

## A Rare Case Report of Patent Vitellointestinal Duct Causing Intussusception in Neonate.

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### Abstract:

**INTRODUCTION**-Patent Vitello intestinal duct occurs in about 2% of the population which usually leadsto small intestinal obstruction associated with high morbidity and mortality. Here we are reporting an unusual case of patent Vitello intestinal duct with prolapsing ileo-ileal intussusception in an Neonate.

**PRESENTATION OF CASE**-27 day old male child presented with complaint of swelling over umbilicus since birth with history of yellowish discharge from swelling & multiple episodes of vomiting (on & off). Ultrasound of abdomen suggestive of defect of 1.2 cm was noted in umbilicus through which bowel loops, mesentery & mesenteric vessels are seen herniating. At the time of admission, A pink-red wet fleshy mass was present at umbilicus but later, Segment of bowel prolapsed through the umbilical opening within 8 hours of admission.

**RESULT**-Exploratory laparotomy with resection anastomosis was done in our case with no complication. A patent Vitello intestinal duct extending from distal ileum to umbilicus with Y-shaped ileo-ileal intussusception was present. Two segments of ileo-ileal intussusception were prolapsing in which right (shorter) segment reduced easily while left (bigger) segment was congested, edematous & was difficult due to constriction by umbilical ring. Resection of complete Vitellointestinal duct along with RA was done.

**CONCLUSION**-Patent Vitello intestinal duct is an uncommon entity and should be treated by exploratory laparotomy with excision of tract.

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Date of Submission: 05-05-2021

Date of Acceptance: 18-05-2021

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### I. Introduction:

In the human embryo, the vitelline duct, also known as the vitellointestinal duct, the yolk stalk, the omphaloenteric duct, or the omphalomesenteric duct, is a long narrow tube that joins the yolk sac to the midgut lumen of the developing fetus. It appears at the end of the fourth week, when the yolk sac presents the appearance of a small pear-shaped vesicle (the umbilical vesicle). Generally, the duct fully obliterates (narrows and disappears) during the 5–6th week of fertilization (9th week of gestational age), but a failure of the duct to close is termed a vitelline fistula. This results in discharge of meconium from the umbilicus. About two percent of fetuses exhibit a type of vitelline fistula characterized by persistence of the proximal part of the vitelline duct as a diverticulum protruding from the small intestine, meckels diverticulum 80-100 cm from the ileocecal junction and may be attached by a fibrous cord to the abdominal wall at the umbilicus.

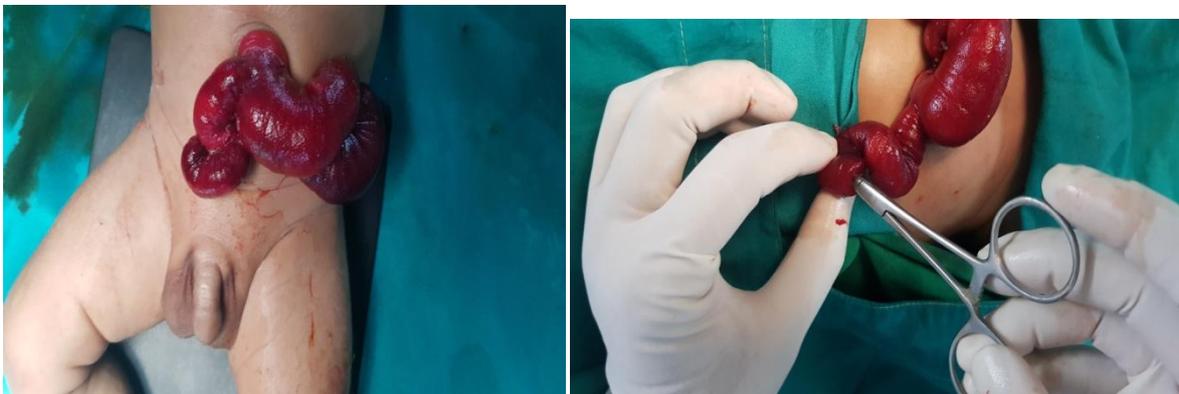
### II. Case Summary:

A 27 day old male weighing 1723 gm born at term by normal vaginal delivery with no complication came to pediatric surgery opd with chief complaints of yellowish discharge & swelling over umbilicus since 10 days with multiple episodes of vomiting (on & off) which was bilious in nature. He was passing stools. There was no history of any discharge from umbilicus. Family history was not significant. Patient was taking symptomatic treatment from pediatrician but eventually was referred to pediatric surgery for further management. On examination baby was well grown, comfortable and had no abdominal



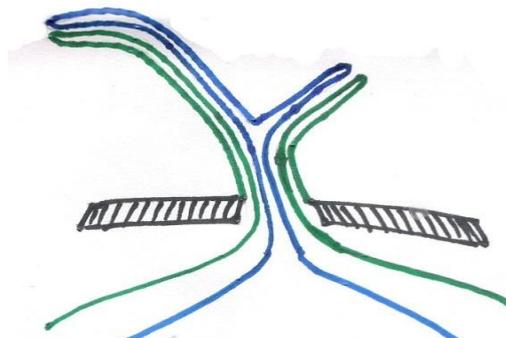
**Figure no 1 showing pink fleshy umbilical swelling.**

distension. Blood pressure was 90/70 mmHg, Pulse rate 100 per minute. No congenital abnormality was detected in respiratory, cardiovascular and central nervous system. Pink-red, fleshy tissue, about 3 cm in diameter, protruded from the umbilicus (fig no 1). However, more detailed inspection suggested that this was not typical granulation tissue; rather the tissue had the appearance of intestinal mucosa. An abdominal ultrasound was organized, suggestive of 1.2 cm defect is noted in umbilicus through which bowel loops, mesentery & mesenteric vessels are seen herniating? Patent vitellointestinal duct. On further assessment after admitting the patient there was prolapse of intestinal loop from the umbilical opening which appeared congested (fig no 2).



**Figure no 2 showing prolapse of intestine.**

Decision for exploratory laparotomy was taken. During laparotomy, a patent vitellointestinal duct extending from the anti-mesenteric border of the distal ileum to the umbilicus was noted causing ileo-ileal intussusception & prolapsed edematous congested bowel left loop (fig no 4,5).



**Figure no 3 showing diagrammatic representation of the condition on presentation.**

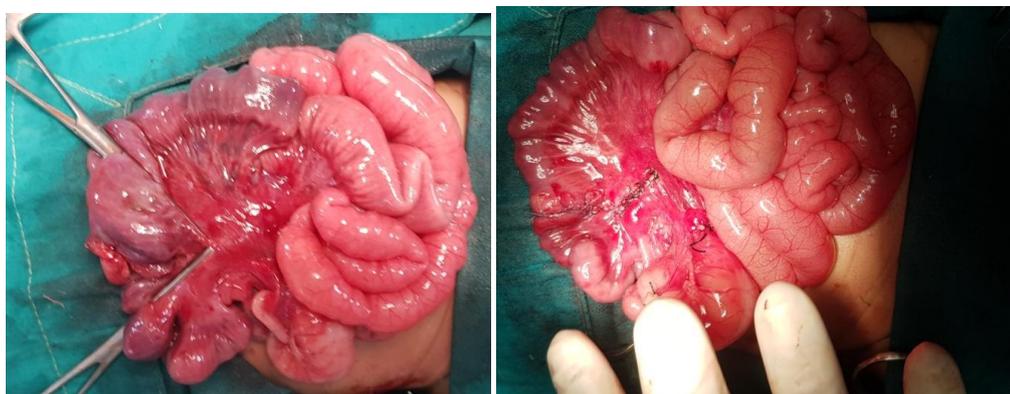


**Figure no 4 showing intussusception.**



**Figure no 5 showing congested ileal bowel loop.**

The patent Vitello intestinal duct was separated from umbilicus and intussusception was reduced with great difficulty. After reducing bowel loops appeared congested but had viable normal peristaltic activity, Decision of Resection anastomosis with excision of duct was taken(fig no 5).



**Figure 6 showing intraoperative images**

Post-operative period was uneventful. Patient was managed by IV fluid,antibiotics,analgesics & nasogastric aspiration for 3 days.Oral intake was started on 5<sup>th</sup> post operative period & was discharged from hospital on 10<sup>th</sup> postoperative day. Histopathology of patent vitellointestinal duct was negative for ectopic gastric and pancreatic mucosa.

### **III. Discussion:**

The umbilical cord is formed following the fusion of the yolk stalk, containing the VID, the body stalk, which contains the two umbilical arteries and the umbilical vein and the allantois. Incidence of patent Vitello intestinal duct (omphalomesenteric duct) varies from 1 in 5000-8000. Partial or complete failure of abolition of Vitello intestinal duct may lead to diverse type of congenital intestinal malformations comprising; Meckel's diverticulum, vitelline cord, umbilical sinus, enteric fistula and hemorrhagic umbilical mass. Patient can present with anomaly itself or due to complication secondary due to anomaly like intestinal obstruction, intussusception, adhesion & volvulus. Our patient presented with totally patent vitello intestinal duct which itself is very rare & very few cases have been reported in literature. Through a wide defect partial or total prolapse of intestine can occur due to increased abdominal pressure & this prolapsed loop can cause intestinal obstruction or gangrene of intestinal loop. So immediate surgical management is required consisting of excision of patent vitello intestinal duct with RA depending upon viability of prolapsed loop. Delayed presentation with gross edema or congestion or questionable viability of prolapsed bowel, Exteriorisation of prolapsed loop can be considered. Whereas Meckel's diverticulum is the most common of these residual structures (2% of the population), existence of a fibrous cord from the small intestine to the surface of the umbilicus.

#### **IV. Conclusion:**

Patent Vitello intestinal duct is an uncommon entity and should be treated by exploratory laparotomy with excision of tract.

#### **References:**

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- [2]. Singh, S., Pandey, A., Ahmed, I. *et al.* Prolapse of bowel via patent vitello intestinal duct—a rare occurrence. *Hernia* **15**, 567–569 (2011).

Dr.Amey Gawali, et. al. “A Rare Case Report of Patent Vitellointestinal Duct Causing Intusseption in Neonate.”*IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(05), 2021, pp. 44-47.