JUSINDO, Vol. 8 No. 1, January - July 2026
p-ISSN: 2303-288X, e-ISSN: 2541-7207

Recurrent Inguinal Hernia in an Elderly Male Patient: A Case Report

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Abstract

Inguinal hernia is a medical condition characterized by the protrusion of intra-abdominal organs through a weakness in the abdominal wall in the inguinal region. This condition is more common in men and can lead to serious complications such as incarceration and strangulation if not treated properly. The purpose of this study is to describe the clinical characteristics, risk factors, diagnosis, and management of recurrent inguinal hernia through case reports. The method used was a case study of a 60-year-old male patient presenting with severe pain in the lower right abdomen that radiated to the right scrotum. A physical examination revealed the presence of an irreducible right scrotal herniation. The patient had a history of previous bilateral hernioplasty and risk factors including heavy lifting activities. The diagnosis was established based on anamnesis and physical examination, followed by a herniotomy with mesh insertion. The results indicated that increased intra-abdominal pressure and tissue weakness contributed to the recurrence. In conclusion, recurrent inguinal hernia can occur due to persistent risk factors, and surgical treatment with mesh insertion is an effective definitive therapy to prevent further complications..

Keywords:
inguinal hernia; recurrent hernia; herniotomy; mesh; case report

INTRODUCTION

A hernia is an abnormal protrusion of an organ or tissue through a defect or weakness in the wall of an anatomical cavity (Joyce et al., 2022; Leo, 2025; Toma et al., 2022). Normally, the cavity wall is able to hold it in its physiological position. However, in patients with hernias, the cavity wall is unable to hold it in place. Hernias most commonly occur in the abdominal wall. The most common type is an inguinal hernia (Fitzgibbons & Forse, 2015). This hernia occurs when an intra-abdominal organ (especially the small intestine or omentum) protrudes through a weakness in the abdominal wall in the inguinal region (Townsend et al., 2022).

The incidence of inguinal hernias is higher in men than in women, with a lifetime risk of approximately 27% in men and 3% in women (Fitzgibbons & Forse, 2015). Inguinal hernias can progress to emergency conditions such as incarceration and strangulation, which can increase patient morbidity and mortality (Brunicardi et al., 2019).

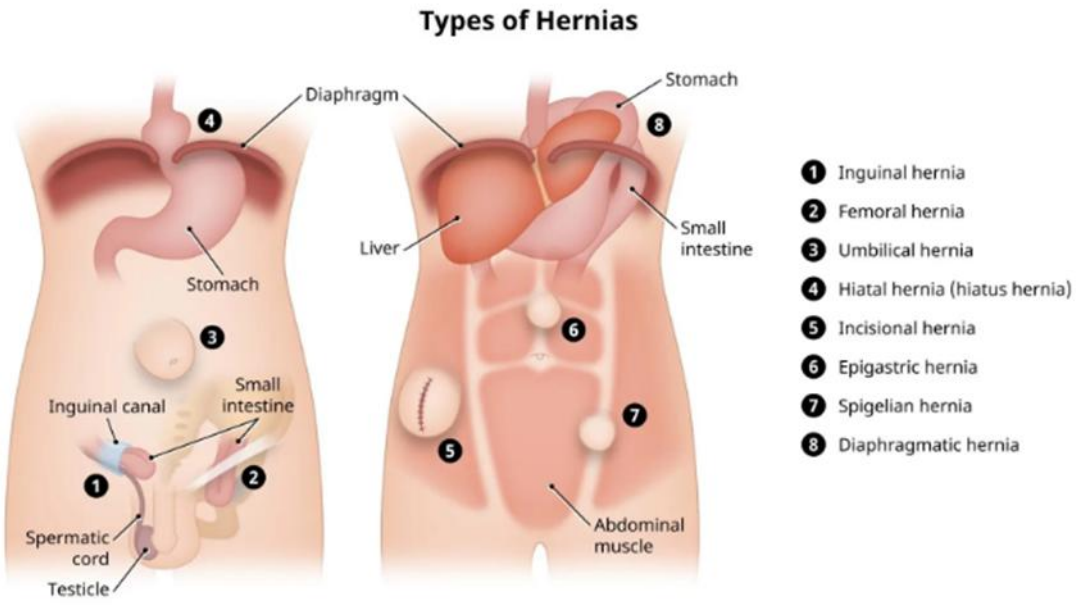

Figure 1. Anatomy of the Inguinal Canal
Source: Adapted from Townsend et al. (2022)

Anatomically, an inguinal hernia is located in the inguinal canal (an oblique channel approximately 4 cm long located above the inguinal ligament) (Townsend et al., 2022). The structure of the inguinal canal has an internal inguinal ring (deep ring) and an external inguinal ring (superficial ring). The boundaries of the inguinal canal include: anterior: aponeurosis of the external oblique muscle; posterior: transversalis fascia; superior: internal oblique muscle and transversus abdominis muscle; inferior: inguinal ligament (Joyce et al., 2022; Leo, 2025; Toma et al., 2022).

In males, the descent of the testicles into the scrotum occurs through the inguinal canal and is accompanied by the formation of the processus vaginalis (Hutson, 2026; Sarila et al., 2022; Tanyel, 2024). Normally, this processus vaginalis closes immediately after birth. Failure of this processus vaginalis closure is the basis for lateral inguinal hernias in children and young adults (Townsend et al., 2022; Holcomb & Murphy, 2020). In females, failure of the canal of Nuck to close can lead to hernias or hydroceles (Holcomb & Murphy, 2020).

Anatomically, hernias are divided into two types:

• Lateral (indirect) inguinal hernia

Usually through the internal inguinal ring. It is located lateral to the inferior epigastric artery. This type of hernia is often congenital (Townsend et al., 2022).

• Medial (direct) inguinal hernia

Usually through Hesselbach's triangle. It is located medial to the inferior epigastric artery. This hernia generally occurs due to tissue weakness that occurs with aging (Townsend et al., 2022; Nyhus & Condon, 2002).

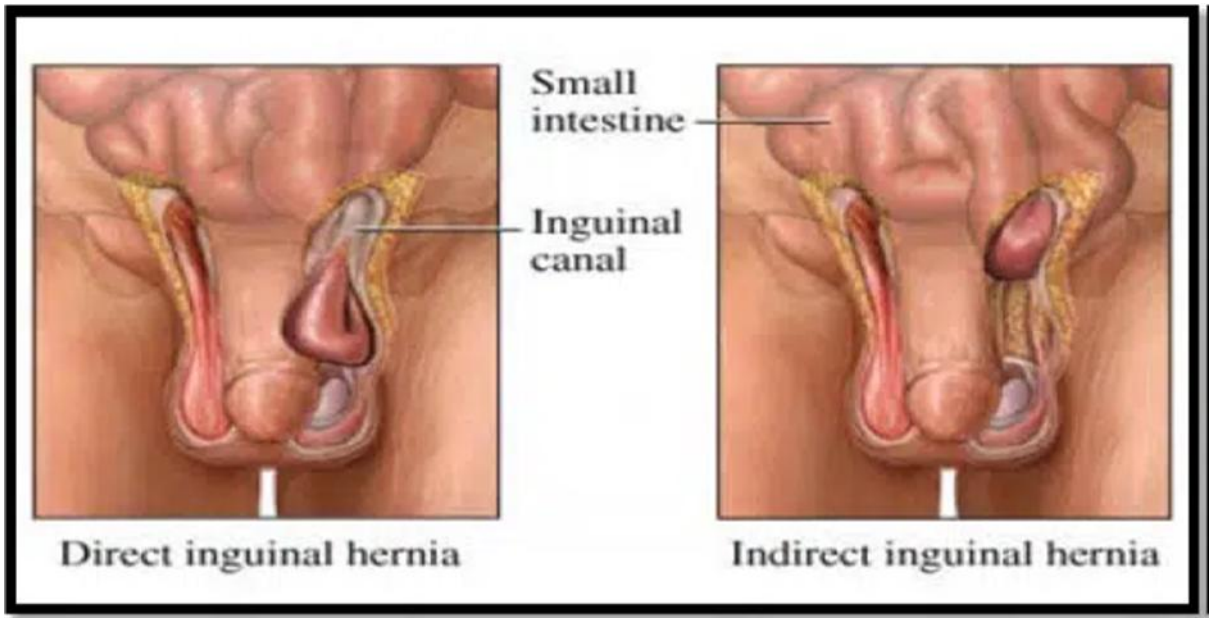

Figure 2. Types of Inguinal Hernia (Direct and Indirect)
Source: Adapted from Brunicardi et al (2019)

Based on their clinical presentation, hernias are divided into four types: reducible hernias, irreducible hernias, incarcerated hernias, and strangulated hernias. Strangulated hernias occur when the blood supply to an organ is disrupted, leading to ischemia and necrosis (Brunicardi et al., 2019).

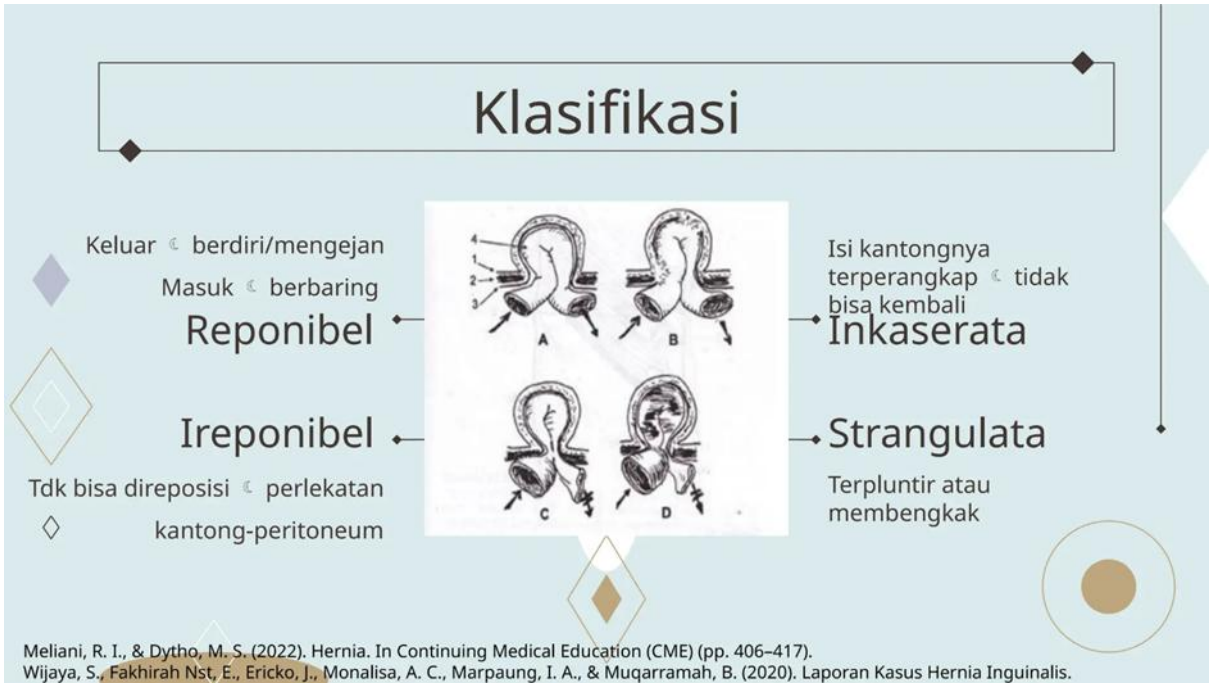

Figure 3. Classification of Hernia Based on Clinical Condition
Source: Adapted from Simons et al (2018).

Inguinal hernias can be caused by various factors. Predisposing factors include male gender, advanced age, a family history of hernias, and collagen metabolism disorders (Henriksen, 2016).

Factors that can trigger hernias include:

a. Chronic coughing
b. Chronic constipation
c. Prostate hypertrophy
d. Obesity
e. Ascites
f. Heavy lifting (Townsend et al., 2022)
g. Changes in the composition of collagen types I and III. This can lead to weakness in the abdominal wall, making it easier for hernias to form (Henriksen, 2016).

The pathophysiology of hernias is due to anatomical weaknesses and increased intra-abdominal pressure (Townsend et al., 2022). In a strangulated hernia, pressure on the hernia ring impedes venous flow, leading to congestion and edema. If this continues, arterial flow is disrupted, leading to ischemia and even intestinal ischemia (Brunicardi et al., 2019).

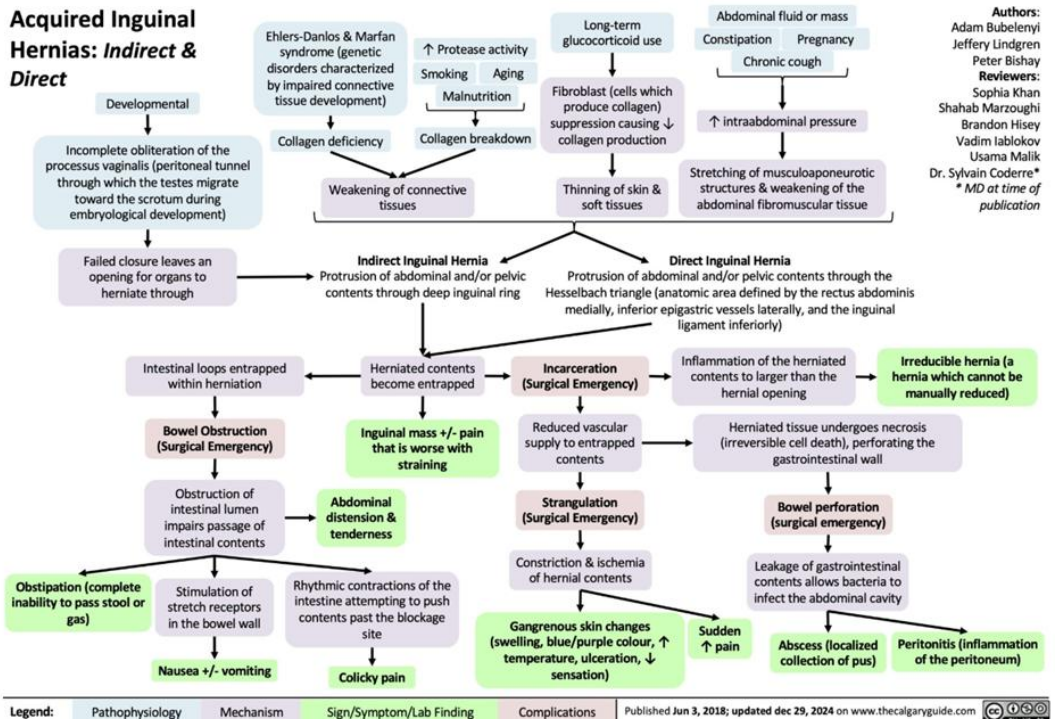

Figure 4. Pathophysiology of Hernia Formation
Source: Adapted from Henriksen, (2016).

Clinical manifestations of an inguinal hernia include a lump in the groin that enlarges when standing or straining and shrinks when lying down (Townsend et al., 2022).

Signs of complications that may arise from an inguinal hernia include:

a. Severe pain experienced by the patient that begins suddenly
b. A lump that is hard and cannot be pushed back in
c. Nausea, and in some patients, vomiting
d. Abdominal distension

The diagnosis of an inguinal hernia can be confirmed based on the history and physical examination (Townsend et al., 2022). However, if the history and physical examination are uncertain, further investigations such as an ultrasound, CT scan, or MRI may be performed (Robinson et al., 2013).

The definitive treatment for an inguinal hernia is surgery (Fitzgibbons & Forse, 2015). Several surgical techniques are available, including:

a. Open surgery (open repair).

The gold standard is the Lichtenstein technique (tension-free mesh repair). This technique has a low recurrence rate for inguinal hernias (Simons et al., 2018).

b. Laparoscopy

Laparoscopy allows patients to experience less post-operative pain and a faster recovery, especially for bilateral or recurrent hernias. (Simons et al., 2018; Bittner et al., 2011).

In cases of strangulated hernias, surgery can be performed as an emergency and may even require bowel resection if necrosis occurs (Brunicardi et al., 2019).

Complications that can occur with inguinal hernias include incarceration, strangulation, and intestinal obstruction (Brunicardi et al., 2019). Possible complications of hernia surgery include hematoma, infection, chronic pain, and even hernia recurrence (Simons et al., 2018).

With surgical management using modern mesh, the recurrence rate of inguinal hernias is less than 5% (Simons et al., 2018). The prognosis for inguinal hernias is excellent if elective surgery is performed before complications occur. However, mortality from inguinal hernias can increase in cases of strangulated hernias that are treated late (Brunicardi et al., 2019).

Previous studies have widely discussed the clinical characteristics, diagnosis, and surgical management of inguinal hernias. Fitzgibbons and Forse (2015) reported that surgical repair remains the definitive treatment for inguinal hernia, with mesh-based techniques significantly reducing recurrence rates. Simons et al. (2018) also emphasized that tension-free mesh repair is considered the gold standard in inguinal hernia management due to its effectiveness in minimizing recurrence. Furthermore, studies have identified several risk factors associated with hernia recurrence, including increased intra-abdominal pressure, tissue weakness, collagen metabolism abnormalities, and strenuous physical activities (Henriksen, 2016).

Despite the advances in surgical techniques, recurrent inguinal hernia remains a clinical challenge, particularly in elderly patients who often have multiple risk factors such as degenerative tissue changes and chronic increases in intra-abdominal pressure. Previous clinical studies generally focus on surgical techniques or recurrence rates, while detailed clinical descriptions of recurrent inguinal hernia cases in elderly patients with specific occupational risk factors are still relatively limited. Therefore, reporting individual clinical cases remains important to provide additional insights into the clinical characteristics, risk factors, diagnosis, and management of recurrent inguinal hernias in real clinical settings.

Based on this background, this study aims to describe the clinical characteristics, risk factors, diagnostic findings, and management of recurrent inguinal hernia in an elderly male patient through a case report. This study also highlights the role of persistent risk factors, particularly heavy physical activity, in the recurrence of inguinal hernia after previous surgical treatment.

The findings of this study are expected to provide several benefits. Clinically, this case report may contribute to improving clinicians' understanding of the risk factors and clinical

presentation of recurrent inguinal hernias in elderly patients. From an academic perspective, the study may serve as an additional reference for future research related to the management and prevention of hernia recurrence. Furthermore, the study may also support the development of better preventive strategies through patient education regarding postoperative lifestyle modifications to reduce the risk of hernia recurrence.

METHOD

Case Report

A 60-year-old male patient was brought by his wife complaining of severe pain in the lower right abdomen and radiating to the right testicle, which had been present since 11:00 PM at the hospital. VAS score was 7/8. The patient reported that the pain had been present for the past week. Nausea (-); vomiting (-); fever (-). The patient is known to work as a parking attendant and daily lifts and moves motorcycles. Due to these complaints, the patient came to PKM S and was directed to go directly to the nearest hospital emergency room. There were no complaints about urination.

Past medical history:

a. Surgical history (+): (1) right hernioplasty for an irreversible right lateral inguinal hernia on January 24, 2025; (2) left hernioplasty for a left lateral inguinal hernia on May 20, 2025.
b. AKI dd/CKD HT

No history of medication use or allergies.

Physical examination revealed a general appearance of severe illness, consciousness E4M6V5, blood pressure: 156/63, pulse: 66 beats/minute, respiratory rate: 22 beats/minute, temperature: 36.5°C, oxygen saturation: 100% room air.

Eyes: Anemic conjunctiva (-); icteric sclera (-); pupil: light reflex (+/+), isochoric (3 mm/3 mm).

Neck: Enlarged lymph nodes (-); mass (-).

Pulmons: Symmetrical static-dynamic movement (+); vesicular (+/+); rhonchi (-/-); wheezing (-/-).

Coron: Ictus cordis visible (-), palpable (-); heart sounds I-II (+) regular; murmur (-); gallop (-).

Abdomen: Flat; Bowel sounds (+); tenderness (+) in the right lower quadrant; organomegaly (-); postoperative wound (+) in the right lower quadrant

Extremities: pale (-); edema (-); warm (+); capillary refill time <2"

Local status: right scrotal region: herniation (+); tenderness (+); irreversible (+); redness (-)

Diagnosis: recurrent right inguinal hernia

Herniotomy + Mesh planned

Therapy given: 0.9% normal saline infusion 500 cc/8 hours, ketorolac 30 mg IV injection once, omeprazole 40 mg IV injection once

After surgery, cefixime 200 mg twice daily, ibuprofen 400 mg three times daily, and ranitidine 150 mg twice daily were administered.

Research Methods

This study uses a descriptive method with a case study approach conducted at Sawah Besar Hospital. Data was obtained through anamnesis, physical examination, and documentation of patient medical records. The focus of the study includes the identification of

risk factors, clinical manifestations, diagnosis, and management of recurrent inguinal hernias. The analysis was carried out descriptively to comprehensively describe the patient's clinical condition.

RESULTS AND DISCUSSION

1. Clinical Characteristics of the Patient

The 60-year-old male patient presented with a main complaint of severe pain in the lower right abdomen that radiated to the right testicle. The pain had been felt for one week prior to hospital admission and worsened on the day of examination, with a Visual Analog Scale (VAS) pain score of 7–8, indicating severe pain intensity. Pain radiating to the scrotum is one of the typical characteristics of an inguinal hernia due to the anatomical connection between the inguinal canal and the scrotum through the spermatic funiculus. This condition indicates that the protrusion of intra-abdominal tissue has reached the scrotal region, suggesting an indirect inguinal hernia or a hernia that has developed significantly.

The patient did not experience any systemic symptoms such as nausea, vomiting, or fever, indicating that no systemic complications such as total intestinal obstruction or systemic infection had occurred. However, the presence of severe pain and an irreducible lump indicates a high risk of further complications such as incarceration or strangulation if not treated promptly.

From a demographic aspect, the patient’s age is an important risk factor in the development of recurrent inguinal hernia. In older age, there is a decrease in the strength of connective tissue and the elasticity of the abdominal wall muscles due to collagen degeneration and reduced tissue regeneration capacity. This leads to increased susceptibility to abdominal wall weakness and raises the risk of recurrence after previous hernia surgery.

In addition, male sex is also a major risk factor. Anatomically, males have a larger inguinal canal than females, as well as the presence of the testicular descent pathway, which can serve as a weak point in the abdominal wall. This explains why inguinal hernia is more common in men than in women.

2. Risk Factors and Causes of Recurrence

The patient has a history of previous bilateral hernioplasties, namely a right hernioplasty in January 2025 and a left hernioplasty in May 2025. A history of previous hernia surgery is the main risk factor for recurrent hernias. Relapse can occur due to a variety of factors, including surgical techniques, the condition of the patient's tissues, as well as risk factors that are not controlled after surgery.

In addition, the patient's work factor as a parking attendant who routinely lifts and moves motorcycles is a significant risk factor. Repetitive heavy lifting activities can lead to a chronic increase in intraabdominal pressure. Persistently increased intraabdominal pressure can put pressure on the previously repaired area, leading to tissue repair failure and recurrence of hernias.

Increased intraabdominal pressure leads to stretching of the abdominal wall tissue, especially in areas that have previously experienced weakness. If the strength of the tissue is not enough to withstand the pressure, then there will be a re-protrusion of the intraabdominal organ through the area.

In addition to mechanical factors, biological factors also play a role in the recurrence of hernias. In elderly patients, there are changes in collagen composition, especially an increase in type III collagen and a decrease in type I collagen. Type I collagen has a higher tensile strength than type III collagen, so this change in ratio leads to a decrease in connective tissue strength. This condition makes the tissue more susceptible to weakness and healing failure after surgery.

3. Physical Examination and Diagnosis Findings

Physical examination showed a herniation in the right scrotal region that could not be reduced accompanied by pressure pain. This finding is a typical sign of recurrent inguinal hernia that has developed significantly. An irreducible hernia indicates the presence of attachment or entrapment of tissue within the hernia sac, which increases the risk of complications such as incausation and strangulation.

An abdominal examination showed the presence of pressure pain in the lower right region and the presence of a scar from previous surgery. Surgical scars indicate that the area has undergone previous surgical interventions, which can lead to changes in tissue structure and increase the risk of tissue weakness.

The diagnosis of recurrent inguinal hernia in these patients is established based on a combination of anamnesis and physical examination. The anamnesis indicates the presence of a previous history of hernias, typical pain complaints, and obvious risk factors. A physical examination showed the presence of an irreducible lump and a compressive pain. The combination of these findings is sufficient to establish the diagnosis clinically without the need for additional examination.

4. Management and Operational Actions

The definitive management of a recurrent inguinal hernia is a surgical procedure. In this patient, a herniotomy was performed with the installation of a mesh. The use of mesh is the gold standard in the management of inguinal hernia because it provides additional support to the abdominal wall and reduces the risk of recurrence.

Mesh serves as a synthetic material that strengthens the abdominal wall tissue and allows the growth of fibrous tissue that strengthens the area. The use of mesh was shown to significantly lower the recurrence rate compared to the repair technique without mesh.

Before surgery, patients are given supportive therapy in the form of intravenous fluids to maintain fluid balance, analgesics to reduce pain, and omeprazole to protect the gastric mucosa. After surgery, patients are given antibiotics to prevent infection, analgesics to reduce postoperative pain, and additional therapies to support recovery.

Proper management and the use of modern surgical techniques with mesh provide good results and reduce the risk of long-term complications.

5. Prognosis and Recurrence Prevention

The prognosis of recurrent inguinal hernia is generally good if treated appropriately and in a timely manner. The use of mesh in hernia repair significantly lowers the risk of recurrence. However, the long-term prognosis is highly dependent on controlling risk factors.

In these patients, the main risk factor is strenuous physical activity that leads to increased intraabdominal pressure. Therefore, it is important for patients to avoid heavy lifting activities after surgery. In addition, patients also need to be educated about the importance of maintaining an ideal body weight and avoiding activities that can increase intraabdominal pressure.

Postoperative monitoring is also important to detect possible complications or recurrences early. With proper management and modification of risk factors, the likelihood of recurrence can be minimized and the patient's quality of life can be significantly improved.

CONCLUSION

Inguinal hernias can occur due to weakness in the abdominal wall and increased intra-abdominal pressure. Diagnosis can be made based on the patient's history and physical examination. The definitive treatment for hernias is surgery. Recurrence of hernias can occur if the patient still experiences risk factors. However, with early management, potential worsening can be prevented. Based on this case, it is recommended that clinicians carefully evaluate persistent risk factors in patients with a history of hernia surgery, particularly in elderly individuals who are more vulnerable to connective tissue weakness. Patient education regarding postoperative lifestyle modifications, such as avoiding heavy lifting and controlling activities that increase intra-abdominal pressure, is essential to reduce the likelihood of recurrence. In addition, further clinical studies and case reports are needed to provide a deeper understanding of the factors contributing to recurrent inguinal hernia and to improve preventive and management strategies in clinical practice.

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