomura, T., & Yoshida, H. (2019). Is the Laparoscopic Approach Feasible for Reduction and Herniorrhaphy in Cases of Acutely Incarcerated/Strangulated Groin and Obturator Hernia?: 17-Year Experience from Open to Laparoscopic Approach. Journal of Laparoendoscopic and Advanced Surgical Techniques, 29(5), 631–637. https://doi.org/10.1089/lap.2018.0506

[6] Coco, D., & Leanza, S. (2025). Laparoscopic versus open inguinal hernia repair for strangulated inguinal hernia: a systematic review and meta-analysis. Portuguese Journal of Surgery, 58(1), 77-83.https://doi.org/10.34635/rpc.1083

[7] De Simone, B., Birindelli, A., Ansaloni, L., Sartelli, M., Coccolini, F., Di Saverio, S., Annessi, V., Amico, F., & Catena, F. (2020). Emergency repair of complicated abdominal wall hernias: WSES guidelines. Hernia, 24(2), 359–368. https://doi.org/10.1007/s10029-019-02021-8

[8] Ekwesianya, A. C., Ayantunde, A., & Nour, H. M. (2024). Assessing the Safety of Mesh Repair in Strangulated Groin Hernias: A Systematic Review and Meta-Analysis. Cureus. https://doi.org/10.7759/cureus.70496

[9] Elsebae, M. M. A., Nasr, M., & Said, M. (2008). Tension-free repair versus Bassini technique for strangulated inguinal hernia: A controlled randomized study. International Journal of Surgery, 6(4), 302–305. https://doi.org/10.1016/j.ijsu.2008.04.006

[10] Gökdere, O. G., & Kesikli, S. A. (2026). Feasibility and outcomes of emergency laparoscopic TAPP repair for strangulated inguinal hernia. BMC Surgery, 26(1). https://doi.org/10.1186/s12893-026-04044-2

[11] Hentati, H., Dougaz, W., & Dziri, C. (2014). Mesh repair versus non-mesh repair for strangulated inguinal hernia: systematic review with meta-analysis. World Journal of Surgery, 38(11), 2784–2790. https://doi.org/10.1007/s00268-014-2710-0

[12] Kancharla, S. R., Nimmagadda, V., & Bobba, P. (2022). Desarda's repair versus Mesh hernioplasty for a strangulated inguinal hernia a randomized double-blind comparative study. Basrah Journal of Surgery, 28(2), 34–41. https://doi.org/10.33762/bsurg.2022.134293.1024

[13] Karatepe, O., Adas, G., Battal, M., Gulcicek, O. B., Polat, Y., Altiok, M., & Karahan, S. (2008). The comparison of preperitoneal and Lichtenstein repair for incarcerated groin hernias: A randomised controlled trial. International Journal of Surgery, 6(3), 189–192. https://doi.org/10.1016/j.ijsu.2008.02.007

[14] Kulacoglu, H. (2023). Current opinions in inguinal hernia emergencies: A comprehensive review of related evidence. In International Journal of Abdominal Wall and Hernia Surgery (Vol. 6, Number 3, pp. 136–158). Wolters Kluwer Medknow Publications. https://doi.org/10.4103/ijawhs.ijawhs_30_23

[15] Lai, S. D., Smith, N. J., Park, B., Vandal, A., & MacCormick, A. D. (2025). Laparoscopic Versus Open Approach for Emergency Repair of Groin Hernias: A Systematic Review and Meta-Analysis. World Journal of Surgery, 49(10), 2733–2741. https://doi.org/10.1002/wjs.70076

[16] Legnani, G. L., Rasini, M., Pastori, S., & Sarli, D. (2008). Laparoscopic trans-peritoneal hernioplasty (TAPP) for the acute management of strangulated inguino-crural hernias: A report of nine cases. Hernia, 12(2), 185–188. https://doi.org/10.1007/s10029-007-0305-5

[17] Lin, Y. Te, Weng, T. Y., & Tam, K. W. (2020). Effectiveness and Safety of Mesh Repair for Incarcerated or Strangulated Hernias: A Systematic Review and Meta-Analysis. In World Journal of Surgery (Vol. 44, Number 7, pp. 2176–2184). Springer. https://doi.org/10.1007/s00268-020-05430-4

[18] Moreno-Suero, F., Tallon-Aguilar, L., Tinoco-González, J., Sánchez-Arteaga, A., Suárez-Grau, J. M., Alvarez-Aguilera, M., Morales-Conde, S., & Padillo-Ruiz, J. (2023). Laparoscopic vs. Open Approach in Emergent Inguinal Hernia: Our Experience and Review of Literature. Journal of Abdominal Wall Surgery: JAWS, 2, 11242. https://doi.org/10.3389/jaws.2023.11242

[19] Ozbagriacik, M., Bas, G., Basak, F., Sisik, A., Acar, A., Kudas, I., ... & Alimoglu, O. (2015). Management of strangulated abdominal wall hernias with mesh: early results. Northern Clinics of İstanbul, 2(1), 26.https://doi.org/10.14744/nci.2015.03522

[20] Pandey, H., Thakur, D. S., Somashekar, U., Kothari, R., Agarwal, P., & Sharma, D. (2018). Use of polypropylene mesh in contaminated and dirty strangulated hernias: short-term results. Hernia, 22(6), 1045–1050. https://doi.org/10.1007/s10029-018-1811-3

[21] Papaziogas, B., Lazaridis, C., Makris, J., Koutelidakis, J., Patsas, A., Grigoriou, M., Chatzimavroudis, G., Psaralexis, K., & Atmatzidis, K. (2005). Tension-free repair versus modified Bassini technique (Andrews technique) for strangulated inguinal hernia: A comparative study. Hernia, 9(2), 156–159. https://doi.org/10.1007/s10029-004-0311-9

[22] Sakamoto, T., Fujiogi, M., Ishimaru, M., Matsui, H., Fushimi, K., & Yasunaga, H. (2022). Comparison of postoperative infection after emergency inguinal hernia surgery with enterectomy between mesh repair and non-mesh repair: a national database analysis. Hernia, 26(1), 217–223. https://doi.org/10.1007/s10029-021-02439-z

[23] Sbacco, V., Petrucciani, N., Lauteri, G., Cossa, A., Portinari, M., Brescia, A., & Garulli, G. (2024). Management of groin hernias in emergency setting: differences in indications and outcomes between laparoscopic and open approach. A single-center retrospective experience. Langenbeck's Archives of Surgery, 409(1). https://doi.org/10.1007/s00423-024-03238-7

[24] Tastaldi, L., Krpata, D. M., Prabhu, A. S., Petro, C. C., Ilie, R., Haskins, I. N., Alkhatib, H., Tu, C., Rosenblatt, S., & Rosen, M. J. (2019). Emergent groin hernia repair: A single-center 10-year experience. Surgery (United States), 165(2), 398–405. https://doi.org/10.1016/j.surg.2018.08.001

[25] Tiernan, J. P., Katsarelis, H., Garner, J. P., & Skinner, P. P. (2010). Excellent outcomes after emergency groin hernia repair. Hernia, 14(5), 485–488. https://doi.org/10.1007/s10029-010-0667-y

[26] Tomaoglu, K., & Okmen, H. (2021). Prosthetic mesh hernioplasty versus primary repair in incarcerated and strangulated groin and abdominal wall hernias with or without organ resection. Retrospective study. Langenbeck's Archives of Surgery, 406(5), 1651–1657. https://doi.org/10.1007/s00423-021-02145-5

[27] Topcu, O., Kurt, A., Soylu, S., Akgol, G., Atabey, M., Karakus, B. C., & Aydin, C. (2013). Polypropylene mesh repair of incarcerated and strangulated hernias: A prospective clinical study. Surgery Today, 43(10), 1140–1144. https://doi.org/10.1007/s00595-012-0397-0

[28] Towfigh, S. (2019). Incarcerated Inguinal Hernias. In Emergency General Surgery (pp. 377–385). Springer International Publishing. https://doi.org/10.1007/978-3-319-96286-3_33

[29] Tran, H. (2018). Endorsement of the HerniaSurge guidelines by the Australasian Hernia Society. In Hernia (Vol. 22, Number 1, p. 177). Springer-Verlag France. https://doi.org/10.1007/s10029-017-1673-0

[30] Wysocki, A., Kulawik, J., Poźniczek, M., & Strzałka, M. (2006). Is the Lichtenstein operation of strangulated groin hernia a safe procedure? World Journal of Surgery, 30(11), 2065–2070. https://doi.org/10.1007/s00268-005-0416-z

[31] Yang, G. P. C. (2017). Laparoscopy in emergency hernia repair. Annals of Laparoscopic and Endoscopic Surgery, 2, 107–107. https://doi.org/10.21037/ales.2017.05.05

[32] Yang, G. P., Chan, C. T., Lai, E. C., Chan, O. C., Tang, C. N., & Li, M. K. (2012). Laparoscopic versus open repair for strangulated groin hernias: 188 cases over 4 years. Asian Journal of Endoscopic Surgery, 5(3), 131–137. https://doi.org/10.1111/j.1758-5910.2012.00138.x

[33] Zanoni, A. A. G., Delcarro, A., Ciccarese, F., Villa, R., Oldani, A., Giorgi, R., Rubicondo, C., Bonaldi, M., Cesana, G., Uccelli, M., De Carli, S., Ismail, A., Ferrari, D., & Olmi, S. (2022). Laparoscopic transperitoneal hernia repair (TAPP) in emergency: long-term follow-up in a high-volume centre. Hernia, 26(4), 1063–1068. https://doi.org/10.1007/s10029-021-02516-3