A completely patent omphalomesenteric duct causing recurrent intestinal obstruction in a Nigerian adult: a case report

Abstract
Mechanical small bowel obstruction is perhaps the most important pathology of the small bowel encountered in surgical practice. The most common etiologies are postoperative adhesions and external hernias. Congenital anomalies like patent omphalomesenteric duct (OMD) hardly make the list among adult patients. Although patent OMD remnants are a rare cause of small bowel obstruction among adults, they should be considered in the list of differentials, especially in the setting of no previous abdominal surgery or external hernia, and deliberately looked for. A high index of suspicion remains the key in the identification and appropriate management of such a rare disease entity. We present the case of a young Nigerian adult with recurrent intestinal obstruction from a completely patent OMD.

Keywords: Adult, omphalomesenteric duct, recurrent intestinal obstruction

Introduction
Mechanical small bowel obstruction (SBO) is perhaps the most important pathology of the small bowel in surgical practice. Though it can result from a variety of etiologies, the most frequent causes are postoperative adhesions and external hernias. Patent OMD, a congenital anomaly resulting from persistence of the embryonic OMD which normally obliterates by gestational week 9, hardly make the list among adult patients.

Persistent OMD anomalies are very rare entities in surgical practice worldwide. Ameh et al. reported on 18 patients seen in Zaria, Nigeria, over a period of 22 years. Fente B. G. et al. described 1 patient after 30 years of practice in the Niger Delta area of Nigeria. It is not unusual for many surgeons to go through their whole surgical career without seeing one.

Persistent OMD anomalies comprise a wide spectrum of conditions depending on the degree of involution. Mostly asymptomatic though, they are occasionally responsible for acute abdomen necessitating surgical intervention.

In this report, we present a case of completely patent OMD presenting with a recurrent small bowel obstruction in a Nigerian adult.

Case Report
A 26-year-old male was referred to our accident and emergency department with a history of centrally located colicky abdominal pain, vomiting, abdominal distension, and obstipation of three (3) days. No fever, history suggestive of external hernia, or previous abdominal surgery. He had suffered similar episodes of symptoms since childhood occasionally necessitating admissions. The last episode was 7 months ago. Each of such episodes however resolved following the passage of a large volume of flatus and normal feces per rectum. No family history of similar illness. When examined, a pinkish-red fleshy mass was noticed at the umbilicus. Further probe on account of this finding revealed that this umbilical mass was noticed few days after birth. It discharged non-foul-smelling brownish mucus, the volume of which progressively reduced. It measured 1 × 1 cm, moist, with no fecal discharge or ammoniacal odor. No masses per abdomen and no features of peritonitis. A plain abdominal X-ray confirmed the presence of small bowel obstruction with dilated jejunum and ileum. A plain abdominal X-ray confirmed the presence of small bowel obstruction with dilated jejunum and ileum (Figure 2). A preoperative clinical diagnosis of small bowel obstruction, from OMD remnant, likely fibrous band was made.

Resuscitation with intravenous fluid, nasogastric decompression, and intravenous antibiotics was commenced. At laparotomy, findings were those of normal peritoneal fluid, patent OMD.
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extending from the antimesenteric border of the terminal ileum, 60 cm from the ileocecal junction, to the peritoneal surface of the umbilicus, measuring 8 cm in length [Figures 3 and 4]. The urinary bladder and other intraabdominal organs were normal. He had wedge resection of the patent OMD including adjacent ileum, and an end to end ileoileal anastomosis fashioned in two layers with vicryl 2/0. The umbilical was partly excised and the remnant cauterized for cosmetic reasons. The immediate postoperative period was uneventful and was discharged on the 8th day and has since enjoyed good health.

Histopathological analysis showed intestinal mucosa overlying edematous submucosa with lymphoid aggregate. No ectopic cell type was seen.

Discussion

Hamilton Bailey once said “The umbilicus is a creek into which many fistulous streams open.” One of such “streams” is an OMD remnant. DiSantes et al[5] classified the OMD anomalies into three basic types, namely; Type 1, in which the entire duct remains patent; In Type 2, one or the other end of the duct remains patent; and Type 3, in which only a mid-portion of the duct remain patent.

These malformations are found with equal frequency in both sexes, but a significantly greater incidence of symptoms is encountered in males, with a Male: Female ratio of 7:1.[6] While Meckel’s diverticulum is the most common OMD anomaly, a patent OMD was the most common symptomatic presentation in a study from Zaria.[2] It is therefore not surprising that the index patient was a male and had a patent OMD.

As the lining of the vitelline duct is pluripotent, it is not uncommon to find heterotopic tissues within OMD remnants. Similar to the 18 patients reviewed by Ameh et al. in Zaria, the index patient had no heterotopic tissue.[2]
Persistent OMD anomalies cause small bowel obstruction via various mechanisms. These include angulation, intussusception, volvulus, internal herniation, meso-diverticular adhesive bands, malignant transformation within the OMD remnant, foreign bodies such as trapped enterolith, and parasites. The index patient probably suffered repeated internal herniation or volvulus that spontaneously resolved with the passage of a large volume of flatus and normal feces following each episode of intestinal obstruction.

Although reasons for umbilical discharge may be numerous, an umbilicoenteric fistula should always be considered. This is true despite scanty, infrequent, non-foul smelling effluent, as is the case in the index patient. As the patients grow, an increase in anterior abdominal wall musculature and tone might have contributed to the progressive diminution in effluent volume. Thus, it is not too surprising that the diagnosis was missed despite a repeated visit to the hospital. Where the diagnosis is not suspected, the unwary physician may perform the wrong surgery for the wrong reason. Shafiq A.C. et al. reported on a 36yr old woman who presented with generalized peritonitis following omphalectomy for umbilical discharge. At laparotomy, an umbilical enterocutaneous fistula due to patent OMD missed during the initial omphalectomy was found. This could have only been prevented where there is a high index of suspicion.

The procedure to be done will depend on the patient’s age and suspected underlined pathology. The index patient had a wedge resection of the patent OMD including adjacent ileum, and an end to end ileoileal anastomosis. A segmental resection of the ileum with the patent OMD followed by an end-to-end ileo-ileal anastomosis is a suitable alternative. Umbilicoplasty may be added for cosmetic reasons in selected patients.

**Conclusion**

Although patent OMD remnants are a rare cause of small bowel obstruction among adults, they should be considered in the list of differentials, especially in the setting of no previous abdominal surgery or external hernia.

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**Conflicts of interest**

There are no conflicts of interest.

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