RARE PRESENTSATION OF GI OBSTRUCTION: AN OMPHALOMESENTERIC DUCT REMNANT

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ABSTRACT

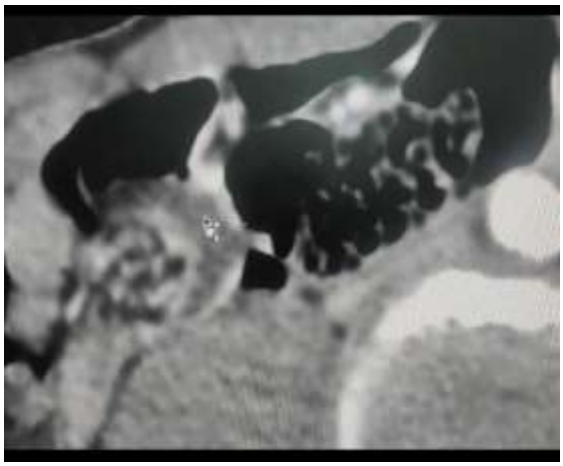
The omphalomesenteric duct (OMD) is an embryonic structure that normally undergoes obliteration between 7th and 10th week of gestation and it doesnot persist usually after birth. Failure of obliteration whether complete or partial can result in a type of malformation known as Omphalo-mesenteric duct remanant.

INTRODUCTION

The Omphalomesenteric Duct (OMD), also known as the Vitelline duct, is a structure that connects the embryonic midgut to the primary yolk sac. This duct is obliterated approximately between 7th to 10th week of gestation(1). But when the duct fails to obliterate, it can result in an anomaly known as OMD remnant. Different types of OMD remnants exist, but they are considered rare, affecting approximately 2 % of the population [2]. Types of OMD remnant include Meckel diverticulum, OMD cyst, OMD fistula, umbilical polyp, and fibrotic band [4]. These remnants usually remains asymptomatic and often go unnoticed unless complications arise, such as hemorrhage, obstruction, intussusception, inflammation, or perforation. These complications primarily occur within the first year of life. As a result, symptomatic OMD remnants in adults are uncommon [1].

CASE

A 18 year old male patient came to surgical emergency with complaints of abdominal pain over epigastric and umbilical region since last 5 days which was mild to moderate in intensity and dull aching in nature.Patient also complains of 3 episodes of vomiting yesterday night which was nonprojectile,nonbilious containg food particles.On examination abdomen was soft but distended.PR examination was normal.Ryle's tube insertion was done and conservative management was tried.CECT(Abdo+pelvis) was done and it shows multiple dilated bowel loops with meckel's diverticulum suggesting GI Obstruction.Exploratory laparotomy was planned.Intra-operatively A fibrous band was found connecting from umbilicus to meckel's diverticulum with cyst present at meckel's end.OMD variant was suspected fibrous band with cyst at Meckel's end.Wedge resection of meckel's diverticulum was done and closure was done in transverse manner and fibrous band was cut.Post-operative sips was started on day-3,drain was removed on day-5 and patient discharged on day-8.post-operative period was uneventful.



DISCUSSION

Partial or complete persistence of the embryonic OMD after birth leads to OMD remnant. It is observed in approximately 2 % of population. No any genetic etiology has been identified related to this condition. Studies have shown a similar prevalence of OMD remnants in both sexes. However, symptomatic OMD remnants are more frequently observed in males . Majority of OMD remnants are asymptomatic. Symptoms commonly manifest when complications arise, and their presentation is age-dependent. Approximately 40 % of OMD remnants will exhibit symptoms before the age of 4, while they are rare in adults(3)

Based on the portion that remains from the embryonic OMD, there are different types of OMD remnants. Meckel's Diverticulum (MD) is characterized by a remnant portion seen in the ileum, with no umbilical connection. It is the most common form, accounting for 90 % of cases. MD is considered a true diverticulum as it contains all layers of the intestinal wall. The average age of MD presentation is 2.5 years and symptoms are uncommon in adults .

But Incidently MD can cause complications such as hemorrhage, bowel obstruction, inflammation (diverticulitis), and perforation.Obstruction is more common in neonates and adults, while hemorrhage is the most common presentation in young children.While surgical intervention is unquestionably necessary in complicated MD. (2,3)

The complete remnant of the OMD is known as an OMD fistula. Fistula connects terminal ileum to the skin, and represents the second most common form of OMD remnant, accounting for approximately 10 % of symptomatic cases. OMD fistulas present with the discharge of mucosal, bloody, or fecal material, leading to infection and omphalitis in infants and children.(4)These types of OMD remnants are often responsible for cases presenting with skin abnormalities and may present to dermatologist, and patients may be misdiagnosed with conditions such as pyogenic granuloma or urachal remnant.Diagnosis can be done by USG but CT Scan is necessary to confirm exact internal location.Surgical intervention is necessary for the treatment of OMD fistula.

An OMD polyp occurs when the remaining part of the OMD is connected to the skin but closed on the other side . The polyp contains mucosa and can lead to inflammation and infection. It can present with omphalitis and skin problems. Ultrasonography is the preferred diagnostic method, and it is important to check for the presence of other types of OMD remnants during the ultrasonography. Surgical resection is necessary for OMD polyps, and surgeons should look for any other possible OMD remnant tissues during surgery.

Partial closure of the OMD from both ends can result in the formation of an OMD cyst, which is not connected to the ileum or the skin . These cysts are rare and seldom become symptomatic. However, in cases of infection, an OMD cyst can become symptomatic and present with firm, erythematous swelling of the skin or umbilical discharge. OMD cysts can be diagnosed using both ultrasonography and CT scan. Asymptomatic cases do not require surgical intervention, but surgery is necessary when the cyst is associated with an infection.(5)

When the partial obliteration of the OMD, a fibrous tissue connects ileum and umbilicus, which is termed as fibrous band . Similar to other OMD remnants, fibrous bands are commonly asymptomatic. The most significant complication associated with OMD fibrous bands is bowel obstruction. While abdominal ultrasonography, radiography, and abdominal CT scans can be useful in diagnosing bowel obstruction, fibrous bands can only be visualized through CT scans, and even then, detection can be challenging. Thicker fibrous bands are more likely to be detected on CT scans . Therefore, there have been few reported cases in which OMD fibrous bands were diagnosed preoperatively but sometimes the diagnosis is made during surgery.

Abdominal radiography in erect position is the primary diagnostic tool for obstruction, although it is unable to visualize fibrous bands. The presence of air-fluid levels is the main evidence for obstruction on radiography, as mentioned in our case. Ultrasonography can be performed in cases suspected of bowel obstruction, particularly in pediatric and infant patients. The presence of a pattern of fluid-filled dilated loops on ultrasonography can suggest obstruction, although the presence of intestinal gas can make high-quality imaging challenging. Abdominal CT scan can also help diagnose bowel obstruction and specify the underlying etiologies. While the management of certain cases of bowel obstruction can be non-surgical, in cases where an OMD remnant is identified as the etiology of the obstruction, surgical intervention is necessary.

CONCLUSION

OMD remnant is a rare condition in adults that can lead to bowel obstruction in certain cases. Physicians and surgeons should be aware of this rare pathology and consider it in the investigation of bowel obstruction.

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