

Post-operative monitoring of a strangulated hernia with ischemic bowel as content

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ABSTRACT

One of the most dreaded complications of an inguinal hernia is Strangulated Hernia. Once the diagnosis is established after physical examination and concurrent imaging, the extent and gravity of the pathology need to be assessed intra-operatively. Furthermore, the scope and direction of the surgical intervention must be planned accordingly. This case report describes a case of strangulated hernia causing extensive bowel ischemia which was not subjected to resection and ileostomy due to the possibility of poor post-operative prognosis. Efforts were targeted at preserving the viability of the bowel which was post-operatively evaluated through serial monitoring of the patient's bowel habits and stool consistency.

Key words: Bowel ischemia, Inguinal hernia, Post-operative management, Strangulated hernia

Inguinal Hernias carry 75% of the disease burden posed by abdominal hernias. Two-thirds of these hernias are indirect, making an indirect hernia the most common inguinal hernia [1]. The contents of the abdominal cavity can descend into the hernia sac through the deep inguinal ring and they may be entangled within the hernial sac causing an intestinal obstruction. Hernia with these features but with preserved blood flow to the contents is called an obstructed hernia. If the blood supply is compromised, the hernia is called a strangulated hernia [2]. In a study, the strangulation rate for inguinal hernias was found to be 29.7%. There was also a significant difference between indirect and direct inguinal hernias with respect to strangulation rate (32.6% vs. 10.3%) [3]. Thus, indirect hernias are more likely to be strangulated. A strangulated hernia can cause intestinal obstruction, bacterial translocation, and even intestinal perforation and thus warrants immediate surgical intervention, the recommendations for which are set up by the "World Society of Emergency Surgery" [4]. The surgical method to be adopted depends on the patient's presentation but the need for resection of the affected bowel segment can be a source of dilemma. This issue can be tackled by checking for the color and peristalsis of the bowel which would give essential hints regarding its viability [5]. If viability of the bowel is compromised, immediate resection needs to be performed. However, in circumstances wherein the extent of the bowel

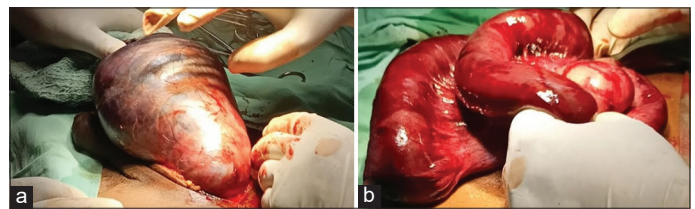



Figure 1: (a) Intraoperative view of the hernial sac; (b) Intraoperative view of ischemic bowel segment- the content of the hernial sac after being reduced into the abdomen following laparotomy

affected is way too large and poses a questionable scope of viability, the post-operative recovery of the patient must be weighed in.

This case study highlights a case where the length of the diseased small intestine was so massive that its resection directly challenged the expected post-operative benefits of doing so. The risk of development of "short bowel syndrome" and the mortality associated with it increases with resection of massive segments of the bowel [6]. In scenarios such as this, the operating surgeon ought to be mindful of their intervention, so as to not diminish the patient's previous standards of health.

CASE PRESENTATION

A 40-year-old male, farmer by occupation presented in casualty with sharp, non-radiating pain in the right inguinal region and scrotum, and multiple episodes of non-projectile, non-bilious vomiting for 1 day. The patient had a history of right scrotal

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swelling for 24 years which gradually increased in size and was previously manually reducible. Medical history was significant for a left hernial repair 27 years ago.

On general examination, the patient was dehydrated and afebrile with normal vitals. On physical examination, there was a tender swelling of 9 cm×8 cm×8 cm in the right inguinal region extending up to the base of the scrotum. Leukocytosis with 80.7% granulocytes was the key finding in the laboratory investigations. Abdominal ultrasonography corroborated with findings of a right-sided hernia.

On dissection of the right hernial sac (Fig. 1a) through an oblique right inguinal-scrotal incision, the entire jejunal and ileal segment of the small intestine was found to be ischemic (Fig. 1b). Through a midline laparotomy incision, the bowel segment in the hernial sac was reduced back into the abdomen. The ischemic bowel was given a continuous hot water compress. After a thorough inspection, certain sections of the bowel were found to exhibit mild peristaltic movement and hence placed back into the abdominal cavity. The hernia sac was ligated and excised followed by inguinal canal posterior wall repair and closure of the laparotomy incision. The following parameters were noted in the post-operative period (Table 1).

The patient was kept nil per oral for 7 days post-operative after which a liquid diet was started which was slowly upgraded to a solid diet. The patient was discharged on the 15th day post-operative after a full recovery (Fig. 2).

DISCUSSION

An inguinal hernia with a compromised blood supply is called a strangulated hernia which can invariably lead to necrosis [7].

A strangulated hernia with obstruction demands urgent surgical intervention as the delayed diagnosis can result in the need for bowel resection and ileostomy with prolonged recovery and increased complication rate. Emergency inguinal surgeries are associated with greater mortality, readmission, and reoperation rates than elective inguinal surgeries [8].

In this case, wherein 80% of the small intestine was found to be ischemic with most of the segment not having any peristalsis, resorting to resection would have seemed like the most logical intervention. However, the resection of such a large segment has an extremely poor prognosis. Resection of massive segments of the intestine carries with it the risk of developing “Short Bowel Syndrome” and along with it, a mortality of 15–47% depending on the age [9]. Short bowel syndrome leads to macro and micronutrient malabsorption, electrolyte abnormalities, fluid imbalance, and other complications that can be avoided with careful assessment and effective management techniques. To combat the operative risks [10] of such a large-scale procedure, the viability of the bowel loops was tried to preserve by tenaciously subjecting it to a hot compress for 20 min. When certain interrupted segments exhibited minimal peristalsis, it was decided to place the contents in the abdomen.

Post-operatively, serial monitoring of the color, frequency, and consistency of the stools was carried out. The stools went from black to yellow with an improvement in its consistency. The persistence of bowel sounds and absence of other signs and symptoms of a peristalsis pointed toward recovery. Therefore, it's imperative to possess foresight regarding the outcomes of surgical intervention and aim to ensure that the patient enjoys a good quality of life.

Table 1: Post-operative monitoring of the patient

Post-operative day	Stools		Bristol stool scale	Abdominal drain fluid	
	Frequency and consistency	Color		Quantity (mL)	Color
Day 1 (Figure 2a)	6–7, watery	Black	Type 7	90	Black
Day 2	6–7, watery	Black	Type 7	100	Black
Day 3	6–7, watery	Black with a greenish yellow tinge	Type 7	160	Black
Day 4	5, watery	Black with a greenish yellow tinge	Type 6	300	Brown-Black
Day 5 (Figure 2b)	4, watery	Black and yellow	Type 6	375	Yellowish-Brown
Day 6	5, semi-solid	Yellowish brown	Type 5	380	Yellowish-Brown
Day 7	3–4, semi-solid	Yellowish brown	Type 5	375	Yellow
Day 8	3, semi-solid	Yellowish brown	Type 5	330	Straw coloured
Day 9 (Figure 2c)	2, solid	Yellow	Type 4	175	Straw coloured
Day 10	1, solid	Yellow	Type 4	79	Straw coloured



Figure 2: Image of stool passed by the patient on (a) day 1 post-operative; (b) day 5 post-operative; and (c) day 9 post-operative

CONCLUSION

An inguinal hernia is a common affliction requiring surgical intervention. The treatment of each case must be tailored as per the disease presentation and the severity, keeping in mind that the post-operative risks should not outweigh the benefits. This case report shines light on how meticulous post-operative monitoring of bowel habits can be the telltale signs of gut health, pathophysiology, and post-operative recovery.

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