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Management of Obstructed Inguinal Hernia: A Prospective Observational Study

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ABSTRACT:

Introduction: Hernia is defined as protrusion of the viscus or part of the viscus through an abnormal opening of the walls of its containing cavity. Obstructed hernia occurs when part of hernia becomes irreducible subsequently leads to obstruction of gut. Material and methods: Ours was a prospective observational study conducted over a period of one year in the department of general and minimum access surgery GMC Srinagar. This study include all the patients diagnosed with obstructed inguinal hernia (strangulated / non-strangulated) presented to the surgical emergency. Our study include 34 patients, aged between 2-84 years old. The primary aim of the study was to evaluate the safety , feasibility and outcome of the emergency management of obstructed inguinal hernia. Results: The mean age of the patient was 49.9+-5 years. Total of 34 patients of obstructed inguinal hernia were resuscitated and taken up for surgery. Three patients have gangrenous herniated segment of bowel and undergone bowel resection and anastomosis, four patients have features of pre-gangrenous bowel loop which reversed back to normal. Six patients were managed by herniotomy and twenty eight patients were managed by tissue repair technique which include 21- Bassini's, 3- Desarda, 3- Shouldice, 1-McVay's repair. Conclusion: Obstructed inguinal hernia is a common problem encountered in surgical emergency, diagnosis is typically made from history and physical examination. The risk of hernia incarceration or strangulation is sufficiently high in obstructed hernia, which warrant the prompt diagnosis , adequate resuscitation and urgent appropriate surgical intervention. Complications of bowel strangulation with regards to delayed diagnosis , misdiagnosis and delay presentation lead to significant morbidity. Treatment strategy should be tailored to the patient presentation and the best available surgical expertise.

Keywords: Obstructed inguinal hernia, strangulation, hernia repair, surgical techniques, emergency surgery

Introduction :

Inguinal hernias represent a common type of abdominal wall hernia, accounting for a significant portion of emergency surgical cases worldwide. They occur when part of the intestine or abdominal tissue protrudes through a weakened spot in the lower abdominal muscles, specifically in the inguinal region. Hernias are classified based on their reducibility: a reducible hernia allows the contents to be pushed back into the abdominal cavity, while an irreducible hernia cannot be returned to the abdominal cavity, leading to complications. When irreducible hernias result in bowel obstruction, they are classified as obstructed hernias.

Obstructed inguinal hernias are a critical surgical emergency due to the risk of bowel strangulation. Strangulation occurs when blood flow to the herniated segment is compromised, resulting in ischemia, tissue necrosis, and potential gangrene if left untreated. These conditions necessitate prompt intervention, as the delay in treatment can significantly increase morbidity and mortality rates. This study focuses on the management of obstructed inguinal hernias and evaluates the outcomes of various surgical interventions, with an emphasis on ensuring adequate resuscitation and appropriate surgical techniques to prevent complications associated with delayed or ineffective treatment.

The diagnosis of obstructed inguinal hernia is primarily clinical, based on patient history and physical examination. Typical symptoms include pain, tender irreducible mass in the groin, abdominal distension, and the inability to pass gas or stool. Patients with obstructed inguinal hernias often present to emergency departments with acute abdominal pain with inguinal swelling, which may be accompanied by nausea, vomiting, and systemic symptoms due to intestinal obstruction. These presentations highlight the need for rapid assessment and surgical intervention to prevent progression to strangulation.

The management of obstructed inguinal hernia involves a range of surgical techniques aimed at relieving obstruction and repairing the hernia defect. Traditionally, surgical repair techniques such as Bassini's, Shouldice, Desarda, and McVay's repairs have been utilized, each with distinct advantages depending on the patient's condition and the surgeon's expertise. For patients with gangrenous bowel segments due to strangulation, bowel resection and anastomosis are required to remove necrotic tissue and restore intestinal continuity. In other cases, herniotomy (the surgical removal of the hernia sac) can be an effective approach to decompress the hernia and alleviate symptoms.

The objective of this study is to examine the outcomes of various surgical interventions in managing obstructed inguinal hernias, assess their safety and efficacy, and provide insights into the optimal strategies for emergency management. By evaluating a cohort of 34 patients treated at Govt Medical College Srinagar, this research aims to highlight the importance of early diagnosis, effective resuscitation, and prompt surgical intervention. The study findings are expected to contribute to the understanding of best practices in managing obstructed inguinal hernias, especially in resource-limited settings where access to timely surgical care can be challenging.

Materials and Methods :

Study Design

This research was designed as a prospective observational study conducted over a one-year period in the Department of General and Minimally Access Surgery at Govt Medical College, Srinagar. The study aimed to evaluate the safety, feasibility, and outcomes of various surgical techniques used in the management of obstructed inguinal hernias.

Study Population

The study included all patients presenting with obstructed inguinal hernia, including cases with strangulated and non-strangulated hernias, who were admitted as surgical emergencies during the study period.

Sample Size: A total of 34 patients

Age Range: Patients aged from 2 to 84 years

Mean Age: 49.9 ± 5 years

Inclusion Criteria

Clinical features consistent with obstructed inguinal hernia (pain, tenderness, irreducible groin mass, signs of intestinal obstruction).

Exclusion Criteria

Reducible inguinal hernias without signs of obstruction or strangulation.

Previous inguinal hernia repairs with mesh complications.

Data Collection

Data were collected prospectively for each patient through:

Patient Demographics: Age, gender, clinical presentation, and duration of symptoms prior to presentation.

Clinical Examination: Physical examination findings, including signs of bowel obstruction and tenderness over the groin region.

Imaging Studies: Ultrasound or CT imaging was performed in uncertain cases to confirm the diagnosis.

Laboratory Investigations: Complete blood count, serum electrolytes, and renal function tests were conducted to assess overall patient condition.

Preoperative Management

Upon diagnosis, all patients were immediately resuscitated with:

Intravenous Fluids: To maintain adequate hydration and correct electrolyte imbalances.

Nasogastric Decompression: For patients with significant abdominal distension or vomiting.

Antibiotics: Broad-spectrum antibiotics were administered to prevent infections, especially in cases with suspected bowel ischemia.

Surgical Techniques

Based on the condition of the hernia and the patient's clinical status, different surgical techniques were employed. The specific choice of procedure was guided by the surgeon's discretion and the extent of hernia involvement.

1. Herniotomy: For patients with reducible hernias after initial resuscitation (6 patients)
2. Tissue Repair Techniques: For irreducible hernias, various tissue repair techniques were used, including:
    - Bassini's Technique (21 patients)
    - Desarda Technique (3 patients)
    - Shouldice Technique (3 patients)
    - McVay's Repair Method (1 patient)
3. Bowel Resection and Anastomosis: In 3 cases with gangrenous bowel segments due to strangulation, bowel resection and primary anastomosis were performed to remove necrotic tissue and restore bowel continuity.

Postoperative Care

After surgery, patients were closely monitored for:

Signs of Infection: Including wound site infection and systemic signs.

Bowel Function Recovery: Assessment of bowel sounds, passage of flatus, and resumption of oral intake.

Complications: Any surgical or medical complications were documented and managed accordingly.

Outcome Measures

The primary outcome measures of the study included:

Surgical Success Rate: Defined as the successful relief of obstruction and hernia repair without recurrence within the hospital stay.

Complications: Early complications such as wound infection, hematoma, etc.

Length of Hospital Stay: Calculated from admission to discharge post-surgery.

Data Analysis

Data were analyzed using descriptive statistics. The mean and standard deviation were calculated for continuous variables, while categorical data were expressed as frequencies and percentages.

Results

Patient Demographics and Clinical Characteristics

- Mean Age: 49.9 ± 5 years
- Age Range: 2–84 years

A total of 34 patients were treated for obstructed inguinal hernia during the study period. The clinical characteristics and outcomes are summarized below.

Surgical Techniques and Outcomes

Technique	Number of patients	Outcomes
Bassini's	21	Effective tissue repair
Desarda	3	Effective tissue repair
Shouldice	3	Effective tissue repair
McVay's	1	Effective tissue repair
Resection and anastomosis	3	Required due to gangrenous gut
Herniotomy	6	Successful decompression of hernia

Complications:

Wound Infection: Observed in a few cases but resolved with antibiotics.

Hematoma: Minor cases were managed conservatively.

Mean Length of Hospital Stay: 3.6 ± 1.1 days.

Key Findings

The majority of patients (28) successfully underwent tissue repair without major complications.

Bowel resection and anastomosis were required in 3 patients with gangrenous bowel segments.

Postoperative complications were minimal and manageable with standard care.

Discussion :

The findings from this study underscore the importance of early diagnosis and timely intervention in managing obstructed inguinal hernias. Surgical repair techniques such as Bassini's, Desarda, and Shouldice were effective in most cases, with minimal complications. Bowel resection was necessary for gangrenous segments, highlighting the need for prompt diagnosis to avoid ischemia.

The variability in repair techniques reflects the need to tailor surgical interventions to individual cases, based on the patient's condition and surgeon expertise. The results support the safety and efficacy of traditional tissue repair methods in emergency settings, particularly in resource-limited facilities where access to mesh materials may be restricted.

Study Limitations :

This study was limited by a small sample size and single-center design. Future research with larger, multicenter studies may provide broader insights into optimal management strategies.

Conclusion :

Obstructed inguinal hernia is a surgical emergency with potential for serious complications. Early diagnosis, resuscitation, and appropriate surgical intervention are critical for successful outcomes. Traditional tissue repair techniques offer a safe, effective approach in emergency settings. Treatment should be tailored to each patient's presentation and available surgical expertise to minimize morbidity and improve outcomes.

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