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A Case Report of Adult Patent Vitellointestinal Duct Sac and Midgut Volvulus

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Abstract

Midgut volvulus is a clinical rare condition which appears as recurrent intermittent abdominal pain after consumption of food with intermittent colicky pain and sometimes with completely asymptomatic period. This gut twist may result in complications such as ischemia, obstruction, hemorrhage, or perforation. In the yolk sac during the third week of intrauterine life, there is normal communication with intraembryonic gut. During development proceeds, this communication gets thinner into a tube known as the vitellointestinal duct. Vitellointestinal duct usually becomes obliterated before eighth week of intrauterine life. In about 2% of people this duct persists and gives rise to a group of anomalies such as Meckel's diverticulum is the commonest and complete patency of the duct is the rarest. Here we present the case of a 34-year-old male who presented with both conditions.

Keywords

Vitellointestinal Duct Sac, Midgut Volvulus, Bowel Obstruction

1. Introduction

Small bowel obstruction in adult patient is common diagnosis. However, small bowel volvulus obstruction is quite rare, and most cases are present in newborns. Current literature suggests the yearly incidence of volvulus in small bowel is 1.7 - 5.7 per 100,000 adults. Most often, it is due to congenital abnormalities or previous abdominal surgeries. If not treated, ischemia and infarction may occur. The persistent Vitellointestinal Duct duct about (67%) present as Meckel's diverticulum, which is found in 2% - 3% of the population [1]. Although often asymptomatic, common symptoms of persistent vitellointestinal duct such as abdominal pain, bleeding, intestinal obstruction, umbilical drainage, and hernia. Most of such symptoms are age dependent, mostly before the age of five years.

Adult patients of persistent vitellointestinal duct other than Meckel's diverticulum are extremely rare. Surgical intervention is mandatory for a symptoms associated with persistent vitellointestinal duct. Intestinal obstruction can occur with persistent vitellointestinal duct due to intussusception with diverticulum, internal hernia or volvulus as in our patient [2]. Here, we present a case of a patient undergoing an exploratory laparoscopy for recurrent abdominal pain and imaging suggestive of an obstructive pathology who was found to have patent vitellointestinal duct sac and small bowel volvulus.

2. Case Report

This is a 34-year-old male patient with history of chronic, vague and recurrent abdominal pain.

Permission was obtained from the patient to allow discussion and publication of his case.

Patients were medically free. This patient was noted to present to Emergency room (ER) many times with vague abdominal pain that last for few hours and resolve. The patient represents to ER with acute sudden abdominal pain for few hours duration, diffuse and not radiating associated with nausea and vomiting three times. Normal bowel motion. No history of abdominal distention or fever. Over examination vital signs stable, abdomen examination reveal periumbilical tenderness and guarding with exaggerated bowel sound. Laboratory show weight blood count of 10.20, hemoglobin 17.8 and platelet 219. Computed tomography (CT) of abdomen with intravenous and oral contrast show whirlpool sign, midgut malrotation and small bowel obstruction (**Figure 1**).

Then patient underwent laparoscopic exploration after full preparation, intraoperative finding show vitellointestinal duct sac (yolk stalk) covering the small

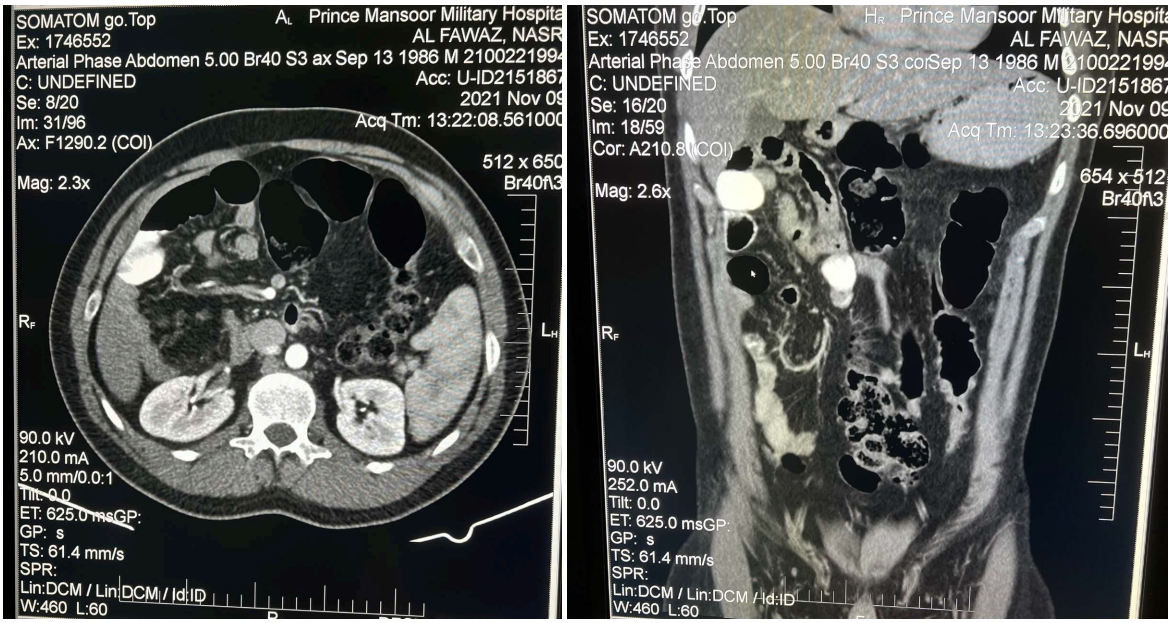

Figure 1. CT abdomen show Whirlpool sign.

bowel with small bowel obstruction due to midgut malrotation with a band. Opening of sac, realse of band and complete assessments of bowel was done (Figure 2 & Figure 3).

Post operative patient doing well tolerating orally, vital signs stable, abdomen soft and non tender with wight blood count of 7.64, hemoglobin 16.1 and platelet 191, patient discharge home on second day post operative in good condition. Follow up in clinic one and four weeks post operative paint were in normal condition, tolerating orally, pain free, normal bowel motion and within normal examination and laboratory results.

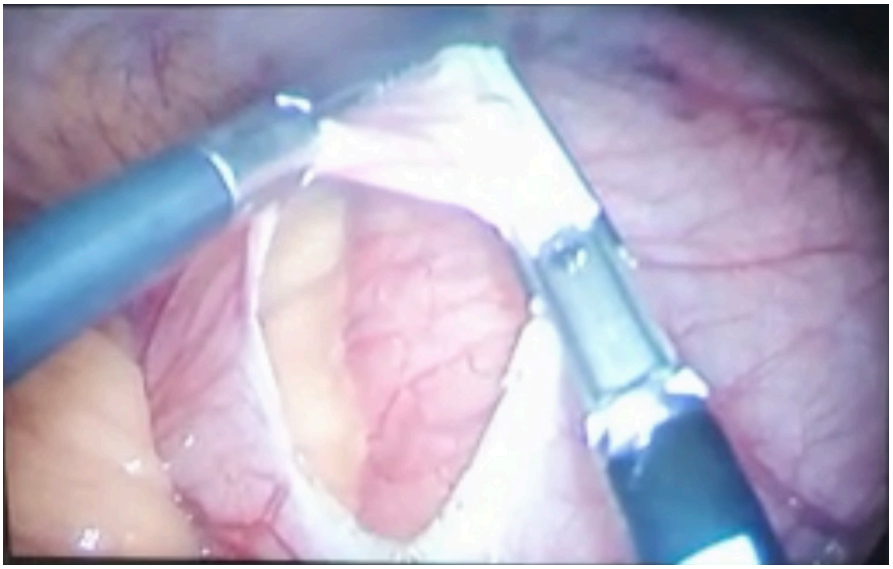

Figure 2. Intraoperative finding of vitellointestinal duct sac

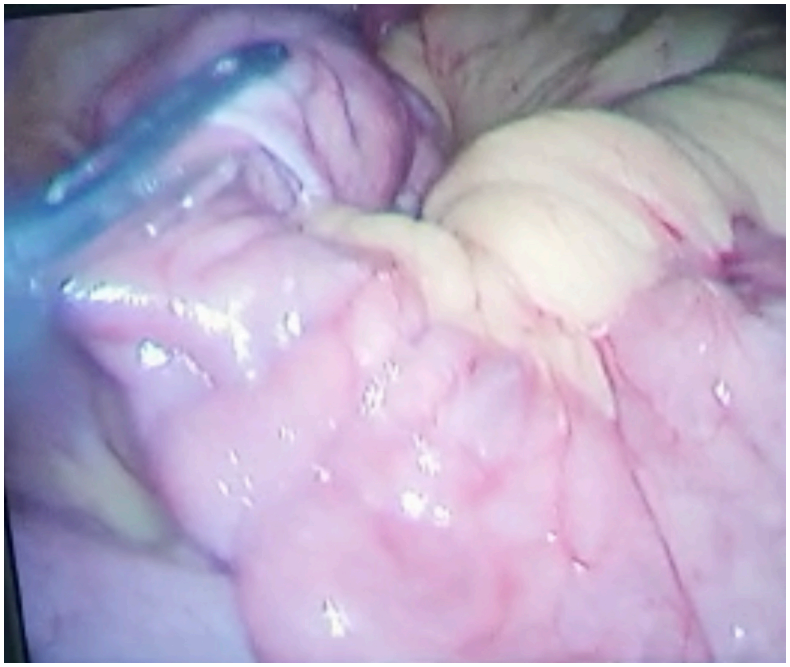

Figure 3. Intraoperative finding of midgut volvulus with a band.

3. Discussion

Small bowel obstruction is the common surgical small intestine disease. Adhesions due to previous surgery in abdomen lead to small bowel obstruction in about 75%. Other caused such as hernias, cancer and inflammatory diseases such as Crohn's disease or intestinal tuberculosis [2]. Intestinal obstruction due to persistent vitellointestinal duct sac especially in adult cases is extremely rare, with only few cases reported in the literature.

They may range from a completely patent vitellointestinal duct at the umbilicus to a variety of lesser remnants including cysts, fibrous cords connecting the umbilicus to the distal ileum, granulation tissue at the umbilicus, umbilical hernias, and the famous diverticulum of Meckel's diverticulum [1].

Vane DW, West KW, Grosfeld JL had study of 217 children with vitelline duct anomalies, 85 (40%) was symptomatic lesions. Forty-eight patients presented with rectal bleeding; 28, with intestinal obstruction; five, with abdominal pain; and four, with bilious umbilical drainage [3].

Small bowel volvulus is a rare entity in Western adults, more common in children and divided into primary or secondary. Primary volvulus occurs in patients with no previous abdominal surgeries account for (10% - 20%) of entire volvulus patients [4]. Secondary volvulus occurs in patients with congenital or acquired pathology of the abdomen like adhesions, inflammatory band or congenital malformations. It often results in ischemia or even infarction [5]. Delay in diagnosis and surgical intervention increases morbidity and mortality rates.

The differential diagnosis for a patient with small bowel obstruction may include adhesions, hernia, cancer, intussusception, bezoar or gallstone. Volvulus count about 5% - 15% of mechanical small bowel obstructions. Sigmoid volvulus more common which account for 80% of large intestine volvulus, followed by the cecum, which account for 20% of large intestine volvulus.

This is a rare case of midgut volvulus and patent vitellointestinal duct sac with intermittent abdominal pain, which managed successfully. A midgut volvulus should be considered in the differential diagnosis of a patient who presents with a small bowel obstruction with Whirl sign present on CT scan to minimize morbidity and possible mortality of the patient and CT whirl sign is diagnostic of bowel obstruction due to Volvulus [6].

4. Conclusion

Adult midgut volvulus and patent vitellointestinal duct sac is a very rare cause of intestinal obstruction. The opening of the vitellointestinal duct sac remnant and release of band causing midgut volvulus is definitive therapy.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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