

**CASE REPORT**

# Abnormal Position of Vermiform Appendix in a Macrosomatic Infant

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**Abstract**

In the present paper, a rare anomaly of the vermiform appendix is being reported in a macrosomatic infant. Earlier some researchers had reported subhepatic appendix. Here we report subhepatic vermiform appendix associated with other anomalies like retroperitoneal ilium, intraperitoneal ascending colon and maldescendant cecum that had not reported. Further, ontogenic explanation of the anomalies is discussed in detail.

**Key Words**

Subhepatic Appendix, Macrosomatic, Ilium, Cecum

**Introduction**

The vermiform appendix is an anatomic organ with considerable significance in the medical practice (1). It is characterized by great variability of its location and morphology. Vermiform appendix acute inflammation needs urgent surgical intervention. Inflammation of atypically located vermiform appendix may imitate inflammation of other organs, which leads to diagnostic errors (2). Although many researchers have reported anatomical variations of vermiform appendix in adult and child, here we report an abnormal vermiform appendix with anatomical abnormalities of ileum and ascending colon.

**Case Report**

A very rare anomaly in the vermiform appendix of a donated from a diabetic mother macrosomatic newborn (male, birthweight: 8kg) was encountered during the dissections carried out under a project in the department of Anatomy, faculty of medicine, Bandar Abbas, IRAN. The abdomen was opened by a long midline incision and the flaps were reflected to give a good view of the abdominal cavity along with its contents. The retrocecal vermiform appendix located in subhepatic region (hepatoreneal pouch) surrounded by a peritoneal fold. This peritoneal fold formed a pouch which directed to the right side. The depth of this pouch was measured 3cm (Fig 1 & 2). The length of the vermiform appendix was initially measured 5cm. The cecum located in subhepatic position and vermiform appendix process attached to the right side of it. Distal part of the ilium was observed in right paracolic gutter and retroperitoneal position (Fig 1) and formed an angle about 58 degree with the cecum at the

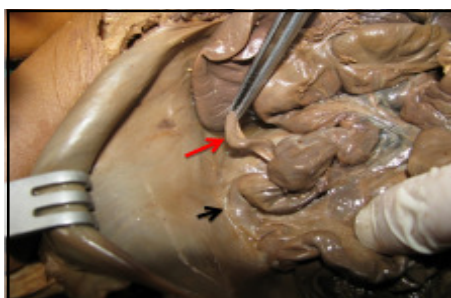
ileocecal junction. (Fig 1 & 3). The diameter of ascending colon was less than 1cm while had an intraperitoneal position. (Fig 4).

**Discussion**

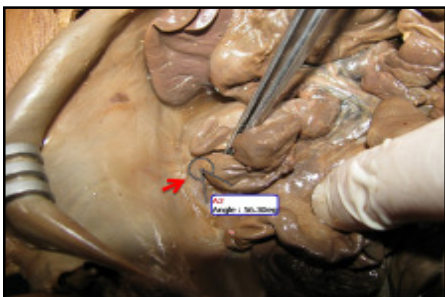
The vermiform appendix is a narrow, vermian tube that arises from the posteromedial caecal wall, 2cm below the end of the ileum (3). It is the only organ in the body that has no constant position. The various positions are retrocecal (65.3%), pelvic (31%), subcecal (2.3%), preileal lateral pouch, mesocolic, left-sided (associated with situs viscerum inversus), intraherniary and lumbar (1%) and postileal (0.4%). The rarer types include subhepatic, lateral pouch, mesocolic, left-sided (associated with situs viscerum inversus), intraherniary and lumbar appendicitis (appendix is posterior, lying against the peritoneum behind or below the caecum) (3). Palanivelu *et al* (2007) reported subhepatic appendix with frequency of 0.09% (4). Palanivelu has reported the subhepatic appendix as a rare case but he has not mentioned to the other anomalies like undescendant cecum. This kind of abnormal position of the appendix is of clinical and surgical importance. Inflammation of a subhepatic appendix can mimic cholecystitis and perforation of a subhepatic appendix can mimic liver abscess (5, 6). Jorge *et al* (2009) reported ileocecal region located at the lower liver in the right hypochondria of female newborns. Descending process of ileocecal junction would take adult position until six months after birth (7). Our report is in line with other researchers' reports in which retrocecal subhepatic position reported. We also found other anomalies like

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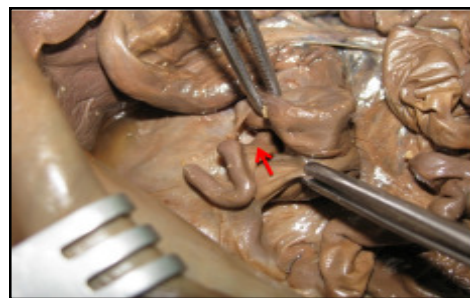
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**Fig 1. The Vermiform Appendix in Subhepatic Position (Red), Distal Part of Ilium lied Retroperitoneally (Black)**



**Fig 3. Iliocecal Junction, the Angle of Iliocecal Junction Measured 56.3Degree (arrow)**



**Fig 2. The Vermiform Appendix in Peritoneal Fossa, which its Entrance Faces laterally (arrow)**



**Fig 4. The Ascending Colon Lied Intraperitoneally in Sub Hepatic Region (arrow)**

undescendant cecum and retroperitoneal located ilium. In one research reported nondescent of the cecum occurred in 6% of 1050 cases (8). Montes *et al* also presented torsion of the vermiform appendix associated with an undescended cecum (9). As mentioned, some have reported subhepatic appendix and maldescendant cecum, but retroperitoneal ilium has not been reported. Surgeons and radiologist can consider our little case report.

**Ontogeny:** This case can be explained by referring to gut development. As the primary intestinal loop herniates into umbilicus, it also rotates around the axis of the superior mesenteric artery by 90 degree counterclockwise so that the cranial limb moves cranially and to the embryo's right, and the caudal limb moves cranially and to the embryo's left. This rotation is complete by eight week. During 10<sup>th</sup> weeks the intestinal loop reenters the abdomen, it undergoes an additional 180 degree counterclockwise rotation. The dorsal mesentery of the ascending colon shortens and folds, causing this part of large intestine come into contact with body wall. During 11<sup>th</sup> weeks the cecum is displaced inferiorly and pulling down ascending colon (10, 11). Therefore, it can be concluded, the displacement of the ascending colon did not occur during 11<sup>th</sup> week. The distal part of the ilium also, was pushed toward right lumbar fossa, as secondary retroperitoneal organ (11).

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