**Case Report:**

Coiled Descending Colon with Persistent Mesocolon and a Straight Sigmoid Colon – A Unique Congenital Anomaly

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**Citation**


**Open Access Archives**

http://cogprints.org/view/subjects/OJHAS.html
http://openmed.nic.in/view/subjects/ojhas.html

Submitted: Jan 4, 2016; Accepted: Jul 1, 2016; Published: Jul 30, 2016

**Abstract:** Descending colon is a retroperitoneal part of colon extending from left colic flexure to the brim of pelvis. Rarely does it have a mesocolon. Descending colon is most commonly affected by ulcerative colitis, Crohn’s disease and colon cancer. In the present case, cadaveric dissection of abdomen revealed a rare variation of descending colon. The descending colon had a mesocolon and was coiled in its lower part. The sigmoid colon was straight and displaced to a median position. Position of colon as in the present case might be asymptomatic, but can lead to volvulus formation, intestinal obstruction, constipation along with abdominal pain and pose a difficulty in radiological diagnosis and interpretation. Colonoscopy may not be advisable in such cases as the colonoscope may not pass through coiled descending colon and any forced attempt may pierce the wall of colon. This is the first case report of the coiled descending colon with a potential clinical importance.

**Key Words:** Colon; Sigmoid colon; Descending colon; Mesocolon; Volvulus; Colonoscopy.

**Introduction:**

The descending colon is 25 cm long retroperitoneal organ, extending from left colic flexure to the brim of the pelvis; continues as sigmoid colon after passing along the left hypochondriac and lumbar regions. (1) Typical location and position of colon are developmental in origin and if interrupted, may lead to variety of pathological conditions. (2) CT scan of such anatomic variation of colon may confuse a radiologist even though it remains asymptomatic. (3) Most of the earlier studies and case reports mention volvulus, cancer and ulcerative colitis as the pathological conditions related to the colon. (4-7) We report a variant descending colon which was coiled in its lower part and had retained its mesocolon. We also discuss the embryological, functional and clinical aspects related to the anomaly.
Figure 1: Photograph of abdomen showing the coiled descending colon (peritoneum and fat has been removed). Note the displaced position of the sigmoid colon. (JJ – jejunum; IL – ileum; TC – transverse colon; DC – descending colon; SC – sigmoid colon; LK – left kidney; PM – psoas major muscle; AA – abdominal aorta; AAW – anterior abdominal wall)

Figure 2: Photograph of abdomen showing the coiled descending colon. Note the displaced position of the sigmoid colon and the continuity of descending and sigmoid mesocolons. (JJ – jejunum; IL – ileum; ME – mesentery of small intestine; DC – descending colon; SC – sigmoid colon; DMC – descending mesocolon; SMC – sigmoid mesocolon; AAW – anterior abdominal wall)

Figure 3: Photograph of abdomen showing the descending mesocolon. The coil of the descending colon has been retracted down by a hook. (JJ – jejunum; IL – ileum; ME – mesentery of small intestine; DC – descending colon; SC – sigmoid colon; DMC – descending mesocolon)

Discussion
Descending and sigmoid colons develop from the hindgut. In the early stage of development, both of them possess their mesocolons. However, later on during development, the descending colon loses its mesocolon to become retroperitoneal. During embryonic period, failure of disappearance of descending mesocolon may lead to persistence of descending mesocolon in postnatal life (8, 9).

In the present case, excessive length of descending colon and the persistence of mesocolon would have resulted in twisting and coiling; because any interruption or arrest of rotation of the intestine during fetal development may result in malrotation, which in turn can lead to volvulus formation.(10)

Numerous cases regarding the variant colon have been reported; however, only a few have been reported regarding the variations of descending colon specifically. Variant position of descending colon lying between the kidney and the psoas major muscle has been reported by Eiref et al.(3) Srivastava et al reported a right sided descending colon.(11) A displaced mesocolon along with sigmoid colon has been reported by Nayak et al (12), in which the descending colon descended in the midline of the abdomen. A redundant loop of descending colon that formed a second hepatic flexure has been reported by Gupta et al.(13) McBrearty et al have reported a case of knot formation in transverse and sigmoid colon due to twisting of a hyperactive bowel segment over a passive segment of bowel, which lead to lower abdominal pain and constipation.(14) Volvulus of colon can occur when there is axial twisting of the colon on its vascular pedicle. Volvulus commonly appears in sites such as sigmoid colon in 75 % of cases, cecum in 22%, transverse colon in 2% and splenic flexure in 1-2% of cases.(4) A case of volvulus formation in descending colon with left hemi-diaphragm elevation has been reported.(15) Torsion and volvulus formation of transverse and descending colon can also be seen in dogs.(16) When compared to the earlier reports on the variations of various parts of colon, present case seems to be unique as descending colon had a coiled nature and the sigmoid colon was unusually straight.

In the present case, the descending colon had mesocolon throughout its extent and its lower part was coiled. It is quite possible that such position of descending colon with presence of mesocolon may lead to formation of volvulus and intestinal obstruction.(9,17) The present case may become a cause of constipation and abdominal pain. Radiographic examinations such as barium enema and CT scan in such variant cases may lead to confusions. During colonoscopy, the colonoscope may find it difficult to pass through a spiral coiled descending colon or may not pass through coiled area at all, thus limiting the visibility beyond the sigmoid colon. Any forced attempt to perform colonoscopy in such cases may even lead to perforation of colon and subsequent complications. Surgeons, while performing segmental resection of the descending colon should be well aware of such variations. Malposition of sigmoid colon may pose problems during diagnosis, intervention and investigation.(11)

Conclusion:
Coiled descending colon with mesocolon can be cause of radiological misinterpretation and may pose difficulty in colonoscopy. It may become a cause of volvulus, intestinal obstruction, constipation and pain in abdomen. Thus radiologists, clinician and surgeons should be aware of such variations.
References


