

Case Report

Strangulated direct hernia loop perforation in a COVID positive patient: a case report

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ABSTRACT

A strangulated hernia occurs when the blood supply to the contents of the hernia (e.g. omentum, bowel) is compromised and may lead to bacterial translocation and intestinal wall necrosis (potentially resulting in bowel perforation). This condition significantly increases the risk of emergency hernia repair which may increase the incidence of surgical site contamination and recurrence. We report a 28-year old male who presented in the emergency with right inguinal abdominal pain for the past 5 days which increased suddenly in the last 2 days, associated with abdominal distension, constipation with 2 episodes of vomiting. During surgery, the hernia was found to be a direct one containing a strangulated perforated loop of the terminal ileum, a rather uncommon finding in a direct hernia. Resection anastomosis of the perforated segment of the bowel was performed with uneventful intraoperative and postoperative courses.

Keywords: Strangulated hernia, Perforation, Direct hernia, COVID-19

INTRODUCTION

Inguinal hernias are one of the most commonly encountered cases in the surgical outpatient department (OPD) and a significant number of them might be strangulated, requiring immediate operative intervention if there is obstruction or perforation.

An inguinal hernia develops when contents from the peritoneal cavity migrate into the inguinal canal. They most commonly present as direct or indirect hernias, indirect being more common.¹

Direct hernias migrate medially to the inferior epigastric vessels while indirect inguinal hernias migrate laterally and push through deep inguinal canal. Both direct and indirect hernias might migrate inferiorly into the scrotal sac leading to pain and discomfort.² Certain inguinal hernias cannot be reduced externally and thus termed irreducible. The hernia sac contents might undergo necrosis, obstruction or an overall compromise in vasculature leading to strangulated or incarcerated hernia.

These warrant immediate intervention as they might cause bowel perforation and subsequent peritonitis.³⁻⁵

Some of incarcerated inguinal hernias require bowel resection due to non-viable segment.

Although the neck of the direct hernia sac (fascia defect) is soft and wide, it may become narrowed with time even fibrotic. This process may create a risk for a direct hernia to be incarcerated.⁶

COVID-19, has caused a global pandemic in a few short months. Although the virus primarily presents as a lower respiratory tract infection and is transmitted via respiratory droplets, there are multiple gastrointestinal and hepatic manifestations of the disease mediated via angiotensin converting enzyme 2 (ACE2) receptors.^{9,10}

CASE REPORT

A 28-year old male presented in the emergency with right inguinal abdominal pain for the past 5 days, which

increased suddenly in the last 2 days, associated with abdominal distension, constipation with 2 episodes of vomiting. He had a personal history of irregular bowel habits.

On general examination, he had tachypnea, tachycardia and had dehydration while his blood pressure (BP) was in normal range.

Per abdomen examination revealed generalised abdominal tenderness, guarding and rigidity. Bowel sounds were sluggish. Right inguinal swelling, no cough impulse that was not reducible found.

Abdominal X-ray revealed multiple air fluid levels, and routine laboratory investigations suggested mild thrombocytopenia and neutrophilic leucocytosis (NLR 8).

Ultrasonography (USG) was suggestive of distal small bowel obstruction and obstructed right inguinal hernia.

COVID by reverse transcriptase polymerase chain reaction (RT PCR) was incidentally found to be positive.

Emergency herniotomy under all necessary precautions was suggestive of an obstructed gangrenous bowel loop that was perforated and contaminated with stool.



Figure 1: X ray showed multiple air fluid levels suggestive of small bowel obstruction.

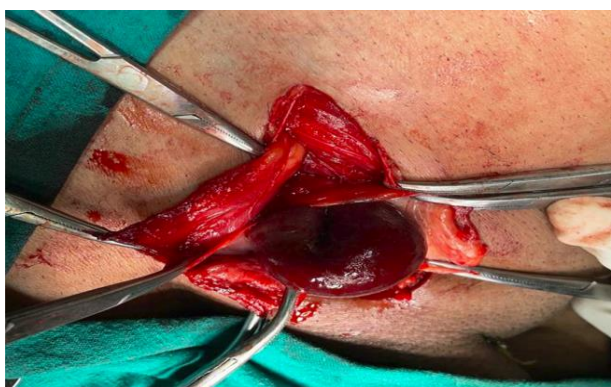


Figure 2: Gangrenous bowel loop with toxic fluid.

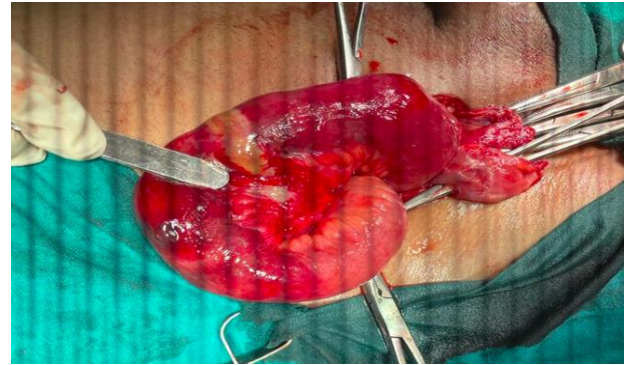


Figure 3: Segment showing perforation with stool.

DISCUSSION

Hernia is abnormal protrusion of viscous or part of viscous through an opening natural or artificial with a sac covering it.¹¹ Neck of indirect hernia lies lateral to inferior epigastric vessel while that of direct hernia lies medial to it. Neck is wider in direct hernia hence chances of obstruction and strangulation is lesser in direct hernia than in indirect hernia.¹²

A strangulated hernia occurs when the blood supply to the contents of the hernia (e.g. omentum, bowel) is compromised.² Nyhus et al noted that 10% to 20% of patients present with a strangulated inguinal hernia as the first presentation.¹³

Strangulated hernias may lead to bacterial translocation and intestinal wall necrosis (potentially resulting in bowel perforation). This condition significantly increases the risk of emergency hernia repair, which may lead to an increased incidence of surgical site contamination and recurrence.⁶⁻⁸

It has been hypothesized that the ACE2 receptors allow the initial entry of COVID-19 to mediate inflammation of the large and small bowel, although it might not be directly related and remains an incidental finding.^{9,10}

Mesh placement is not recommended as it may get easily infected and cause a burst abdomen.¹³

During surgery, the hernia was found to be a direct one containing a strangulated perforated loop of the terminal ileum, a rather uncommon finding in a direct hernia. Resection anastomosis of the perforated segment of the bowel was performed with uneventful intraoperative and postoperative courses. No mesh was placed.

CONCLUSION

Direct hernias must always be considered as a differential in cases of strangulated hernias, and unexpected operative findings warrant a careful approach to strangulated hernia care.

COVID 19 may play a role in inflammation of the bowel and subsequent obstruction.

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REFERENCES

1. Kulacoglu H, Kulah B, Hatipoglu S, Coskun F. Incarcerated direct inguinal hernias: a three-year series at a large volume teaching hospital. *Hernia*. 2000;4:145-7.
2. Simsek A, Kocaaslan H, Dirican A, Ateş M. Factors affecting strangulation and necrosis in incarcerated abdominal wall hernias. *Cyprus J Med Sci*. 2021;5:279-83.
3. Slater R, Amatya U, Shorthouse AJ. Colonic carcinoma presenting as strangulated inguinal hernia: report of two cases and review of the literature. *Tech Coloproctol*. 2008;12:255-8.
4. Kulacoglu H, Kulah B, Hatipoglu S, Coskun F. Incarcerated direct inguinal hernias: a three-year series at a large volume teaching hospital. *Hernia*. 2000;4(3):145-7.
5. McFadyen BV, Mathis CR. Inguinal herniorraphy: complications and recurrences. *Semin Laparosc Surg*. 1994;1:128-40.
6. Gallegos NC, Dawson J, Jarvis M, Hobsely M. Risk of strangulation in groin hernias. *Br J Surg*. 1991;78:1171-3.
7. Watkin D, Abrahamson J, Arregui ME, Flament JB. Groin Hernias in the Adult Presenting as Emergencies. Phillips. New York, NY: Abdominal Wall Hernias. Springer; 2001.
8. Gallegos NC, Dawson J, Jarvis M, Hobsley M. Risk of strangulation in groin hernias. *Br J Surg*. 1991;78:1171-3.
9. Kotfis K, Skonieczna-Żydecka K. COVID-19: gastrointestinal symptoms and potential COVID-19: gastrointestinal symptoms and potential sources of 2019-nCoV transmission. *Anaesthesiol Intensive*. 2020;52:1.
10. Jin X, Lian J-S, Hu J-H. Epidemiological, clinical and virological characteristics of 74 cases of coronavirus-infected disease 2019 (COVID-19) with gastrointestinal symptoms. *Gut*. 2020;10:1-8.
11. Le Neel JC, Sartre JY, Borde L, Guiberteau B, Bourseau JC. Lumbar hernias in adults. Apropos of 4 cases and review of the literature. *J Chirurgie*. 1993;130(10):397-402.
12. Bakhteyar MAK, Kumar B, Kumar S. Strangulated direct inguinal hernia with intraperitoneal perforation. *Int Surg J*. 2017;4:4093-5.
13. Nyhus LM, Pollak R, Bombeck CT, Donahue PE. The preperitoneal approach and prosthetic buttress repair for recurrent hernia. The evolution of a technique. *Ann Surg*. 1988;208:733-7.

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