

Redundant Sigmoid Colon with Multiple Enteroenteric Intussusceptions- A Cadaveric Case Report

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ABSTRACT

Redundant sigmoid colon which is also known as dolichosigmoid colon is an abnormally long sigmoid colon which can extend into the abdominal cavity. We present a rare case of multiple intussusception and a redundant sigmoid colon discovered in a cadaver during dissection. This sigmoid colon extended into the abdominal cavity, and in addition to the redundant sigmoid colon there were presence of many small intestinal intussusceptions.

This dolichosigmoid colon has a U shape with ascending and descending limbs, and it could have resulted from sigmoid colon volvulus, constipation, or abnormal development of the large intestine. These factors may have been the initiating factor for the formation of multiple small intestine intussusceptions presented in this case study because intussusception usually results as a consequence of an underlying condition. In medical procedures a redundant sigmoid colon could result into harmful and difficult colonoscopy for the patient and gastroenterologist respectively, a good knowledge of this occurrence would be of good help in preventing iatrogenic injuries during colonoscopy.

Keywords: Redundant sigmoid colon; Intussusception; Volvulus; Colonoscopy

INTRODUCTION

The sigmoid colon a derivative of the hindgut, it is the 4th part of the colon with an S shape, it is about 40cm in length and it commences from the iliac fossa to the level of the third sacral vertebra where it continues as the rectum [1]. The sigmoid mesocolon has an inverted V shaped fold of sigmoid colon mesocolon which attaches it to the posterior pelvic wall [2]. The sigmoid mesocolon is relatively long and therefore allows it a great degree of movements; it is located posteriorly to the urinary bladder, uterus and upper vagina in females and anteriorly to the rectum, sacrum, external and the ileum [1]. Stool from the descending colon passes into the sigmoid colon, and its main functions includes the final absorption of water, vitamins and the formation of solid fecal matter which is passed into the rectum for temporary storage before the initiation of defecation reflex [3].

An abnormally long sigmoid colon is called a redundant sigmoid colon or dolichosigmoid colon, while a short sigmoid colon is known as brachymesocolic [4]. Dolichosigmoid usually results from sigmoid volvulus, chronic constipation, colicky pain, and pathologies of anatomical relations of the sigmoid colon [5].

Intussusception also known as intestinal invagination is a condition where by the intestines slides into adjacent part causing blockage, injury, pain, and possible loss of blood supply to the invaginated segment [6]. It is common in children and it rarely occurs in adults [7]. The causes of intussusception in adult is usually a result of an underlying condition, 70%-90% of cases diagnosed has a clear-cut cause [8], in adults most of this condition occurs in the small and large intestine (Agha, 1986). Intussusception can be classified into enteroenteric in which the invagination is solely involving the small intestines, colocolic in which the invagination is solely involving the large intestines and, ileocolic which describes the invagination of the distal ileum into the ascending colon [9].

CASE REPORT

During a routine gross anatomy dissection for medical students, multiple enteroenteric intussusceptions and a large sigmoid loop of were found. These anomalies were found in a male adult cadaver at the Kenya Methodist University gross anatomy laboratory in February 2021. Eight enteroenteric [Figure 1] intussusception was initially found during the dissections of the small intestine which was followed by the sigmoid loop [figure 2&3]. The sigmoid loop measured around 80cm, it commenced at the left iliac fossa, with an ascending limb, a flexure at apex and a descending limb to continue as the rectum. Posterior to the ascending limb is the descending colon while posterior to the descending limb is the root of the mesentery covering the

common iliac artery, abdominal aorta, inferior venacava, left renal artery and vein, and the left kidney. The sigmoid mesocolon was highly mobile and with its mesocolon attached to the posterior abdominopelvic wall. The other parts of the alimentary canal were found in their anatomical location as shown in the pictures below [Figure 1-3].



Figure 1) One of the eight Intussusceptions An intussusception involving the small intestines (enteroenteric).



Figure 2) Redundant sigmoid loop.

AP: Appendix, C: Cecum, AC: Ascending Colon, HF: Hepatic Flexure, TC: Transverse Colon, SF: Splenic Colon, SC: Sigmoid Colon, SLF: Sigmoid Loop Flexure

Note the different parts of the large intestine, the ascending and the descending limbs of the sigmoid colon (SC), and the sigmoid loop flexure (SLF)

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Figure 3) A picture showing reflected redundant sigmoid loop to expose its posterior relations.

AP- Appendix, C- Cecum, AC- Ascending Colon, HF- Hepatic Flexure, TC- Transverse Colon, SF- Splenic Colon, SC- Sigmoid Colon, RSC- Reflected Sigmoid Colon.

Note the reflected sigmoid colon (RSC), and its posterior relations.

DISCUSSION

The presence of a redundant sigmoid loop in an adult with multiple enteroenteric intussusceptions could be an indication for the possible cause of the presence multiple small intestine intussusceptions. The mechanism of formation of intussusception is due to be any tumor or injury in the bowel wall which disrupts the normal peristalsis movement of the bowels and are able to induce invagination [10]. In the adult, intussusception is very rare and it accounts for 1% of bowel obstructions, and it is mostly associated with a diseased condition especially a tumor [11]. Adult patients with intussusception presents with gastrointestinal disorders such as pain, bloating, nausea, vomiting, constipation, intestinal bleeding, and changes in bowel habits [12].

The sigmoid colon functions as a temporary storage of faecal matter before defecation, in addition it also absorbs water and vitamins from the faecal matter before excretion. The length of the sigmoid flexure varies greatly, it is the most varied part of the large intestine in terms of length, and it has the potential to have the largest and longest flexures within the intestine [13]. A redundant sigmoid loop could be the culpable cause of a wide range of gastrointestinal disorders such as constipation, colonic pains, indigestion, right iliac fossa pains [5]. [14] Discovered that redundant colon is mostly found in patients with constipation and he suggested that there must be a connection between redundant colon and constipation.

A good knowledge of the possibility of occurrence and the anatomy of a redundant sigmoid colon will be of great help in colonoscopy and other procedures involving the sigmoid colon. A redundant sigmoid loop can make these procedures quite challenging, as the advancing scope must maneuver through looped segments of bowel, this can cause pain and iatrogenic injury to patients with such anomaly [15, 16].

CONCLUSION

In this case, the multiple enteroenteric intussusceptions most likely developed as a consequence of the effect of the redundant sigmoid loop on gut motility.

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