

Original Research Article

TO INVESTIGATE THE CLINICAL MANIFESTATIONS AND EMERGENCY SURGICAL INTERVENTIONS FOR THE TREATMENT OF OBSTRUCTED INGUINAL HERNIA REPAIR

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ABSTRACT

Background: An inguinal hernia is a medical disorder characterized by the protrusion of abdominal contents via a weakened area in the inguinal canal. When an inguinal hernia gets blocked, the protruding tissue becomes stuck, resulting in a blockage of the intestines. This is a critical medical situation that needs immediate care. **Aim:** To investigate the clinical manifestations and emergency surgical interventions for the treatment of obstructed inguinal hernia repair.

Material and methods: All patients who had surgery for blocked inguinal hernia repair throughout the research period were included in the study. 80 patients who provided informed consent, patients of all age groups, and patients who attended in the emergency department with occluded inguinal hernia were included in the study. All pertinent information on the patient, including a comprehensive medical history and thorough clinical examination, was gathered using a pre-designed form.

Results: 80% of the participants had reported blockage at the internal inguinal ring, 6.25% at the inguinal canal, and 13.75% at the superior inguinal ring location. Approximately 52% of the individuals were admitted to the hospital during a 24-hour period. Approximately 10% of the cases took more than 3 days to be reported at the hospital, while the rest were reported within 24 to 72 hours. 98.75%, 97.50%, 63.75%, 38.75%, and 17.50% of the subjects had clinical symptoms such as pain, swelling, vomiting, abdominal distension, and constipation, respectively. the predominant contents found in hernial sacs were the small bowel (57.50%) and the omentum (31.75%). The occurrence of post-operative complications, such as leak, post-operative seroma, post-operative hematoma, post-operative wound infection, and mortality, were seen in 3.75%, 11.25%, 5%, 8.75%, and 3.75% of patients, respectively.

Conclusion: Emergency surgical intervention is the fundamental basis of therapy. Preoperative preparation includes the delivery of fluids to restore hydration, the use of a nasogastric tube to relieve pressure in the stomach, the administration of antibiotics, and the implementation of adequate pain management. Open repair is the predominant method used in emergency situations since it is easily accessible and very successful in managing complex cases. Although laparoscopic repair offers benefits in terms of faster recovery and less postoperative discomfort, it may not always be possible in urgent situations.

Keywords: Clinical manifestations, Emergency, Obstructed, Inguinal hernia.

INTRODUCTION

An inguinal hernia is the result of the protrusion of a section of the intestine or other tissue through a weakened area in the abdominal muscles located near the inguinal canal. An obstructed inguinal hernia, sometimes referred to as an incarcerated hernia, is a critical situation in which the protruding tissue gets caught and cannot be manually repositioned into the abdominal cavity, resulting in a blockage of intestinal contents.^[1] Hernia is prevalent in around 15% to 20% of the overall population. According to estimates, the occurrence of inguinal hernia in India is around 1.5 to 2 million cases. Inguinal hernia is more prevalent in males than females. Approximately 90% of surgical procedures for inguinal hernias are conducted on males, whereas over 70% of femoral hernia repairs are carried out on females. According to research, males have a 27% chance of developing an inguinal hernia over their lives, while women have a 3% chance.^[2] The occurrence of inguinal hernia is influenced by age, and in men, it follows a bimodal distribution curve. The first peak occurs during the first year of life, while the second peak occurs beyond the age of 40. While femoral hernia is more prevalent in women, the most common kind of hernia in women is really an inguinal hernia. In fact, inguinal hernias are five times more frequent than femoral hernias. The predominant subtype of groin hernia in both males and females is the indirect inguinal hernia. The ratio of indirect hernia to direct hernia in males is 2:1.^[3,4] Individuals suffering from a blocked inguinal hernia often experience sudden and intense symptoms such as intense pain, feelings of sickness, throwing up, swelling of the abdomen, and the inability to release gas or have a bowel movement. During a physical examination, a sensitive and unmovable lump is often seen in the groin region. This lump may be accompanied by indications of bowel blockage, such as initially increased bowel noises, which later become missing as the disease worsens.^[5]

An obstructed inguinal hernia requires immediate surgical intervention since it poses a danger of bowel strangling. Failure to properly treat this condition may result in ischemia, necrosis, and perforation. The main objective of emergency surgical care is to alleviate the blockage, diminish the herniated contents, and rectify the hernia defect. Preoperative preparation include the provision of broad-spectrum antibiotics, fluid resuscitation, and nasogastric decompression to minimize the likelihood of infection. Swift surgical intervention is crucial when there is suspicion of bowel strangulation.^[6] The treatment of an obstructed inguinal hernia may be performed using either an open or laparoscopic method, which is determined by the surgeon's proficiency and the patient's health status. The Open Hernia Repair procedure entails making an incision in the inguinal region to expose and decrease the herniated contents. If the bowel is determined to be

in a healthy and functional state, it is then placed back into the abdominal cavity. The surgical procedure involves removing any intestine that is not viable and repairing the hernia defect using sutures, frequently with the addition of mesh to prevent the hernia from recurring.^[7]

Laparoscopic Hernia fix is a minimally invasive procedure that utilizes tiny incisions and a laparoscope to both view and fix the hernia. The laparoscopic technique may provide benefits such as less postoperative discomfort and expedited recovery. However, its use in emergency situations may be restricted due to the patient's state and the occurrence of intestinal distension.^[8] Postoperative care primarily involves vigilant monitoring for problems, including infection, recurrence, and assuring the restoration of bowel function. Prompt initiation of movement and effective control of pain are essential for achieving the best possible recuperation.^[9] The research aimed to evaluate the clinical presentation, surgical techniques, and consequences after emergency inguinal hernia repair.

MATERIAL AND METHODS

Observational research was undertaken in the general surgery department. All patients who had surgery for blocked inguinal hernia repair throughout the research period were included in the study. 80 patients who provided informed consent, patients of all age groups, and patients who attended in the emergency department with occluded inguinal hernia were included in the study. Individuals who declined to provide written informed consent were not included in the research. All patients or their guardians provided informed permission for the research. All pertinent information on the patient, including a comprehensive medical history and thorough clinical examination, was gathered using a pre-designed form.

Data analysis

The gathered data was inputted into an Excel spreadsheet and analyzed using SPSS software version 25. The range, mean, and standard deviation were computed for continuous values, whereas proportions and percentages were derived for categorical variables. Bivariate analysis was conducted to determine the relationship between the dependent and independent variables. The correlation was assessed using the Chi-square test and the student t-test.

RESULTS

Table 1 displays the distribution of participants across different age groups. Specifically, 3.75% of participants were below 30 years old, 12.50% were between 30 to 40 years old, 33.75% were between 40 to 50 years old, 43.75% were between 50 to 60 years old, and 6.25% were over 60 years old. The average age was 59.41 years with a standard

deviation of 12.30. Out of the participants, 77% of them had reported having a hernia on the right side, while 23% had one on the left side. According to Table 2, 80% of the participants had reported blockage at the internal inguinal ring, 6.25% at the inguinal canal, and 13.75% at the superior inguinal ring location. Approximately 52% of the individuals were admitted to the hospital during a 24-hour period. Approximately 10% of the cases took more than 3 days to be reported at the hospital, while the rest were reported within 24 to 72 hours. Table 3 indicates that 98.75%, 97.50%, 63.75%, 38.75%,

and 17.50% of the subjects had clinical symptoms such as pain, swelling, vomiting, abdominal distension, and constipation, respectively. According to Table 5, the predominant contents found in hernial sacs were the small bowel (57.50%) and the omentum (31.75%). Table 6 indicates that the occurrence of post-operative complications, such as leak, post-operative seroma, post-operative hematoma, post-operative wound infection, and mortality, were seen in 3.75%, 11.25%, 5%, 8.75%, and 3.75% of patients, respectively.

Table 1: Age of the participants

Age group (in years)	Number =80	Percentage
Below 30	3	3.75
30-40	10	12.50
40-50	27	33.75
50-60	35	43.75
Above 60	5	6.25
Mean age \pm SD	59.41 \pm 12.30	

Table 2: Site of obstruction

Site of obstruction	Number =80	Percentage
Internal inguinal ring	64	80
Inguinal canal	5	6.25
Superior inguinal ring	11	13.75

Table 3: Clinical presentation of obstructed hernia

Clinical presentations	Number =80	Percentage
Pain	79	98.75
Swelling	78	97.50
Vomiting	51	63.75
Abdominal distension	31	38.75
Constipation	14	17.50

Table 4: Clinical procedure done for obstructed hernia

Clinical procedure	Number =80	Percentage
Hernia contents replacement in abdomen with meshplasty	32	40
Clearance of the toxic fluid and reduction of content and posterior wall repair	42	52.50
Bowel resection, end to end anastomosis with posterior wall repair	6	7.50

Table 5: Contents of the hernial sac of obstructed hernia

Contents of the hernial sac	Number =80	Percentage
Small Bowel	46	57.50
Omentum	25	31.25
Caecum	5	6.25
Sigmoid colon	3	3.75
Urinary bladder	2	2.50

Table 6: Post-operative complication

Complications	Type of surgery			Total Number =80	Percentage
	Resection and anastomosis	Posterior wall repair	Meshplasty		
Leak	3	0	0	3	3.75
Post-operative seroma	0	9	0	9	11.25
Post-operative hematoma	0	0	4	4	5
Post-operative wound infection	0	4	3	7	8.75
Death	3	0	0	3	3.75

DISCUSSION

This prospective observational research was undertaken among 80 individuals who had blocked inguinal hernia repair at the general surgery department. The objective of this research was to

examine the many methods of presenting blocked hernias, analyze the clinical characteristics, assess the diagnostic and therapeutic approaches, and evaluate the post-operative results of hernia procedures. The inclusion criteria were patients who provided informed permission, patients of all age

groups, and patients who attended in the emergency department with a blocked inguinal hernia. According to studies conducted by Rantomalala et al and Ihedioha et al, hernias are generally harmless conditions that typically appear as easily treatable swellings and are operated on in non-urgent situations. However, in some cases, complications such as the inability to reduce the swelling, obstruction, and strangulation can force patients to seek emergency medical attention. It is known that delaying treatment in these cases can lead to severe illness and even death.^[10,11]

The current investigation revealed that the age group with the largest number of cases (43.75%) was between 50 and 60 years, followed by the age group of 40 to 50 years (33.75%). The average age of the patients was 59.41 years. These results are consistent with the research conducted by Padmasree et al and Andrew et al.^[12,13]

Hernández-Irizarry et al conducted a research that examined the occurrence of blocked hernia in individuals between the ages of 44 to 53.14 Shakya et al noted the mean age was 49 years.^[15]

The present investigation revealed that the internal inguinal ring was the most often seen site of blockage, accounting for 80% of cases. The superior inguinal ring was the second most common location, accounting for 13.75% of cases. Femoral hernias are more often seen than inguinal hernias, perhaps because of the anatomical configuration of the hernia rings that the hernial sac traverses. Femoral hernias are characterized by tight and inflexible hernial rings, whereas direct inguinal hernias lack a clearly defined hernial ring.^[15]

The current investigation revealed that almost all individuals reported experiencing discomfort and swelling. The most prevalent clinical manifestation was vomiting, reported by 63.75% of cases, followed by abdominal distension, reported by 38.75% of cases.

Anatomically, recurrent inguinal hernia poses a complex challenge to comprehend, and its surgical correction is often tough.^[16] When dealing with recurring incarcerated and strangulated hernias, it is crucial to carefully consider the specific circumstances of each case in order to choose the most appropriate therapy. Factors to take into account include the specifics of any prior surgeries, the expertise of the medical professional, and the overall health of the patient.^[17] The predominant method done to treat blocked hernias in this research was the clearing of toxic fluid, decrease of content, and posterior wall repair. This was followed by the replacement of hernia contents in the abdomen with meshplasty. These results were similar to the research conducted by Padmsree et al and Eze et al.^[12,18] In a research conducted by Dai et al, it was revealed that 15.6% of cases were treated by surgically removing the dead tissue in the intestine and connecting the healthy parts, while 67.2% were treated by performing a hernia repair surgery using a polypropylene mesh that does not cause stress. The

remaining 32.8% were treated by doing a hernia repair surgery without using a mesh.^[19]

The contents of a complex hernial sac are significant for two reasons: the anatomical structure it affects and its capacity to survive. The present investigation discovered that the most prevalent material detected in the hernial sac was the small bowel, accounting for 57.50% of cases, followed by the omentum, which accounted for 31.75%. These results are consistent with the studies conducted by Padmsree et al, Goyal et al, Bekoe et al, Shakya et al, Andrews et al, and Amos et al.^[20-22] A study conducted by Bessa et al, Venara et al, Kurt et al, Hentati et al, Wysocki et al, Sawayama et al, and Derici et al has determined that synthetic mesh can be safely and effectively utilized in patients with incarcerated or strangulated inguinal hernia. This approach significantly reduces the likelihood of hernia recurrence without increasing the risk of surgical site infection.^[23-27]

Three patients treated with the surgical technique of 'resection and anastomosis' had postoperative complications, including three instances of leakage and three cases of respiratory problems. Posterior wall repair procedures resulted in 9 documented occurrences of seroma and 4 incidences of infection. Four instances treated with 'meshplasty' reported hematoma, while three cases reported infection. The present investigation identified post-operative seroma as the predominant complication seen among the study participants, followed by wound infection. The technique with the greatest number of post-operative problems was the 'posterior wall repair'. These results are consistent with the studies conducted by Padmsree et al, Dunne et al, and Azari et al.^[12,28,29] In a research conducted by Dai et al, it was found that the total incidence of complications after surgery was 40%. Specifically, the rate of complications related to the incision was 31%, while the rate of infections was 6%.^[29] The researchers observed that the risk of reoccurrence was 7.8% and the fatality rate was almost same. A research conducted by Bessa et al, Derici et al, and Kurt et al found that the post-operative complication rate ranged from 21% to 39%, while the death rate ranged from 4% to 5%.^[23-25]

CONCLUSION

The examination of the clinical manifestation and urgent surgical treatment of blocked inguinal hernia repair highlights the crucial significance of prompt diagnosis and intervention. Inguinal hernias that are obstructed manifest with sudden and severe symptoms such as great pain in the groin area, feelings of nausea, vomiting, swelling of the abdomen, and a mass in the groin that cannot be pushed back. These symptoms need urgent medical intervention to avert complications such as bowel strangulation and necrosis. Emergency surgical intervention is the fundamental basis of therapy.

Preoperative preparation includes the delivery of fluids to restore hydration, the use of a nasogastric tube to relieve pressure in the stomach, the administration of antibiotics, and the implementation of adequate pain management. The available surgical treatments for hernia repair include both open and laparoscopic procedures, which are chosen based on the patient's health and the surgeon's level of skill. Open repair is the predominant method used in emergency situations since it is easily accessible and very successful in managing complex cases. Although laparoscopic repair offers benefits in terms of faster recovery and less postoperative discomfort, it may not always be possible in urgent situations.

Efficient therapy of blocked inguinal hernias depends on timely surgical intervention to minimize the protruding contents, evaluate the health of the intestines, and fix the hernia opening. Postoperative care is crucial for the surveillance of complications, pain management, and promotion of early mobility.

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