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DOI: 10.4103/ijawhs.ijawhs_81_25

Hernioscopy with the single-incision laparoscopic surgery (SILS) technique is effective during emergency surgery for an incarcerated inguinal hernia: A case report

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Abstract

In our institution, an open (groin incision) approach is selected for emergency surgery for an incarcerated inguinal hernia. However, a laparoscopic approach may also be recommended for some cases to confirm the viability of the strangulated organ and assess the condition of the whole abdominal cavity. Laparoscopy through the inguinal hernia sac is known as hernioscopy. We herein report a case of an incarcerated inguinal hernia that underwent hernioscopy with the single-incision laparoscopic surgery (SILS) technique during emergency surgery. By using forceps in the abdominal cavity during hernioscopy, we were able to safely confirm the viability of the strangulated organ. Hernioscopy with the SILS technique has potential as a useful surgical option for incarcerated inguinal hernia surgery.

Keywords:

Hernioscopy, incarcerated inguinal hernia, single-incision laparoscopic surgery

Introduction

Emergency surgery is necessary for an incarcerated inguinal hernia. An optimal approach for incarcerated inguinal hernia surgery has yet to be established.[1-3] In our institution, an open (groin incision) approach is selected for safe and efficient surgery. However, a laparoscopic approach may also be recommended for some cases to confirm the viability of the strangulated organ and assess the condition of the whole abdominal cavity. Laparoscopy through the inguinal hernia sac is known as hernioscopy.[4-6] While hernioscopy has been proposed as a valid option to prevent an additional skin incision, it is not widely accepted and, thus, rarely applied. We herein report a case of an incarcerated inguinal hernia that underwent hernioscopy with the single-incision laparoscopic surgery (SILS) technique during emergency surgery.

Case Report

The patient was a 64-year-old man diagnosed with a right incarcerated inguinal hernia. The patient was admitted with right groin pain for 6 h. His body mass index was 22.8 kg/m^2, and a fist-sized irreducible swelling was noted in the right groin in a physical examination. Computed tomography of the abdomen showed the features of a right inguinal hernia, dilated loops of the small bowel within the hernia sac, and collapsed loops distally with a transition point at the neck of the hernia [Figure 1].

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Submitted: 09-Aug-2025
Revised: 06-Oct-2025
Accepted: 30-Oct-2025
Published: 18-Apr-2026

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This content was presented at The 23rd Annual Meeting of the Japanese Hernia Society, from May 23, 2025 to May 24, 2025.

How to cite this article: Furuke H, Takagi T, Fukumoto K, Shiozaki A. Hernioscopy with the single-incision laparoscopic surgery (SILS) technique is effective during emergency surgery for an incarcerated inguinal hernia: A case report. Int J Abdom Wall Hernia Surg 2026;9:48-51.

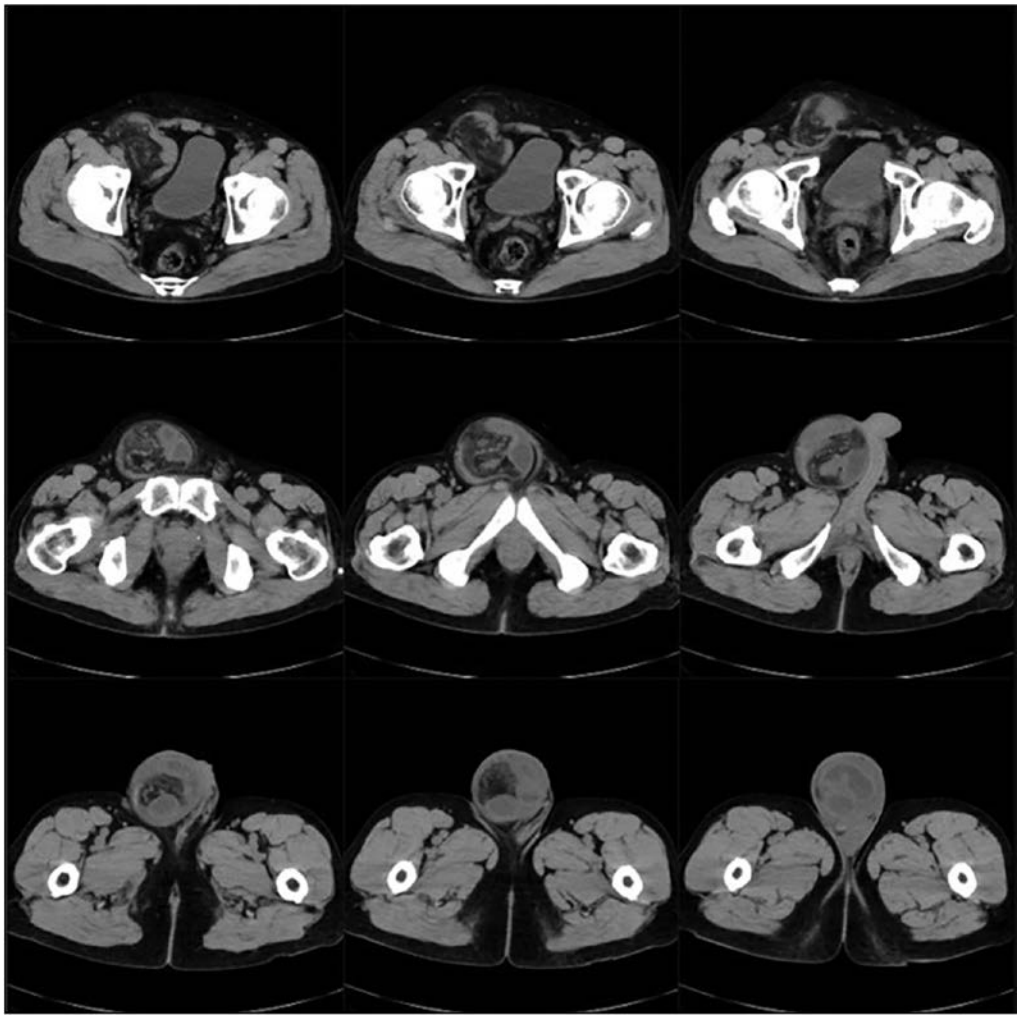


Figure 1: Computed tomography scan of the abdomen. A right incarcerated inguinal hernia was confirmed

We performed emergency surgery for the right incarcerated inguinal hernia with a groin incision. A lateral inguinal hernia was detected, and we completely mobilized the hernia sac as per the usual technique. During detachment, the strangulated small bowel fell back into the abdomen. It was not possible to pull out the bowel due to edema of the mesentery. To confirm the viability of the strangulated organ and assess the condition of the whole abdominal cavity, we attached LAP PROTECTOR and EZ ACCESS (both HAKKO MEDICAL) to the inguinal hernia sac with three 5-mm trocars [Figure 2]. We observed the whole abdominal cavity by hernioscopy with the SILS technique. Only mesenteric hematoma was noted, and the viability of the strangulated bowel was maintained [Figure 3]. Inguinal hernia repair using a mesh was performed without bowel resection. The patient was discharged without any postoperative complications.

Discussion

If the surgeons have sufficient experience of inguinal surgery, there are no significant differences in short outcomes (duration of operation time, or perioperative complications) between open and laparoscopic surgeries.[1-3] In other words, the surgical approach could be decided by preference of the surgeons. In our institution, a groin incision approach in emergency surgery for an incarcerated inguinal hernia is selected for the following reasons. If bowel resection is required, hernia repair without the use of a mesh (tissue repair method) may be necessary. A laparoscopic approach is associated with a number of risks, such as hemodynamic instability of the patient, adhesions due to a history of abdominal surgery, and difficulty in maintaining vision due to bowel obstruction prior to surgery.

Although hernioscopy has been reported, it is not widely accepted and, thus, is rarely applied.[5,6] The reason for this may be that single-port hernioscopy has few advantages because only the abdominal cavity is observed. The SILS technique reduces the number of ports required for cholecystectomy,[7] and we have employed this technique for various surgical procedures. By using the SILS technique, surgeons are

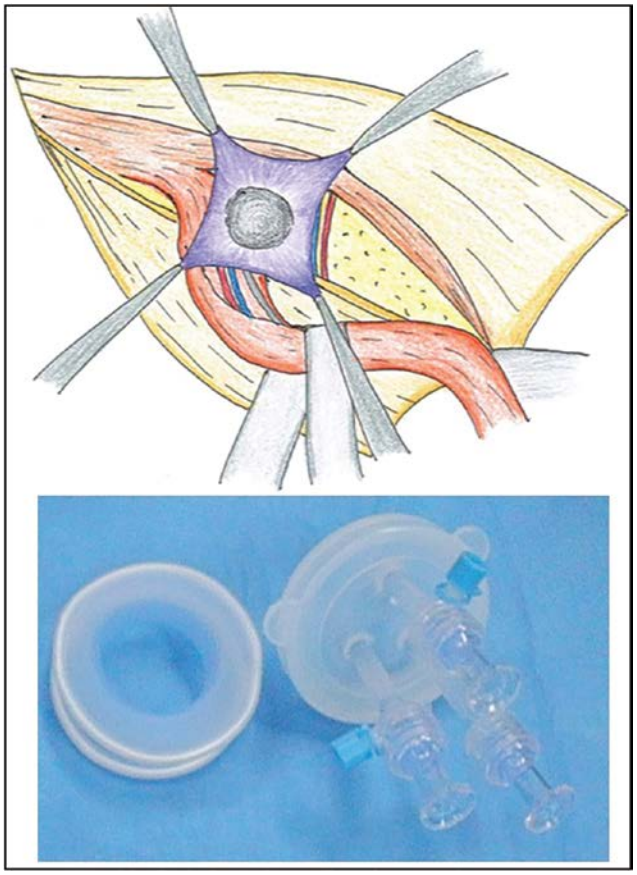


Figure 2: Schema of the surgical view. We used LAP PROTECTOR and EZ ACCESS for hernioscopy

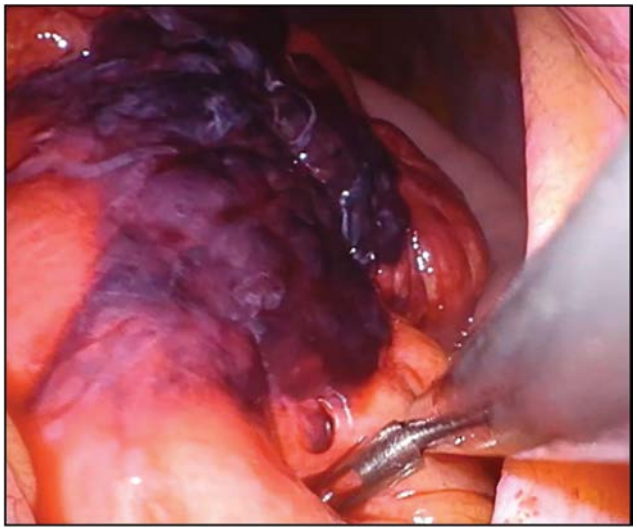


Figure 3: The view of hernioscopy with the single-incision laparoscopic surgery technique

able to use forceps and perform various tasks within the abdominal cavity. Bowel resection may be performed by hernioscopy only if necessary.

There are some precautions that need to be considered. In emergency surgery for an incarcerated inguinal hernia, we perform the procedure via a groin incision. However, the initiation of surgery via laparoscopy is also appropriate.[8,9] Leib *et al*. reported the safety of a laparoscopic approach for an incarcerated inguinal hernia surgery.[10] Fundamentally, laparoscopic surgery has less chronic pain than open surgery,[3] so laparoscopic surgery might have a better long-term prognosis. Hernioscopy may not be applicable to all patients, particularly patients with a femoral hernia. It is important to note that hernioscopy is not the only available method. We herein described hernioscopy with the SILS technique as one surgical option.

In conclusion, we presented a case of an incarcerated inguinal hernia that underwent hernioscopy with the SILS technique during emergency surgery and suggest its potential as a useful surgical option for incarcerated inguinal hernia surgery.

Author contributions

HF wrote the manuscript. HF, TT, and KF contributed to the data collection, analysis, and interpretation. AS revised the manuscript critically. All authors conceived of the study and participated in its design and coordination. All authors approved the final manuscript for publication.

Ethical policy and Institutional Review Board statement

The present study was conducted in accordance with the principles of the Declaration of Helsinki.

Declaration of patient consent

The authors certify that they obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published, and although due efforts will be made to conceal his identity, anonymity cannot be guaranteed.

Data availability statement

All data generated and/or analyzed during the present study are included in this published article.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Acknowledgments

Nil.

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