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A Rare Presentation of Intestinal Obstructionat A Peripheral Centrein Doda District.

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ABSTRACT: INTRODUCTION- Meckel's diverticulum (MD) is the most common congenital malformation of the gastrointestinal tract. Intestinal obstruction is the lead presenting symptom in the adult population due to multiple causes (intussusception, incarceration, adhesions, strictures and torsion). Our patient had a complicated MD with combination of risk factors and findings.

CASE PRESENTATION-We report an unusual case of an 23-year-old patient presenting with acute small bowel obstruction for several days, who developed focal peritoneal signs on right lower quadrant. On laparotomy, findings included a perforated meckel's diverticulitis around a fibrous band that attached MD to the umbilicus. Segmental resection with end ileostomy was performed.

DISCUSSION- Perforation of Meckel's diverticulitis with intestinal obstruction is one of the rare complication . Its pre-operative diagnosis remains elusive as it can be clinically indistinguishable from other intra-abdominal inflammatory conditions. The correct diagnosis of complicated MD before surgery is often difficult because this condition can mimic other acute abdominal pathologies. There are several risk factors that can point to an accurate and early diagnosis, especially when combined with the appropriate imaging techniques, such as computed tomography with oral and intravenous contrast. In our centre, there is only availabity of digital x-ray and ultrasound as imaging techniques.

CONCLUSION- This complication remains underdiagnosed, often with delayed surgical intervention and sub-optimal treatment that leads to significant morbidity and mortality.

I. INTRODUCTION-

Meckel's diverticulum (MD) is the most common congenital malformation of the gastrointestinal tract due to incomplete obliteration of the proximal portion of the omphalomesenteric duct in the 7th week of gestation . This congenital anomaly has often been referred to by the "rule of twos"—usually located 2 feet proximal to the ileoceacal valve, present before the age of 2, is seen twice as commonly in men as in women, and is found in 2% of the population. It is the only true diverticulum of the small intestine, containing all layers of the small bowel wall. MD is mostly clinically silent, particularly in the adult. Several risk factors for developing symptomatic MD have been identified: male sex, age younger than 50 years, the presence of a diverticulum with 2 cm or more in length, or those that contained heterotopic mucosa. When two, three, or four of these criteria were met, the proportion of symptomatic MD increased to 25, 42, and 70%, respectively . Robijn et al. also included the presence of a fibrous attachment to the abdominal wall as risk factor.

Intestinal obstruction of various types is the most common presenting symptom in the adult population. Cases of giant MD (>5 cm) are relatively rare and associated with more severe forms of complications, especially with obstruction . Meckel's diverticulitis leading to perforation with peritonitis and small bowel obstruction is uncommon in this region.

We present a case of Meckel's diverticulum with diverticulitis,perforation and peritonitis with axial rotation in an adult female whose initial presentation was small bowel obstruction.

II. CASE PRESENTATION –

An 23-year-old caucasian female presented to the emergency department with abdominal pain and distension, obstipation and bilious vomiting for 48 hours. she referred peri-umbilical pain and nausea for 10 days that progressively worsened in the last 48 h. she described the pain as crampy that was relieved partially after vomiting but for last 48 hours there was no relieving factor . History taking revealed previous episodes of abdominal pain and bloating. she had no relevant medical history or previous surgery. Family history was unremarkable.

On physical examination, she was febrile (38.5 °C) and hemodynamically unstable (blood pressure 90/52 mmHg, heart rate 116 beats/min, Spo2 96% in room air) The abdomen was distended and bowel sounds were sluggish. There was tenderness to palpation on the lower quadrants, right more than left. There was guarding all over the abdomen and rebound tenderness in the right

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lower quadrant. Lower abdominal scar from previous cesaerean section was present.

From history and physical examination a provisional diagnosis of Acute appendicitis was made and the patient was resuscitated. Further she was subjected to other investigations and was planned for exploratory laparatomy thinking in the line of gynaec pathology and intestinal obstruction due to band adhesion.

Laboratory testing revealed leukocytosis with neutrophilia..

Upright abdominal plain radiography showed multiple air-fluid levels.

FIG.1 Straight x-ray abdomen showing multiple air fluid levels.

Initially treated with conservative measures (intravenous fluids, emperical antibiotics and analgesics), 24 hours after admission the patient's condition deteriorated. she referred onset of generalised abdominal pain with signs of diffuse peritonitis on physical examination. She was taken up for emergent laparotomy. Findings included a perforated,inflammed giant Meckel's diverticulum and a fibrous cord between the umbilicus and the tip of the diverticulum around which the bowel twisted. Presence of fecal peritonitis .The MD, measuring 8 cm in length and with a 3-4cm base, was found 40 cm proximal to the ileocecal valve . The band was lysed, unfolding the bowel and the MD. We performed thorough peritoneal toileting, segmental resection of the ileal segment followed by proximal end ileostomy.

Fig 2- On table findings of laparotomy.

The recovery was complicated with superficial surgical site infection (SSSI) that responded to drainage and antibiotics.Ileostomy started functioning within 48 hours, patient was hemodynamically stable. The patient was discharged within 14 days and advised to consult at a higher centre. At 5 months,the patient came for follow up and was doing well.she was counselled for ileostomy closure after 2 months from the follow up.

III. DISCUSSION

Documented incidences of symptomatic MD range from 4% to 16% in large series . In a retrospective study with 1476 patients from CMC Vellore, 16% of all patients with MD were symptomatic and diverticulum length greater than 2 cm was associated with symptoms, among other features [4].

Intestinal obstruction is the most common presentation in adults, representing 40% of symptomatic cases. The most common cause of obstruction is intussusception with MD being the leading point, or a mechanical volvulus of the small intestine around a persistent fibrous band that attaches the MD to the umbilicus . Obstruction has been found to occur more frequently with a giant

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MD . The intestinal obstruction can also be incomplete and recurrent, resulting in repeated episodes of intestinal sub-occlusion, as it happened with our case. Other causes of obstruction include incarceration of a diverticulum in an inguinal hernia (Littrés hernia), inflammatory adhesions, diverticular strictures and tumor-containing MD .

The anatomical configuration, especially the diverticular length and base diameter, is an important predisposition factor . An elongated variant with a narrowed neck is far more likely to result in torsion , whereas short, large-base diverticula are subject to foreign body entrapment. In our case, the diverticulum was 8 cm long and 3-4 cm wide, which may have predisposed it for torsion. Axial torsion occurred around its narrow base, resulting in decreased blood supply ,congestion,inflammation and perforation leading to diffuse peritonitis.

Fewer than 10% of cases of complicated MD in adults are diagnosed preoperatively . The correct diagnosis of complicated MD before surgery is often difficult because this condition may be clinically indistinguishable from a variety of other intra-abdominal conditions such as appendicitis, inflammatory bowel disease, or other causes of small bowel obstruction. This is particularly true in patients presenting with symptoms other than bleeding. In a study of 776 patients, 88% of patients presenting with bleeding had a correct preoperative diagnosis versus 11% of those with symptoms other than bleeding .

Plain radiographs are not usually helpful in making the diagnosis of MD. However, small bowel obstruction is usually visible on plain films of the abdomen. On CT, MD is difficult to distinguish from the normal small bowel in uncomplicated cases . Although CT is being used more frequently to image the abdomen , the appearance of MD on conventional CT will vary according to the complication that precipitated the patient́s presentation . In a report of CT findings in 11 patients with Meckeĺs diverticulitis, the presence of gangrene or secondary small bowel obstruction was associated with poorer diagnostic acuity. Administration of both intravenous and oral contrast material may help establish the diagnosis of Meckeĺs diverticulitis and should be administered whenever possible. Finally, laparoscopy, as a diagnostic tool in cases of symptomatic MD, has also been reported .

Mortality in symptomatic patients is approximately 6% and higher in elderly patients with complications . Delay in diagnosis of a complicated MD can lead to significant morbidity and mortality .

Surgical resection of symptomatic MD is the standard of care. Surgical options include simple diverticulectomy or ileal resection. The later procedure is preferred when there is evidence of severe inflammation, perforation or tumor . Laparoscopic procedures can be performed without increased risk of complications by experienced surgeons. Associated attachments to the abdominal wall should be removed. Cumulative incidence of early postoperative complications is 12%, including mainly surgical site infection (3%), prolonged ileus (3%) and anastomotic leak (2%) with a mortality rate of 1.5% . Our patient underwent a segmental ileal resection and end ileostomy because of the presence of diffuse peritonitis , and wound infection was the early postoperative complication observed.

IV. CONCLUSION-

In adults with symptomatic MD, the challenge presents itself in early diagnosis and prompt surgical treatment. Due to its rarity, high index suspicion is necessary as clinical presentation is variable, differential diagnosis is not straightforward and imaging techniques may not be useful. In young adults with small bowel obstruction, diagnosis is rarely made before surgery. In our case, we retrospectively identified several risk factors that should have been identified to prevent delayed surgical intervention. Complications of a MD should be kept in mind in patients with atypical presentations.

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