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Incisional hernia after extreme lateral interbody fusion on the lumbar spine: A case report

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ABSTRACT

INTRODUCTION: Extreme lateral interbody fusion is a minimally invasive lateral transpsoas approach for spine surgery. We herein report a case of an incisional hernia after an extreme lateral interbody fusion on the lumbar spine that was successfully treated by laparoscopic surgery with intraperitoneal onlay mesh repair.

PRESENTATION OF CASE: A 78-year-old woman was referred to our hospital with a complaint of left abdominal bulge and pain. She had undergone an extreme lateral interbody fusion for a lumbar spinal canal stenosis from L1 to L4 a year prior. Abdominal computerized tomography showed a left lumbar incisional hernia, and laparoscopic surgery was performed. The hernia orifice was sutured closed and covered with mesh. The patient was discharged five days after the operation with no complications.

DISCUSSION: When performing XLIF for a spinal disorder, the muscles should be separated bluntly along their fibers to prevent muscle atrophy, and the incised fascia should be securely sutured closed. Abdominal wall incisional hernias can occur after spinal surgeries such as extreme lateral interbody fusion.

CONCLUSION: Laparoscopic repair for abdominal wall incisional hernia after spine surgery is safe and feasible.

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1. Introduction

Extreme lateral interbody fusion (XLIF) is a minimally invasive lateral transpsoas approach to the thoracolumbar spine for a variety of thoracolumbar disorders. The procedure is gradually becoming widespread as it has a lower risk of complications and shorter postoperative recovery time than traditional procedures [1,2]. However, more procedures result in various complications [3]. Incisional hernias occur commonly after abdominal surgery or anterior spinal surgery, but rarely after an XLIF.

We herein report a case of an incisional hernia after an XLIF on the lumbar spine that was successfully treated by laparoscopic surgery with intraperitoneal onlay mesh repair (IPOM).

The work has been reported in line with the SCARE criteria and cite the following paper in my references [4].

2. Presentation of case

A 78-year-old woman was referred to our hospital with a complaint of left abdominal bulge and pain. She had undergone XLIF for a lumbar spinal canal stenosis from L1 to L4 a year prior at another hospital. Her presenting complaints had become apparent one month after the operation. Abdominal computerized tomography (CT) showed a left lumbar incisional hernia with the descending colon as hernia content (Fig. 1). The patient was diagnosed with a lumbar abdominal wall incisional hernia after XLIF for a lumbar spinal canal stenosis, and laparoscopic surgery was performed. Intraperitoneal observation revealed the small intestine and descending colon as hernia content. The descending colon and left kidney were detached from the abdominal wall to expose totally the hernia orifice, which was 8 × 4 cm (Fig. 2). The orifice was sutured closed with five stitches using non-absorbable thread (Fig. 3), covered with a 17 × 10 cm Symbotex™ composite mesh (Medtronic, New Haven, USA), and fixed with AbsorbaTack™ (Medtronic) (Fig. 4). The operation lasted 101 min and the patient experienced scant bleeding. The postoperative course was uneventful, and the patient was discharged after 5 days. No recurrence or chronic pain was observed for 2 years following the procedure.

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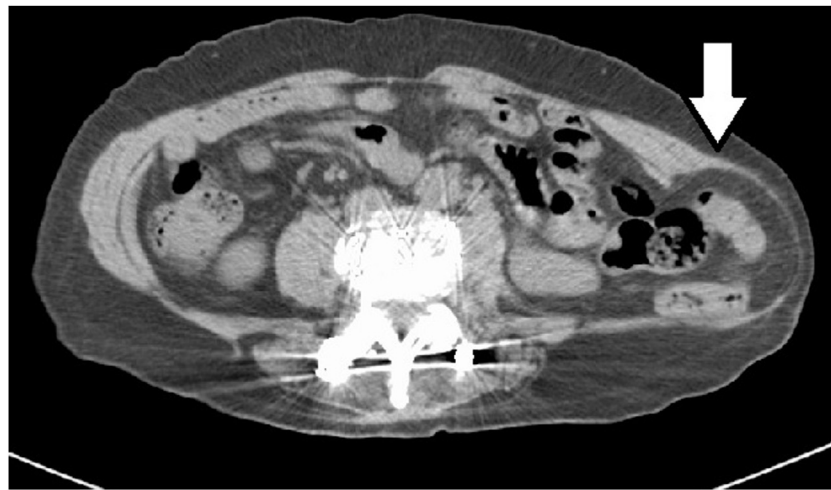


Fig. 1. Abdominal CT. Abdominal CT shows a left lumbar incisional hernia with the descending colon as hernia content (arrow).

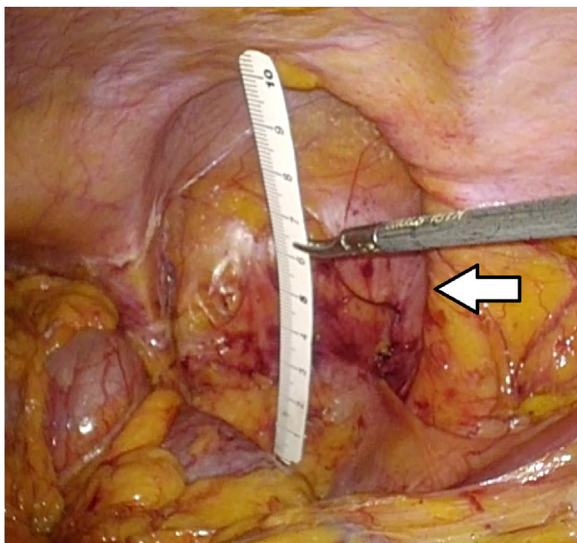


Fig. 2. Operative finding 1. A 8 × 4 cm hernia orifice is at the left abdominal wall (arrow).

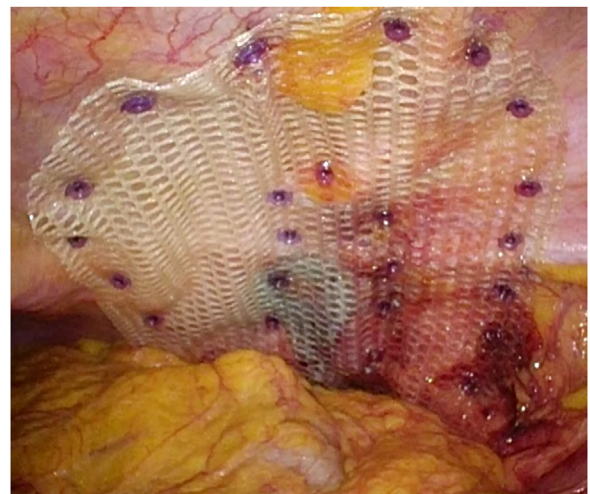


Fig. 4. Operative finding 3. A 17 × 10 cm Symbotex™ composite mesh and AbsorbaTack™ are used to close the hernia orifice.

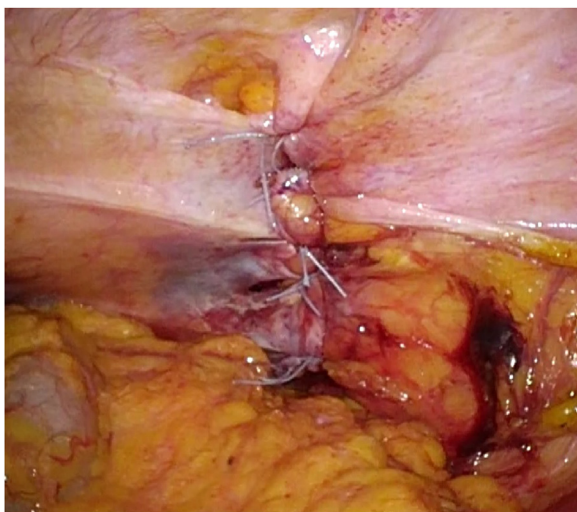


Fig. 3. Operative finding 2. The hernia orifice is closed with non-absorbable sutures.

3. Discussion

XLIF was developed in the United States in 2003 and introduced in Japan in 2013. The procedure is rapidly becoming widespread, as it is a minimally invasive lateral approach to lumbar interbody fusion. Compared to traditional posterior approaches, it is less invasive, can preserve ligaments and joints that are essential for spinal stability, and can avoid direct contact with nerves. Conversely, the abdominal muscles and psoas major have to be split to gain access to the spine during XLIF. Therefore, caution is required to prevent damage, including traction injuries, to the nerves running along these areas, and the possibility of nerve damage as a complication cannot be ignored [3]. In addition, the procedure involves an incision in the fascia lining the abdominal wall to split the muscles, which can lead to the development of an incisional hernia in the abdominal wall. A PubMed search for “incisional hernia,” “lateral lumbar interbody fusion,” and “extreme lateral interbody fusion” resulted in only three cases of incisional hernias following XLIF, suggesting its rarity as complication [5–7]. However, XLIF has a short history, and the incidence of incisional hernias associated with the procedure may increase as the number of patients undergoing the procedure increases.

In the present case, laparoscopic surgery was performed to repair the incisional hernia. In recent years, there have been several reports that have demonstrated the usefulness of laparoscopic surgery to treat incisional hernias. It has been shown to be comparable to conventional laparotomy in terms of recurrence rate, result in less wound infection and postoperative pain, and require a shorter postoperative hospital stay [8–11].

For incisional hernias, patients presenting with no symptoms other than a bulge may be placed on observation status considering the risks of surgery. However, the patient in this case was experiencing pain in the left lumbar region, in addition to the bulge, and the surgery was approved at her request. It is important to note that the hernia orifice suture closure can sometimes have an impact on the nerves traveling in the area and become a cause for chronic pain. In this case, the hernia orifice was stitched to lightly pull the surrounding muscle tissue with little tension. Fortunately, the postoperative course has been uneventful with no chronic pain or recurrence to date.

When performing XLIF for a spinal disorder, the muscles should be separated bluntly along their fibers to prevent muscle atrophy, and the incised fascia should be securely sutured closed. If the fascia tissue is weak, non-absorbable threads may be selected for sutures, as in this case. In addition, weight gain can lead to elevated abdominal pressure that increases the risk of developing an incisional hernia. Therefore, it is important to instruct patients to avoid weight gain to lessen the risk of occurrence following spinal surgeries such as XLIF. Although rare, the risk of abdominal wall incisional hernias following spinal surgeries such as XLIF needs to be recognized as a possible complication.

4. Conclusion

Laparoscopic repair for abdominal wall incisional hernia after spine surgery is safe and feasible.

Declaration of competing interest

The authors declare no conflicts of interest.

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No funding

Ethical approval

Institutional review board approval was exempt from our institution because all data were collected from clinical records and imaging systems for routine preoperative planning and follow up.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy

of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

MW performed the operation. MW is the first author and prepared the manuscript. All authors performed perioperative therapy and approved the final version of the manuscript.

Registration of research studies

Not applicable.

Guarantor

Dr. Takeo Hokari.

Provenance and peer review

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