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An Axial Twist of an Interesting Structure Presenting As Acute Abdomen

Dr. Princess Beulah MS, *Associate Professor, General Surgery, Government Thiruvallur Medical College hospital.*
Dr. Rithik. R MS, *Senior Resident, General Surgery, Government Thiruvallur Medical College hospital.*

Abstract
The lifetime risk of complications due to meckels diverticulum is about 4%. Of the complications, axial twist of meckels diverticulum with gangrene presenting as acute small intestine obstruction is the rare one. We reported a 13 year old female with complaints of abdominal pain and distention. She was dehydrated and febrile. Abdomen was distended, guarding+, per rectal examination revealed roomy rectum. We admitted the patient and resuscitated with IV fluids. CT abdomen revealed Meckels diverticulitis with abscess with small intestine obstruction. Emergency laparotomy was done. 1 litre of purulent fluid was sucked out. Gangrenous meckels diverticulum was found with an axial twist around its communication with ileum and was adherent to posterior wall of uterus. A loop of small intestine was entangled within it. Adhesions were released and resection of gangrenous meckels diverticulum with ileum of 5 cm on each side and end to end ileo ileal anastomosis done with covering loop ileostomy. Post operative period was uneventful. Though being a rare complication presenting as an acute abdomen, timely intervention can reduce the morbidity and mortality of the patient.
Keywords: *gangrenous meckels diverticulum, axial twist, obstruction.*

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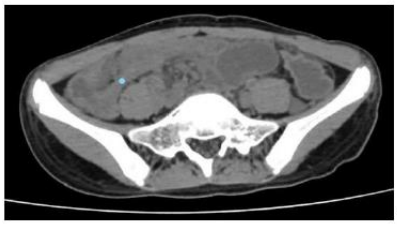
I. Introduction

Meckels diverticulum is one of the congenital anomaly of the gastrointestinal tract arising due to the persistence of the vitelline duct. The basis of this embryonic remnant was first described by German anatomist Johan Friedrich Meckels. The major complication of of meckels diverticulum include bleeding, perforation, inflammation or obstruction. Obstruction related to meckels diverticulum is most commonly secondary to intuscception or a volvulus. Axial torsion of meckels diverticulum is one of the rarest complication. We report a very rare complication of meckels diverticulum wherein there was a axial twist around its axis with gangrene causing intestinal obstruction.

II. Case report

A 13 year old girl presented to casualty with complaints of abdominal pain and abdominal distention for the past 4 days. The abdominal pain was initially confined to umblicus and later progressed gradually to be diffuse in nature. She also had high grade fever and also had vomiting which was bilious in nature. On examination she was pallor, febrile, hydration was poor. Abdomen was distended, guarding present, bowel sounds were sluggish. On per rectal examination, rectum was roomy. We admitted the patient, secured IV line and bladder catheterization was done to monitor the urine output. IV fluids were started and resuscitation was done. Blood investigation were done which revealed leukocytosis and anemia. X-ray abdomen erect showed multiple air fluid levels. CT abdomen was done which showed meckels diverticulitis with abscess with small intestine obstruction with ischemia. After thorough resuscitation we shifted the patient to operation theatre for emergency laparotomy.



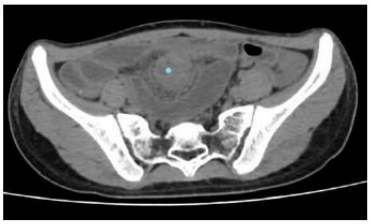


Fig :1 images showing blind ending tubular structure arising from ileum with absceess formation with small intestine obstruction.

Intra-operative findings

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On performing emergency laparotomy, there was nearly 1 litre of purulent fluid. The purulent fluid was sent for culture and sensitivity. There was a gangrenous diverticulum like structure arising from ileum which was twisted at its communication with ileum probably gangrenous meckels diverticulum. The gangrenous meckels diverticulum was found adherent to posterior wall of uterus and right Fallopian tube with a loop of ileum getting entangled in between causing intestinal obstruction. Caecum, appendix, colon were normal.

Fig: 2 image showing gangrenous meckels diverticulum entangling a loop of ileum causing intestinal obstruction.

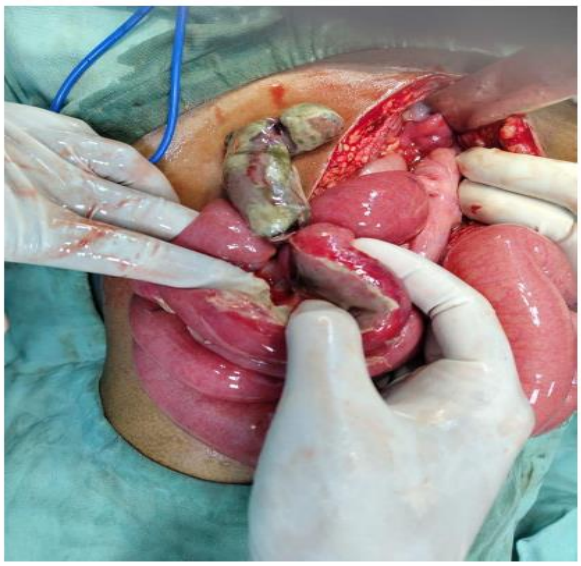

Fig: 3 image showing axial twist of gangrenous meckels diverticulum.

Surgery

We proceeded with first draining the purulent fluid and out. We resected the gangrenous meckels diverticulum with 5 cm margin on both sides of diverticulum on ileum without untwisting the gangrenous meckels diverticulum. End to end ileal-ileal anastomosis with proximal loop ileostomy was done. Thorough wash was given with warm normal saline. Hemostasis achieved. Abdominal drain placed and wound closed in layers. Sterile dressing was done. Patient was extubated and shifted to intensive care unit.

Post operative period

Post operatives period was uneventful. Patient was vigorously resuscitated with IV fluids. Patient was started on empirical antibiotics. Ryle tube was removed on POD 2 and orals were started after functioning of the ostomy on POD 2. Abdominal drain was removed on POD 3. Patient was completely ambulant and was completely pain free from POD 6. Sutures were removed on POD 9 and patient was discharged on POD 10. The parents were guided and trained for ostomy care during the mean time. Patient had been counseled to review in surgery opd every week to monitor the ileostomy and its functioning.

III. Discussion

The lifetime risk of complication in patients with an meckels diverticulum is only 4%. It has been reported that symptomatic meckels diverticulum is more common in men with a male female ratio of 2:1. The most common obstruction was intussception or invagination with meckels diverticulum being the lead point. Axial torsion of meckels diverticulum around its base, consequent gangrene, has been reported only seven times in adults. Malhotra et al. in their case report published in 1998 mention only 4 adult cases and 1 pediatric case with axial torsion of MD. However, a literature review that we conducted has shown that since then an additional 19 cases have been reported. In our case, there was a coexistence of gangrenous meckels diverticulum and loop forming mechanism of obstruction which is a rare one. Sharma et al., reported mechanical reasons to explain this coexistence of herniation of terminal ileum in the loop of meckels diverticulum might have caused an axial twist causing gangrene.

IV. Conclusion

Axial torsion of meckels diverticulum with gangrene formation is a rare occurrence. Preoperative diagnosis of complicated meckels diverticulum is difficult as it mimics other common acute abdominal condition. CT scan and enteroclysis are imaging modalities of choice. Surgical resection of meckels diverticulum along with resection and anastomosis of gangrenous bowel segment results in complete cure.

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