



## Rare Case of Omphalomesenteric Duct Remnant in Adult Female

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**Marc-Cristian Cojocaru and  
Constantin Oprescu.****Abstract**

A 37 year old female patient with a history of laparoscopic cholecystectomy and ERCP for choledocholithiasis (04.2021) presented with complaints of abdominal pain and umbilical swelling for 2 days. Computer Tomography scan was suggestive of solid round shaped mass on linea alba below umbilicus. Laparotomy was performed for diagnose and curative purposes.

**Keywords:** Umbilical Swelling; Post Cholecystectomy; Leukocytosis; Preperitoneal Mass**Introduction**

Omphalomesenteric duct cysts, also known as vitelline duct cysts, are relatively rare congenital anomalies. The demography of these cysts includes their incidence, prevalence, and distribution across different population groups. Anomalies related to the omphalomesenteric duct, such as Meckel's diverticulum, occur in approximately 2% of the general population [1,2]. Among these anomalies, omphalomesenteric duct cysts are considered less common. Some studies estimate the incidence of symptomatic omphalomesenteric duct cysts to be around 1 in 5000 to 10,000 live births. Omphalomesenteric duct cysts can be diagnosed at any age, though they are most commonly identified in infancy or early childhood. This is often due to the presentation of symptoms or the incidental discovery of the cyst during imaging studies performed for other reasons. However, some cases remain asymptomatic and are only detected later in life.

Symptoms typically emerge during the first decade of life, with the average patient being around 2.5 years old. According to a review of cases at the Mayo Clinic, the length of the diverticulum is directly correlated with symptom presence. Patients with a diverticulum longer than 2 cm are more likely to exhibit symptoms [3,4]. This malformation can present in various ways, making initial diagnosis challenging. Patients may experience acute abdominal symptoms, including abdominal pain from inflammation,

hematochezia or melena, intussusception, obstruction, bowel prolapse, and perforation. Hemorrhage is the most common complication of Meckel's diverticulum. Cutaneous manifestations of a fully patent omphalomesenteric duct include an umbilical mass, granulation tissue, or discharge. Reports also indicate that neoplasms can develop in remnants of the omphalomesenteric duct, leading to controversy regarding resection in asymptomatic patients [5]. Surgical intervention is recommended for persistent symptoms associated with a persistent VID. Surgical procedure usually involves a circular incision around the umbilical scar giving access to the OMD remnants, proceeding with the remnants resection through the abdominal, reaching the bowel section connected to the fistula. This process is made with the aid of fistulography images to establish the fistulae trajectory. After complete resection of the OMD bowel reconstruction is performed [6].

**Case Report**

A 37 year old female patient presented in Emergency Department with complaints of abdominal pain, mainly periumbilical and umbilical swelling for 2 days. Patient has a history of laparoscopic cholecystectomy and ERCP for choledocholithiasis (04.2021) made in another Hospital Unit, a body mass index (BMI) of 36.4 which classify in Obese class II. A work-related injury such as umbilical hernia was eliminated since the patient has a static job. There is no history of fever, nausea or bowel disorders.

### On examination

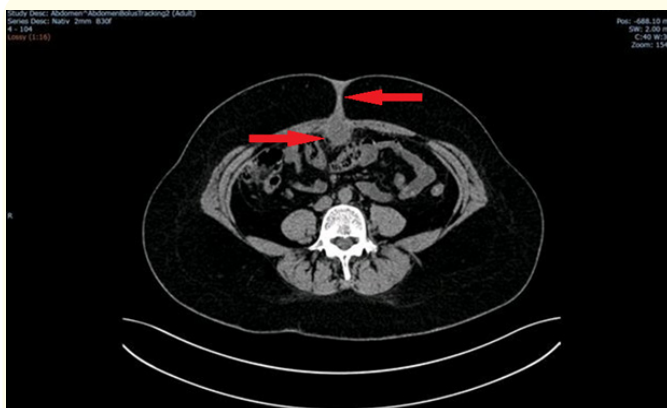
Patient has no signs of infection and stable vitals. On per abdominal examination, large adipose tissue deposits with normal skin color, scars from previous cholecystectomy. On light palpation bloated abdomen with painful periumbilical region. On deep palpation hard mass below umbilicus approximately 2x1 cm.

### Investigations

Complete blood count reported 15060 WBCs per micro liter with 10610 Neutrophils and 428000 Platelet per micro liter.

Ultrasonography described a hyperechoic ovoid mass with posterior shadowing. No signs of intraperitoneal fluids.

Computer Tomography scan was suggestive for a solid mass 2x2cm above Fascia Transversalis, below Linea Alba, in the umbilical region as shown in Figure 1.



**Figure 1:** CT scan showing mass on linea alba and fibrous band connected to umbilicus.

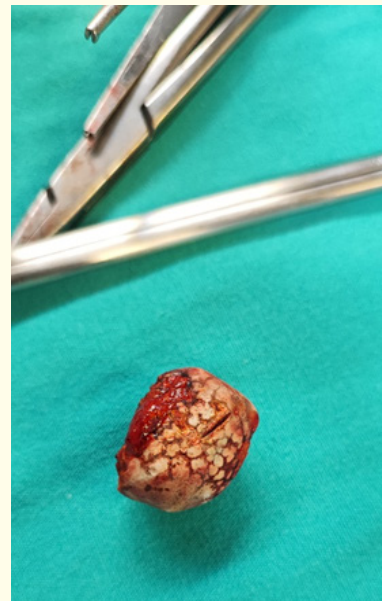
### Surgery

Surgical team decided to perform a laparotomy for a definitive diagnosis. After a 4-5cm periumbilical incision and preperitoneal adhesiolysis a fibrous capsule containing the mass shown on CT was revealed. Inside the capsule, adherent to walls, a 2x3cm stone was found.

After removing the mass, approx. 4ml purulent fluid was drained and sent to laboratory. The surgical challenge was to find a reason for the patient condition: a fistula, a fibrous band or even a Meckel's diverticulum. None of the above was found. Peritoneum was sutured with monofilament nonabsorbable.



**Figure 2:** Hemostasis during dissection.



**Figure 3:** Mass from CT scan.



**Figure 4:** Showing the remnant cavity after removing mass.

## Results and Discussion

Numerous conditions can cause bowel obstruction, with OMD remnants being a rare cause. Obstructions due to OMD remnants are more commonly associated with Meckel's diverticulum, but fibrous bands can also be responsible in certain cases. OMD remnants can lead to obstruction through various mechanisms, including invagination of Meckel's diverticulum causing intussusception, twisting of the diverticulum's base leading to volvulus, mechanical pressure on bowel loops from a fibrous or mesodiverticular band, luminal obstruction of the diverticulum due to stone or phytobezoar formation, and secondary adhesions resulting from Meckel's diverticulitis [7].

There are many types of umbilical pathologies and urachal remnants: (table 1)

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 [8]. An abdominal CT scan can aid in diagnosing bowel obstruction and identifying its underlying causes. While some cases of bowel obstruction can be managed non-surgically, surgical intervention is essential when an OMD remnant is identified as the cause of the obstruction [1,20].

In this case, physical and imaging examinations suggested the presence of a VID remnant. There was concern that this remnant could cause recurring inflammation or future intestinal obstruction. An exploratory laparotomy was performed, which confirmed the diagnosis and provided curative treatment. This procedure involved dissection, hemostasis, mass excision, and abdominal exploration. Adhesiolysis was particularly challenging due to a prior laparoscopic cholecystectomy and was the main reason why we

opted for laparotomy [21]. The patient had a smooth postoperative recovery and was discharged two days after the surgery. Six months post-operative, she remains in excellent clinical condition with no complications.

## Conclusion

In summary, our report underscores the unusual instance of VID calcification in an adult experiencing acute periumbilical pain. Omphalomesenteric duct remnants represent a significant clinical entity with the potential to cause various gastrointestinal symptoms and complications. High-resolution imaging techniques, particularly CT scans, are vital for accurate diagnosis and effective surgical planning for this condition. Early recognition and appropriate surgical management are crucial to prevent long-term morbidity. Advances in imaging and minimally invasive surgical techniques have improved the diagnostic accuracy and treatment outcomes for patients with OMDR. Close collaboration between radiologists and surgeons is crucial for identifying and managing these rare anomalies. Continued research and awareness are essential to optimize the care and prognosis for affected individuals.

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