CASE REPORT

SPONTANEOUS PERFORATION OF MECKEL'S DIVERTICULUM PRESENTING WITH GENERALIZED PERITONITIS

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Meckel's diverticulum is the most common congenital anomaly of the GIT with a low incidence of 2% and the complication rate is even lower with perforation being the rarest. We report an intriguing case of a 15-year-old male, who presented with one-week history of high-grade fever and diarrhoea followed by acute onset of abdominal pain in the periumbilical region which became generalized. On physical examination his abdomen was distended with guarding and rigidity. A provisional diagnosis of peritonitis secondary to enteric perforation was made and exploratory laparotomy was done which revealed a perforated Meckel's diverticulum and advanced peritonitis. A diverticulectomy with double barrel ileostomy were performed. No heterotopic tissue in the diverticulum was noted on histopathology, nor any other abnormal tissue identified. The patient made an uneventful recovery postoperatively and ileostomy reconstruction was done two months later. This case report is rare case of Meckel's diverticulum complications and highlights the importance of considering Meckel's diverticulum as a differential diagnosis in every patient presenting with acute abdomen, which can aid toward better management through laparoscopy.

Keywords: Diverticulum; Meckel's diverticulum; Laparotomy; Peritonitis; Ileostomy; Idiopathic

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INTRODUCTION

Meckel's diverticulum is the most common congenital abnormality of the gastrointestinal tract[1] which is a result of incomplete obliteration of the vitellointestinal duct[2]. It is found in only 2% of the population. Inspite of its low incidence, the complications rate is even lower which is found to be around 4%.[3] The complications include haemorrhage, intussusception, inflammation, volvulus, intestinal obstruction and malignant transformation with perforation being the lowest reported complication.[4]

Approximately 60% of Meckel's diverticula contain heterotopic mucosa, of which over 60% consist of gastric mucosa.[5] This heterotopic tissue is the cause of diverticulitis which subsequently causes spontaneous perforation and peritonitis in most of the cases. We describe this case in which spontaneous perforation of the perforation occurred and the patient presented with peritonitis and no cause was identified even after extensive workup.

CASE STUDY

We present a the case of a 15 year old male patient, with no known comorbids, who presented to us in the emergency setting with the complaint of high grade fever and diarrhoea for one week, followed by acute onset of pain in the periumbilical region for one day which gradually become generalized and severe with absolute constipation. This was associated with two episodes of vomiting and the patient was anorexic. There was no history of altered bowel habits, fresh bleeding per rectum or melena, hematemesis or coffee ground vomiting previously. There was no history of tuberculosis contact, night sweats or weight loss. On physical examination, patient was found tachycardic, tachypnoeic and hypotensive. On abdominal examination, abdomen was distended, tense, tender with generalized guarding and occasional bowel sounds. Per rectal examination revealed a collapsed rectum. No other positive findings were present in the rest of the examination. Abdominal x-ray showed no gas under diaphragm; ultrasound whole abdomen showed free fluid within the abdominal cavity with dilated small bowel loops. Hence, diagnosis of peritonitis secondary to hollow viscus perforation was made secondary to enteric fever. Subsequently, after initial resuscitation, plan for exploratory laparotomy was made with a midline incision. Per op findings were 900 ml of purulent material mixed with bilious content and slough over small bower loops in the abdominal cavity. A normal looking appendix was identified along with a 1cm by 1.2 cm perforation present at the base of the Meckel's diverticulum with surrounding erythema and oedematous bowel wall 80 cm proximal to the ileocecal valve. Resection of the portion of the bowel containing the diverticulum was done for 5 cm on either side and double barrel ileostomy was made. Abdominal cavity was washed with copious amount of normal saline and closed in layers after placing a SE4 drain in the pelvis and taken out through a separate skin stab incision. Postoperatively, the

patient remained vitally stable and the recovery was uneventful, the drain was removed on the 3rd postoperative day and patient discharged on the 5th postoperative day. Histopathology of the resected bowel showed no abnormal or heterotopic tissue in or around the Meckel's diverticulum. Hence, the perforation was deemed spontaneous and idiopathic. Reversal of the ileostomy was done two months after the initial surgery and the patient recovered fully. Clinical follow up of the patient over the next six months remained unremarkable.

DISCUSSION

Meckel's diverticulum is the commonest reported anomaly of the GI tract. Therefore, the incidence of its complication is also lower around 4–16%,[6] that is primarily the reason that the complications associated with Meckel's are not thought of commonly while keeping in mind the differential diagnosis of patients presenting with peritonitis. Complications mostly arise in paediatric population and its incidence decreases with age increasing the diagnostic dilemma as in our case.

We presented a case in which the patient presented with generalized peritonitis secondary to perforated Meckel's diverticulum. The preoperative diagnosis of an enteric perforation was made consistent with the history of the patient and the patient required a laparotomy to confirm the cause for peritonitis and further management.

The technetium-99m pertechnetate scan, or Meckel's scan, is generally regarded as the most accurate, non-invasive diagnostic technique but it can be false negative as the heterotopic gastric mucosa must be present for a positive result. Other modalities such as the ultrasound and CT scan abdomen could prove handy when a high index of suspicion is present for Meckel's diverticulum.[7] This scan was not used in our study as the diagnosis was not suspected, but in retrospect, it would have proved counterproductive as no heterotopic tissue was present in the diverticulum as confirmed by histopathology.

The perforation of a Meckel's diverticulum is mostly caused by irritation of foreign body causing pressure necrosis of the diverticulum wall, or spontaneous perforation due to progressive inflammation of Meckel's diverticulum wall as depicted in our case which produced peritonitis. Subsequent histopathology also did not show any specific reason and therefore the perforation was rendered idiopathic and spontaneous. Only one such case has previously been reported in which the authors found a similar nature of perforation.[8]

CONCLUSION

We conclude that the preoperative diagnosis of perforated Meckel's diverticulum is tricky in patients presenting with acute abdomen as the clinical signs and symptoms are overlapping considerably and a high degree of clinical suspicion is required. Also, if diagnosed early, laparoscopic approach can be used for managing this complication.[9]

AUTHORS' CONTRIBUTION

All authors helped in formulating the study and have read and approved the final manuscript in entirety.

Competing Interests: The authors declare that they have no competing interest.

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