



PATENT VITELLO-INTESTINAL DUCT -A RARE CADAVERIC PRESENTATION- CASE REPORT

Medical Science

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ABSTRACT

The mid-gut communicates ventrally with the extra-embryonic part of the yolk sac by the vitello-intestinal duct. It provides nutrition to the embryo and normally degenerates by 5th-6th weeks. Varied remnants of vitello-intestinal duct have been reported. The present case report describes a patent remnant of the duct. The remnant presented as a thick cord extending from the umbilicus towards the terminal part of the ileum. The embryological entity was not found to be associated with any other anomaly usually related to non-regression of vitello-intestinal duct. If it persists it leaves behind a fibrous remnant connecting the ileum to the umbilicus, a loop of small bowel may revolve around this remnant and cause intestinal twisting leading to intestinal obstruction and occlusion of blood vessels. In acute abdominal pain presentation possibility of such a situation should be suspected. The structure reported in this study might not have presented with any symptoms and also not been detected by investigations used to uncover common anomalies of patent vitello-intestinal ducts.

KEYWORDS

Vitello-intestinal duct, acute abdomen, Meckel's diverticulum, umbilical sinus, omphalo-umbilical cyst.

INTRODUCTION:

Patent vitello-intestinal duct or Persistent omphalomesenteric duct is a very unusual congenital anomaly which occur in 2% of population related with the embryonic yolk stalk [9,23]. The vitello-intestinal duct provides nutrition to the early developing embryo. The duct provides a communication between the primitive yolk sac on the ventral side of the embryo and the mid-gut loop through the umbilical coelome[7]. Remnants of the duct present as varied anatomical entities. The most common presentation of a persistent duct [67%] is Meckel's diverticulum found in 2% of the population [5]. A persistent vitello-intestinal duct may also remain patent extending from the terminal ileum to the umbilicus and discharge fecal matter at the umbilicus, forming a fecal fistula [6]. A persistent vitello-intestinal duct can cause abdominal pain, bowel obstruction, intestinal hemorrhage and umbilical sinus, fistula or hernia which commonly occurs in children[7,19]. Patent vitello-intestinal duct causing obstruction is a very rare condition in an adult patient[15]. Intestinal obstruction is a very serious condition and can be the main reason of morbidity and mortality[10]. It requires early prompt diagnosis and effective operative management[25]. Amongst all neonatal cases of persistent vitello-intestinal ducts about 6% of the babies present as completely patent ducts with complications in the first 28 days of life characteristically with intussusceptions of the small bowel through the patent vitelline duct in 20% of them[21,8]. The present case report is an extremely uncommon case of patent vitello-intestinal duct in a cadaver that is not associated with other variations.

MATERIAL AND METHODS:

The case with a patent vitello-intestinal duct reported here was detected in an adult male cadaver during routine dissection for undergraduate students in the department of anatomy at Apollo Institute of Medical Sciences And Research[AIMSR], Hyderabad, India. The cadaver was received by the department of anatomy and was embalmed and fixed. During routine abdominal dissection for the 1st year MBBS students a midline incision was given sparing the umbilicus.

RESULTS:

Upon reflection at the level of the umbilicus, a fibrous remnant connecting the umbilicus and the ileum was observed. This was then carefully examined and studied and observed for any other associated anomalies. This anatomical entity exhibited a length of about 4centimetres and had a diameter of about 1centimetre. This structure was found to be attached at one end to the ileum and the other end to the umbilicus. The attachment on the anterior abdominal part exhibited an extra peritoneal extension towards the umbilicus. Careful examination of the gut could not reveal a Meckel's diverticulum, any sign of intestinal atresia, umbilical sinus or cyst along the remnant of the duct. The umbilicus appeared normal when observed from the exterior.

Figure :1 Showing patent vitellointestinal duct



Figure :2 Showing normal umbilicus



DISCUSSION:

Vitello-intestinal duct remnants present with symptoms that include abdominal pain, bowel obstruction, intestinal haemorrhage, rectal bleeding, umbilical discharge and umbilical hernia[15,13]. Most of these symptoms appear before the age of 4years. About 40% of the children with this anomaly present with symptomatic lesions, whereas the adults are usually asymptomatic[7]. Surgical intervention for asymptomatic patients is not required[13]. Patent vitello-intestinal duct can give rise to small bowel obstruction. It is a surgical emergency and an immediate and correct diagnosis of this condition is essential for intervention[10,16]. N.K.Mahato et al. [18] reported a case of persistent vitello intestinal duct which was found during dissection in a cadaver extending from umbilicus to ileum and beyond. T.R. Bhandari et al.[24] reported a case of 22year old male patient with persistent vitello-intestinal duct causing intestinal obstruction. Ali Guner et al. [1] reported a 42year old man with small bowel volvulus with persistent vitello-intestinal duct which is a very rare cause of intestinal obstruction in adults. Bedard et al.[3] reported as omphalomesenteric duct as a cause of colon volvulus in 77year old female patient. It is also reported that omphalomesenteric duct can be seen in trisomy 13 and Down's syndrome[8,4]. Gaisie et al. [11] presented three cases of volvulus in early infancy associated with omphalomesenteric bands. Pranav kumar Sharma et al.[22] reported a case of 20year old male with persistent vitello-intestinal duct with Meckel's Diverticulum

causing small bowel obstruction. Pankaj kumar kannaujiya et al.[20] reported a case 18year old male patient with recanalisation of multiple vitello-intestinal ducts after small bowel obstruction in adult. Herman et al. [17] reported a case of 3year old boy with small bowel obstruction as a complication of persistent vitello-intestinal duct. Parikh Dr. Archit P et al.[2] reported a 50year old patient with spontaneous perforation of Meckel's Diverticulum. Kumar et al.[14] reported six cases with varied presentations of one case as intestinal obstruction ,two with perforation, one case of incidental Meckel's Diverticulum, one case of diverticulitis, one case of double Meckel's Diverticulum. Presence of cyst associated with a fibrous remnant of the duct may also cause an acute intestinal obstruction [12]. It is very challenging to know the reasons of the intestinal obstruction without diagnostic laparotomy or laparoscopy.

The present case is a well preserved remnant of the vitello-intestinal duct without association of any other anomaly of the omphalomesenteric duct. This is an extremely rare case as it was found in an asymptomatic individual and also the intestines did not show any other developmental anomalies. This structure can be a potential case of intestinal obstruction and result in an acute abdomen. Thus knowledge of possible existence of such an anomalous anatomical structure can be useful in diagnosing the cause and planning appropriate surgical intervention.

CONCLUSION:

Vitello-intestinal duct remnants may present as isolated cord like structures. Asymptomatic patent vitello-intestinal duct unrelated to a Meckel's diverticulum or a cystic dilation of the structure in an adult is a very rare presentation.

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CONFLICT OF INTEREST:

No potential conflict was reported by the authors.

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