VICIOS APPENDIX POSITION CLINICAL CASE

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ABSTRACT

The purpose of this article is to present a rare, particular case of intestinal anatomy, intraoperatively evidenced as a vicious position of intestine determined by nonrotation of primary intestinal loop.

Keywords: Vicios appendix position, left appendicitis

Introduction

The primary intestinal loop has a cranial and a caudal limb; the boundary between them is represented by omphalomesenteric duct (vitelline duct) which connects the primary intestinal loop to the yolk sac. This duct, normally closes and disappears, but in 3% of cases may persist as a small diverticulum known as Meckel diverticulum, which is found on ileum at 70-80 cm from the ileocecal valve.

In the ulterior development, the cranial limb- which has a slower growth rhythm than the caudal limb- develops into jejunum and most of the ileum, and the caudal limb develops into

terminal ileum, cecum, ascending colon and proximal two thirds or right transverse colon.

Ontogenetically, normally an umbilical herniation of the primary intestinal loop occurs with changes in position because of rapid hepatic and intestinal growth, abdominal cavity becoming too small for the developing gut.

These changes in position were described by a French surgeon named Fredet calling them "intestinal rotation", which according to him takes place in 4 stages, of 90 degrees each, counterclockwise around an axis provided by the superior mesenteric artery (Figure 1).

Figure 1 Intestinal rotation (after Fredet)

In the first stage ,which correspond to a 15 mm embryo, the primary intestinal loop lies horizontally and enters within the umbilical stalk.

In the second stage when embryo is 32 mm the duodenum changes from transversal lie(horizontal) into a frontal plan, terminal intestine is pushed to the left and the cranial limb forms secondary loops and coils within the umbilical stalk resulting in a secondary mesentery root in 'U' shape with opening to the left.

When the embryo is 60 mm, in the third stage umbilical herniation is completely withdrawn, with intestinal loops going back to the abdominal cavity, jejunal loops lying left inframesocolically, ileal loops on the right and cecal region and proximal colon lying on the right below the liver above the intestinal loops. In this stage are defined, the left colic flexure and great omentum also.

In the last stage the definitive position is accomplished for cecum, colon, the formation of right colic flexure and coalescence fascia of Toldt I, and the mesentery proper. The vermiform appendix develops from cecum which regresses, decreasing in diameter. (1, 2)

Case report

The clinical case is a 18 years old female patient, with urban provenience who was admitted as an emergency, complaining of diffuse abdominal pain and nausea. The patient does not have any history significant for the actual symptoms.

Local examination shows a flat abdomen, mobile with breathing, painful, spontaneous and on superficial and profound palpation, diffuse, predominantly in the right iliac fossa.

Lab tests show 4.500 elem/mm³ leukocytes

and urinary screening in normal limits; the gynecological examination does not reveal any pathology.

Based on the gathering data the diagnosis of acute appendicitis is established and the patient is admitted in Surgery Clinic.

The differential diagnosis implies a vast pathology but most frequently is represented by

- renal pathology (renal colic, pyelocystitis) but the patient did not present suggestive urologic symptoms and urinary tests do not show any modification.
- gynecologic pathology was excluded through gynecologic examination
- peptic perforated ulcer but the patient did not have any history of digestive ulcer like pathology and the symptomatology was not typical for a gastric perforation.

Therefore, although the patient presented lab tests in normal limits, the pretty intense symptomatology and the diffuse abdominal pain, predominantly in iliac fossa lead to admission and decision of surgical intervention. Under rahianesthesia, a McBurney incision was performed in iliac fossa, extended as needed. To the opening of peritoneal cavity it is observed a serous liquid in moderate quantity and intestinal loops which occupy the right iliac fossa and flank without the possibility of evidencing the cecum. The extended incision allows exposure of ileal loops with an apparent cyanotic segment, imposing a median abdominal incision.

On median subumbilical incision, to the opening of peritoneal cavity and exploration by palpation and visualisation it is observed an ascending colon on the left side, the colonic malformation consisting of the existence of a common mesentery, all the colon being mobile (Figure 2, Figure 3).

Figure 2 Intraoperative image: left sided ascending colon

Figure 3 Intraoperative image : left sided appendix

The intestinal loops were intact. The appendix presented phlegmonous inflammatory characteristics, so we performed an anterograde appendectomy, with the appendicular stump within cecal bursa (Figure 4, Figure 5).

Figure 4 Intraoperative image common mesentery colon mobile

Figure 5 Intraoperative image: right iliac fossa incision- subumbilical median incision

The postoperative evolution was favorable, without complications, the patient being discharged at 3 days postoperatively, surgically healed.

Discussions

The particular anatomic position encountered intraoperatively to this patient, correspond to a vicious position survened in the embrional development of the primary intestinal loop, specifically stopping the rotation between 90 to 180 degrees, when the left colonic flexure and descending colon are in a normal position and the duodeno-jejunal flexure is to the left of second lumbar vertebra, while the right colon is anteriorly mobile, having a common mesentery with jejunoileum (Figure 6). (3)

Figure 6 Left sided ascending colon (after V. Ranga – *Tratat de anatomie* , vol. no. 1)

These changes in the position of primary intestinal loop are determined by stopping the rotation after 90 degrees between 180 and 270 degrees.

Rotational stop after 90 degrees is the most frequent case of nonrotation and consists of right jejunoileal loops and right duodenojejunal flexure, the colon being in the left hemiabdomen. The last ileal loops are below the right hepatic lobe and the superior mesenteric artery is anterior and the the right of portal vein.

In the cessation of rotation between 180-270 degrees the position of intestine is almost normal but is less observed the coalescence of right colic loops, the cecum and the first segment of ascending colon being mobile. (4, 5)

Another viciated position is determined by the persistence of common mesentery, when the intestinal tube is in an embryonary state: jejuno-ileal loops and right colic loop (cecum, ascending colon and 2/3rds of proximal transverse colon) have a common mesentery which attaches them to the posterior abdominal wall on a midsagittal line so that the cecum and ascending colon are free into the abdominal cavity and the left colic flexure is not formed. (6)

Conclusion

In conclusion we presented this case because of the anatomical particularities observed intraoperatively, which is a rare encountered case to the everyday practice, confirming once again the name of “box with surprises” of the acute abdomen in surgery

References

1. Embryology- National Medical Series. In: 3 rd. Williams & Wilkins; p. 183–6, 78.
2. Snell's Anatomy. In: 4 th. Williams & Wilkins; p. 212–3.
3. Nisolle JF, Bodart E, de Canière L, Bahati M, Michel L, Trigaux JP. [Acute left-side appendicitis: diagnostic contribution of tomodensitometry]. Arch Pediatr. 1996 Jan;3(1):47–50.
4. Ratani RS, Haller JO, Wang WY, Yang DC. Role of CT in left-sided acute appendicitis:

case report. Abdom Imaging. 2002;27(1):18–9.

5. Wilcox DT, Ghavamian R, Duffy PG. Left sided appendiceal Mitrofanoff channel. Br J Urol. 1996 Jul;78(1):133–4.
6. Bakheit MA, Warille AA. Anomalies of the vermiform appendix and prevalence of acute appendicitis in Khartoum. East Afr Med J. 1999 Jun;76(6):338–40.