

SPORTS INJURY INDUCED ILEAL PERFORATION LEADING TO SEPTIC SHOCK AND PERITONITIS - A CASE REPORT FROM A TERTIARY HOSPITAL IN INDIA

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Abstract

Serious sport-related intra-abdominal injuries are rare but can be life threatening. In this case study, the client had blunt abdominal injury while taking runs in the cricket. The opponent bats man's knee hit directly on the patient's abdomen and both of them fell down. After the first aid and initial treatment from the nearest hospital, the patient was brought to the tertiary hospital for further management. It was diagnosed as having ileal perforation. The patient had septic shock and peritonitis due to ileal perforation. This case study explains about the surgical treatment and interdisciplinary management.

Keywords: Sports Injury, Ileal Perforation, Septic Shock, Peritonitis.

INTRODUCTION

Serious sport-related intra-abdominal injuries are rare but can be life threatening. Previous study findings have shown that only 10% of abdominal injuries in the general population result from a sport-related incident. Ileal perforation with delay in diagnosis may be a cause for obscure peritonitis with severe toxic state; there may be obscured clinical features with resultant delay in diagnosis and suitable surgical intervention.

Background

Ileal perforation is a serious condition in which a hole is present in the Ilium that allows the intestinal contents to leak out into the abdominal cavity. Perforation of terminal ileum is a cause for obscure peritonitis, heralded by exacerbation of abdominal pain associated with tenderness, rigidity and guarding, most pronounced over right iliac fossa. (Singh, G. et al., 2014). Sports related intra-abdominal injuries are rare and may be associated with significant morbidity if missed (Johnson K, 2021). Delayed diagnosis of an intra-abdominal injury can lead to sepsis and peritonitis, subsequently, significant morbidity and even mortality.

Septic shock occurs in response to an inciting agent, which causes both pro-inflammatory and anti-inflammatory immune system activation. Peritonitis is inflammation of the localised or generalised peritoneum- the lining of the inner wall of the abdomen and cover of the abdominal organs.

Case description

We report a case of a 35 years old male working as a police constable was admitted to the emergency department of Saveetha Medical College and Hospital with complaints of alleged history of blunt trauma in abdomen while playing cricket. The patient was taking runs in cricket when he got hit by the opposite player's knee resulting in pain in the lower abdomen which was sudden in onset.

Patient risk factors: He had the history of alcohol consumption since 5 years.

On admission he was dull, conscious and oriented to time, place, person and with a Glasgow coma scale (GCS- 15/15). Blood investigations including biochemical (LFT, RFT, serum electrolytes, RBS), pathological (CBC, PS, ESR), microbiological (scrub typhus, WIDAL, leptospira IgM) and serological (HIV, HbsAg, HCV) tests were done and found normal. His haematology values were haemoglobin value of 13.2g/dl, decreased PCV value of 39.5%, increased INR value of 1.1, increased PT value of 16.3sec. Ultrasound abdomen showed mild to moderate ascites. CT abdomen revealed mild to moderate ascites with free air in the non-dependent region of abdomen and hepatic hilum. Mild mesenteric haziness with prominent ileal loops also was present.

Initial management: Patient was catheterized with self-retaining urinary catheter and a 14 Fr. naso-gastric tube was introduced to maintain nil per oral. Initial treatment in emergency at the time of admission was, administered analgesic Inj. Paracetamol 1g IV, proton pump inhibitors and fluids.

Surgical treatment: Exploratory laparotomy with primary repair was done. Clumped and inflamed bowel loops noted with phlegmatous covering. Toxic fluid 600ml was suctioned. Bowel walk performed and 0.5cm x 0.5cm rent in the antimesenteric border noted in the proximal ileum 40cm. Primary repair was done with 3-0 vicryl. Haemostasis checked. Thorough abdominal wash given. Two abdominal drain kits were positioned; a 28Fr abdominal drain placed in the sub hepatic space and a left abdominal drain placed in the pelvis. Drain fixed with 1-0 silk. Sterile dressing was done.

His vital signs and fluid intake and output was monitored. Post op ABG showed metabolic acidosis. Patient was on mechanical ventilation, afebrile BP:120/80 with Noradrenaline at 5ml/hr, PR:119, RR:18, SpO2:97% at 100% FiO2. Patient vitals were stable and extubation was done. Patient developed bilateral lower lobe consolidation with mild pleural effusion. He was continuously monitored and treated in surgical intensive care unit.

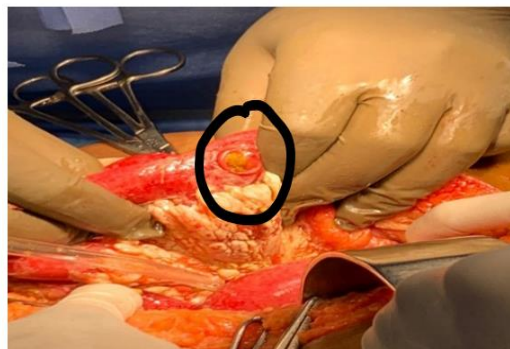


Figure 1: Ileal perforation -before surgery.

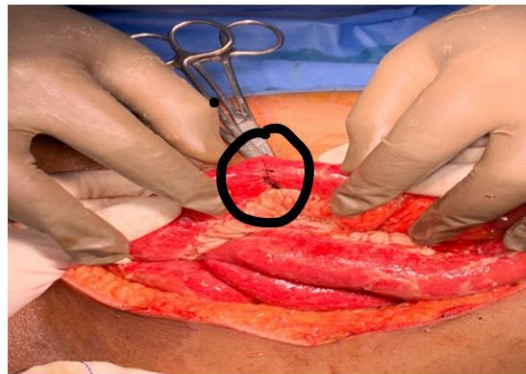


Figure 2: Ileal perforation repair -after surgery

DISCUSSION

Independent of the aetiology, all the cases of small intestinal perforation have similar clinical features leading to peritonitis with fulminating secondary bacterial infection. The common causes of ileal perforation are trauma, instrumentation, inflammation, infection, malignancy, ischemia, and obstruction. In this case study ileal perforation was due to blunt abdominal injury during cricket. Similarly, a study by Onwubiko C et al in 2015, treated a 13 year old girl with anaemia, occasional constipation with iron supplement was presented with intestinal perforation due to blunt abdominal injury by hitting on the safety bar during water game in the amusement park. Sinz et al in 2021 reported a 63-year-old male, fell down by slippery wet floor, and complained with abdominal pain, found bowel perforation in diagnostic laparoscopy. Johnson et al in 2021, reported a similar case of 21-year-old college student, goalkeeper had small bowel perforation after colliding with team mate during practice

Studies have shown that alcohol consumption is a risk factor for ileal perforation. The patient has the history of alcohol consumption since 5 years. The patient might have developed ileal perforation due to the alcohol consumption as well. Ileal perforation is diagnosed by using comprehensive clinical assessment, complete patient history, identification of the symptoms and radiological examination. Exploratory laparotomy is surgery to open up the belly area (abdomen). This surgery is done to find the cause of problems (such as pain or bleeding) that testing could not diagnose. It's also used when an abdominal injury needs emergency medical care. Anjali & Mini, 2023 used NANDA for caring the patient for patient with Alagille syndrome. In this case study interdisciplinary care was used.

CONCLUSION

All the cases of intestinal perforation should be thoroughly investigated to diagnose associated other diseases and to determine further treatment. The patient's condition gradually improved. Sports related ileal perforation is a rare case. Conversely, perforation as a result of minimal trauma should suggest an underlying pathology that warrants further investigation. If diagnosis is delayed due to non-specific early symptoms, it can lead to perforation, peritonitis, and resection of gangrenous bowel, ultimately leading to significant post-operative mortality and morbidity. When accurately diagnosed, the only treatment is surgery, which is either through laparotomy or laparoscopy (Memon ZA et al 2019).

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Ethical approval: Consent obtained from the patient

References

- 1) Anjali Arora, Mini George. A curious case of Alagille syndrome – A case report. *Gastroenterology nursing*, 2023;46(6):437-443.
- 2) Johnston, K., Condon, T. A., Ciocca, M., & Aguilar, A. (2021). A Small Bowel Perforation in a Goalkeeper: A Case Report and Return-to-Play Progression. *Journal of athletic training*, 56(11), 1209–1212. <https://doi.org/10.4085/261-20>
- 3) Mahapatra S, Heffner AC. Septic Shock. [Updated 2023 Jun 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK430939/>
- 4) Memon ZA, Aisha M, Qadar LT, Ochani RK, Ali Asghar S. Rare Case of Peritonitis due to Ileal Perforation Secondary to Richter's Type of Obturator Hernia. *Cureus*. 2019 Mar 21;11(3):e4289. doi: 10.7759/cureus.4289. PMID: 31183270; PMCID: PMC6538228.
- 5) Mishra, B. M., Sethy, S., & Rath, B. K. (2021). Management outcome of non-traumatic small intestinal perforation: A prospective study. *International Journal of Surgery*, 5(1), 26-30.
- 6) Nahar, S., & Ranjan, A. (2017). Observational study of small bowel perforation in a tertiary care hospital. *International Surgery Journal*, 4(8), 2746-2750.
- 7) Onwubiko C, Elliot C. Pennington, David P. Mooneya, Russell W (2015) Jennings Intestinal perforation due to minor blunt abdominal trauma a harbinger of underlying disease pathology, *J Ped Surg Case Reports* 3 (2015) 35 -37
- 8) Rajagopalan AE, Pickleman J. Free perforation of the small intestine. *Ann Surg*. 1982;196(5):576-9.
- 9) Singh, G., Dogra, B. B., Jindal, N., & Rejintal, S. (2014). Non-traumatic ileal perforation: a retrospective study. *Journal of family medicine and primary care*, 3(2), 132–135. <https://doi.org/10.4103/2249-4863.137633>.
- 10) Sinz, L Benigno, M A Zadnikar, M E Biraima-Steinemann, Small bowel perforation after low-velocity trauma: a case report, *Journal of Surgical Case Reports*, Volume 2021, Issue 4, April 2021, rjab095 <https://doi.org/10.1093/jscr/rjab095>