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RESEARCH ARTICLE

CASE REPORT : RARE CASE OF SMALL BOWEL OBSTRUCTION DUE TO MECKEL'S DIVERTICULUM

Dr. Simranjit Kaur Dhadiala[1] and Dr. Abhijit A. Whatkar[2]

1. MBBS, MS (General Surgery), FMAS, DMAS
2. MBBS, DNB (General Surgery), FMAS, DMAS, FCPS, FIAGES.

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Abstract

Meckel's diverticulum is a rare congenital anomaly of gastrointestinal tract, seen in 2% of population. It was first described by Guilhemus Fabricus Hildonus in 1598. Meckel's diverticulum is an anomaly derived from incomplete obliteration of omphalo-mesenteric duct. It is rarely seen in adults, with prevalence of male to female of 2:1. Complications associated with Meckel's diverticulum are hemorrhage, inflammation and intestinal obstruction. We present to you a case of 17 year old male with unusual mechanism of small bowel obstruction due to Meckel's diverticulum.

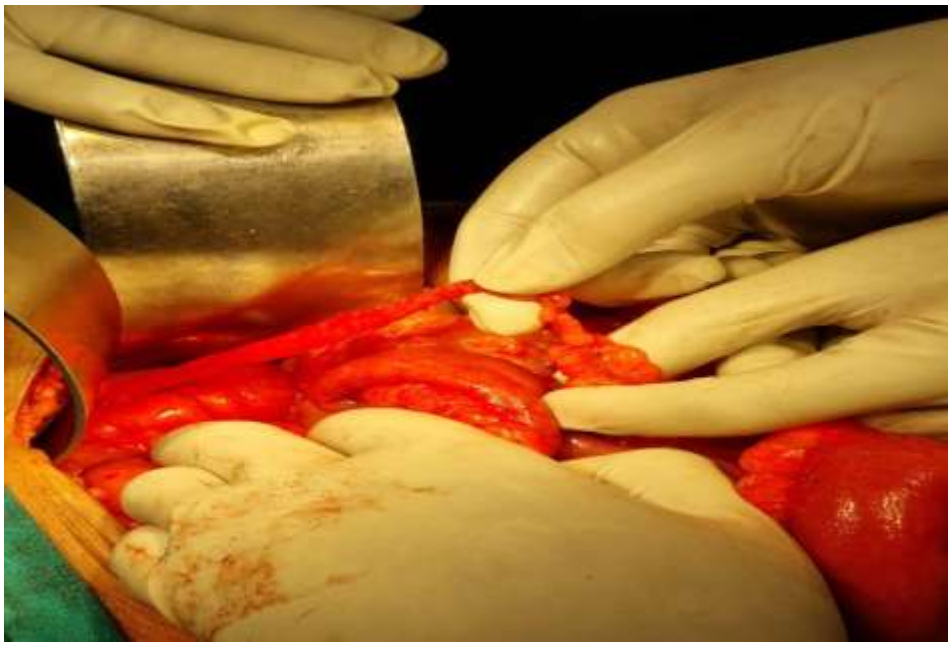
Introduction:-

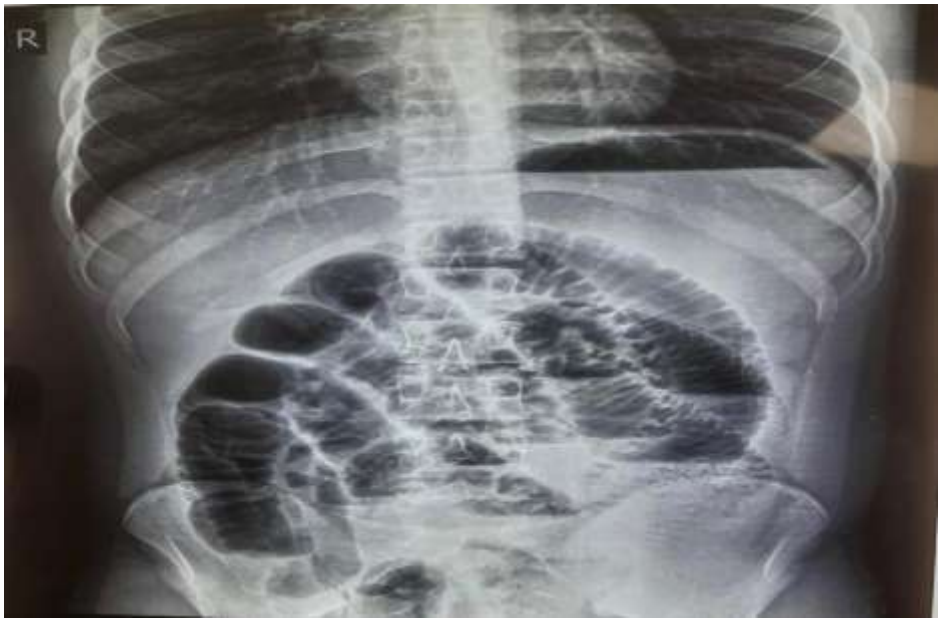
Case Report:

A 17 year old male, with no significant past medical history, presented to emergency room with complaints of colicky, diffuse abdominal pain since 3 days followed by bilious vomiting since 1 day. At that time of pandemic, universal testing of COVID-19 for individuals requiring admission was implemented, and the patient tested negative for SARS-COV2. On admission, patient's vitals were HR-96 beats/min, BP-110/90 mmHg, SpO2-96% on room air, RR-18 breaths/min, temperature-98.6 F. On per abdomen examination, abdomen was distended with generalised tenderness and absent bowel sounds. Immediate resuscitative measures with IV fluids and nasogastric tube decompression started. Complete blood picture was suggestive of increased WBC count of 12600/cmm. Rest of the blood work up was within normal limits. USG abdomen pelvis was suggestive of small bowel loop showing sluggish peristalsis and measuring 3 cm in diameter, mild free fluid in pelvis. Xray abdomen erect showed multiple air fluid levels in central abdomen, which was suggestive of small bowel obstruction. There was no evidence of air under diaphragm.

Emergency exploratory laparotomy was performed under general anaesthesia in view of Xray abdomen findings. Intra-operatively, proximal ileal loops were distended, a constricting band extending from the tip of Meckel's diverticulum to the parietal wall was noted. The constricting band was released and segmental resection of Meckel's diverticulum done with end to end ileo-ileal anastomosis. Histopathologic examination revealed Meckel's diverticulum of 4 cm with gastric mucosa, without malignancy. Post-operatively, WBC count reduced to 7000/cmm. Patient recovered uneventfully and was discharged from the hospital on post-operative day 6.

Corresponding Author:- Dr. Simranjit Kaur Dhadiala
Address:- MBBS, MS (General Surgery), FMAS, DMAS.





Discussion:-

The embryonic origin of Meckel's diverticulum was explained by Johann Friedrich Meckel in 1809, but was originally described by Fabricus Hildanus in 1598 (1). Meckel's diverticulum is the most common congenital anomaly of small intestine, seen in 2% of population (2,3). In the first few weeks of gestation, vitelline duct connects the midgut loop to the yolk sac, which obliterates overtime (4). It is due to incomplete obliteration of vitello-intestinal duct or omphalo-mesenteric duct (5). It is a true diverticulum as it contains all layers of small intestine. Prevalence of male to female is 2:1. It is usually located 2 feet proximal to ileo-caecal junction, is 2 cm in size and is present on the anti-mesenteric border. 50-60% of patients with Meckel's diverticulum become symptomatic before 2 years of age, and rarely diagnosed in adults. Complications related to diverticulum decrease with age. Meckel's diverticulum contains 2 types of ectopic tissue, gastric or pancreatic tissue. Most cases of Meckel's diverticulum are asymptomatic or is an incidental finding. The apex of the diverticulum can be free or have a fibrous band attachment to mesentery or umbilicus or rarely to parietal wall. Most common complication associated with Meckel's diverticulum is hemorrhage, due to ectopic tissue (6). Intestinal obstruction is the second

most common complication of diverticulum (7). Various reasons for intestinal obstruction are mesodiverticular band, volvulus of diverticulum around the mesodiverticular band, intussusception or extension into hernial sac, which is known as Littre's hernia (8). Intestinal obstruction due to a band extending from diverticulum to the parietal wall is seen in very rare cases.

Various imaging modalities have been used for diagnosing Meckel's diverticulum, however, conventional radiological investigation has limited value. High resolution sonography can be used in diagnosis, showing fluid filled structure in right lower quadrant with blind ending, thick walled loop of bowel (9). Pre-operative diagnosis of Meckel's diverticulum in symptomatic patients is difficult, especially if the only symptom is per-rectal bleeding. Since technetium-99 pertechnate scan is specific to ectopic gastric mucosa, it is a useful non-invasive investigation, especially in pediatric age group with sensitivity of 80-90%, specificity of 95% and accuracy of 90% (10).

Management of incidental Meckel's diverticulum is still a debatable topic. Although resection of the diverticulum has been explained by morbidity and mortality throughout life (11-13). Definite treatment protocols for Meckel's diverticulum is surgery, via laparotomy, laparoscopy or laparoscopic assisted surgery. Operative procedure for Meckel's diverticulum depends on the size and complication of the diverticulum. Narrow based diverticulum with no palpable mass can be treated with wedge resection and primary closure of ileal defect. However, wide based diverticulum with or without complications such as palpable ectopic tissue or ischaemic changes to adjacent ileum can be treated with resection and end to end anastomosis. A fibrous band extending from the apex of the diverticulum to the mesentery or umbilicus or parietal wall should be released.

Conclusion:-

We presented a case of Meckel's diverticulum causing small bowel obstruction which was successfully managed by surgical intervention. Intestinal obstruction due to a band extending from the Meckel's diverticulum to parietal wall is seen in very rare cases. Meckel's diverticulum should be included as a differential diagnosis in patients with unexplained small bowel obstruction. Definitive management of symptomatic patients is surgical intervention with various procedures, such as diverticulectomy, wedge resection or segmental resection with end to end bowel anastomosis, depending upon diverticular base integrity and condition of adjacent ileum.

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