Case Report

Carcinoma stomach with intestinal non-rotation: An unusual case report

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ABSTRACT

Gut malrotation or non-rotation is mainly a problem of the pediatric age group, however, adult and late adult presentation are not rare. Various cases of gastrointestinal malignancies associated with gut malrotation have been reported in the past. The true association between these two entities is unknown. This is one such rare case of carcinoma stomach associated with intestinal non-rotation in an adult patient. The patient was asymptomatic of non-rotation but developed symptoms of carcinoma of the stomach and non-rotation were diagnosed incidentally. The patient was treated for carcinoma and prophylactic appendectomy was done and non-rotation was left untouched.

Key words: Carcinoma stomach, Intestinal malrotation, Intestinal non-rotation

Malrotation of the gut is a congenital anomaly that usually presents in childhood. The incidence of intestinal malrotation occurs from 1 in 200 to 1 in 500 live births [1,2]. Most patients of malrotation are asymptomatic as symptomatic malrotation is very rare ranging up to 1 in 6000 live births. Approximately 40% of the cases present within the 1st week of life, 50% within the first 4 months of life, and 75% present within the 1st year of life. In the pediatric age group, presentations are acute midgut volvulus, chronic midgut volvulus, malabsorption syndrome, acute duodenal obstruction, chronic duodenal obstruction, or internal herniation [1]. Adult patients either present with chronic abdominal symptoms or sometimes they may present with acute volvulus [3]. Sometimes, malrotation is identified pre- or intraoperatively during an unrelated surgery such as appendicitis, gastrointestinal malignancies, and rarely during pregnancy as well [1]. Here, we present one such rare case of carcinoma stomach associated with intestinal non-rotation in an adult patient.

CASE REPORT

A 58-year-old patient presented to our department with complaints of hematemesis for 1 week associated with dyspepsia, loss of appetite, and weight loss for 3 months. The patient developed pain after the intake of food which was insidious in onset, gradually progressive, dull aching pain, associated with belching and nausea, initially relieved by medication but symptoms did not relieve even with medication in later days. The patient developed vomiting and hematemesis for a period of 1 week vomiting followed meals and vomitus contained food particles mixed with the brownish-colored blood, however, there was no frank blood in the vomitus. He also started noticing a loss in his appetite and weight loss in terms of loosening of clothes and decreased buccal pad of fat. The patient lost almost 12 kg weight in 3 months (weight decreased from 60 kg to 48 kg).

On examination, the pulse rate was 96 beats/minute, good volume pulse, blood pressure was 116/76 mmHg, and body mass index was 17.6 kg/m^2. Pallor was present, there was no supraclavicular lymphadenopathy and on systemic examination, there was tenderness found in the epigastrium apart from which there were no other positive findings present in the examination.

Routine blood and radiological examinations were done, hemoglobin was 9.0 g% and other investigations were within normal limits. Gastroscopy showed an ulcer of size 1 cm × 1 cm size in the pre-pyloric region along the greater curvature of the stomach. Histology confirmed the diagnosis of adenocarcinoma. Staging investigations did not show any locoregional or distant metastatic lesions. Computed tomography (CT) did show antral thickening and the small intestine loops were localized to the left side of the abdomen and the large intestine including the appendix was on the right side suggestive of intestinal malrotation. Based on endoscopy and biopsy report, a diagnosis of carcinoma stomach was confirmed.

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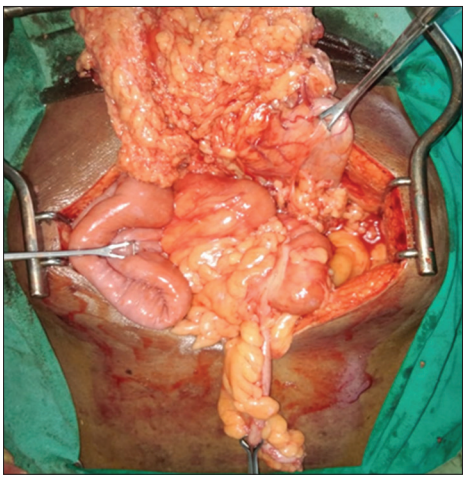

Figure 1: Intestinal non-rotation. Large intestine including cecum and appendix lied on the left side and small intestine on the right side. Note the elongated appendix (held with Babcock's forceps)

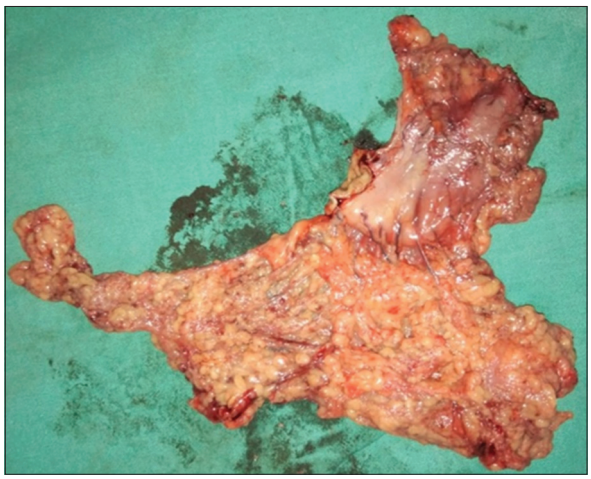

Figure 2: Distal radical gastrectomy specimen

The patient was subjected to laparotomy. Intraoperatively, the whole of the large intestine including the cecum and appendix lied on the left side and the whole small intestinal loop lied on the right side of the perineal cavity (Fig. 1). The appendix was elongated but was not inflamed. It was a case of intestinal non-rotation. However, no other associated anomalies were present. We proceeded with carcinoma stomach, 1 cm × 1 cm ulcerative growth was confirmed along the greater curvature of the stomach in the pre-pyloric region and there were no omental or peritoneal metastatic nodules. Distal radical gastrectomy with D2 dissection with the Billroth II procedure was done (Fig. 2). Malrotation was not corrected as the patient did not have symptoms for 58 years, only prophylactic appendicectomy was done due to its abnormal location.

Postoperatively, the patient had ileus for 7 days with continuous Ryle's tube output 600–700 ml/day and the ileus managed conservatively. The patient was discharged successfully.

DISCUSSION

In adults, malrotation is found with different gastrointestinal malignancies such as gastric, hepatobiliary, pancreatic, and in particular colorectal neoplasm. High incidence of gastrointestinal or hepatobiliary malignancies associated with malrotation was reported from Japan as compared to only a few cases documented worldwide [4]. Nakayama *et al*. reported a case of descending colon malignancy associated with malrotation in a 63-year-old patient [5]. Nakatani *et al*. reported two case reports of cecal malignancy in 78-year-old and 81-year-old elderly male patients associated with malrotation [6]. Inamoto *et al*. reported a case of carcinoma stomach associated with gut malrotation in a 59-year-old female patient [7].

In all these cases, surgeons operated on malignancies and the malrotation component was left as it is. Is this synchrony just a coincidence or there is a link between these two conditions? It was found that mutation in shh and ihh (hedgehog molecules) and their signaling molecules are involved in both intestinal malrotation and upper gastrointestinal malignancies [8], its significance is yet to be elucidated.

If malrotation is confirmed intraoperatively, then the Ladd procedure can be added particularly if the patient has a history of chronic gastrointestinal complaints [3]. In asymptomatic malrotation patients, if malrotation is detected during pre-operative evaluation of an unrelated condition, two schools of thought are present in the literature regarding its management. Some advocate for a wait and watch policy while others prefer to go for surgery; however, there are no comparative studies to conclude which is better. However, prophylactic appendicectomy is recommended to avoid future diagnostic challenges due to the abnormal location of the appendix [9]. If the patient undergoes surgery for the associated surgical condition without correcting the malrotation, then post-operative management is important as the patient may go into the intestinal obstruction. It is important to differentiate post-operative ileus from mechanical obstruction as the management protocol changes entirely; mechanical obstruction may require surgery.

CONCLUSION

Carcinoma stomach associated with non-rotation of the intestine is a rare entity. Carcinoma stomach should be managed in accordance with the principles of oncology. It is not mandatory to correct malrotation, correction surgery is recommended only in symptomatic cases. However, prophylactic appendicectomy is the standard of care in such cases. Postoperatively, patients should be monitored for intestinal obstruction which must be differentiated from paralytic ileus and treated accordingly.

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