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DRIVING ON THE OTHER SIDE OF THE ROAD: ANTERIOR RESECTION IN A CASE OF LEFT ISOMERISM

General Surgery

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ABSTRACT

Situs ambiguous or heterotaxy syndrome is a reversal of the usual left and right distribution of the thoracic and abdominal organs which does not entirely correspond to the complete mirror image. Unlike popular belief, situs abnormalities do not represent premalignant conditions and the incidence of malignancies in these patients is almost the same as in patients with situs solitus. A surgical patient with visceral situs inversus forces an operator to abandon the existing operating standards and demands increased watchfulness while performing the procedure. We describe a patient with left isomerism who underwent anterior resection for rectal carcinoma. The altered anatomy made the surgery difficult, especially with a laparascopic approach. Careful consideration of the mirrored anatomy permitted a safe operation using techniques not otherwise differing from those used routinely. Curative surgery for colon cancer, whether laparoscopic or open and in the presence of situs inversus, is challenging, but safe and feasible.

KEYWORDS

Situs Ambiguous, Heterotaxy, Left Isomerism, Rectal Carcinoma, Anterior Resection.

INTRODUCTION

The term situs describes the relationship of sidedness. Situs solitus is the normal arrangement of body organs. Situs inversus totalis (SIT) denotes complete reversal of the thoracic and abdominal viscera. Situs ambiguous (SA) or heterotaxy, a milder variety of SIT, implies any disposition of organs between the above two extremes.[1] SA is a rare congenital condition present in 1 of 5000 - 10000 live births inherited in an autosomal recessive manner.[2]

There are two main categories of SA, left-isomerism and right-isomerism. Left isomerism or polysplenia syndrome, manifests with multiple splenules on the right side without a parent spleen, absent hepatic segment of the Inferior Vena Cava (IVC) with azygos continuation, bilateral hyparterial bronchi, bilateral bilobed lungs, a midline/transverse liver and intestinal malrotation.[3]

SIT or SA do not predispose to malignancy.[4] Baso M. et al. have reported 14 associations between SIT and colorectal cancer.[5] Moreover, occasional cases of malignant neoplasms in patients with SA have also been reported. There have been no reported cases of SA with left isomerism with rectal cancer.

CASE DESCRIPTION

A 54 year old female was admitted with intermittent episodes of rectal bleeding for 2 years with history of passage of mucus in stools, loss of appetite and significant weight loss (~ 6-7 kg in 6 months). No other significant medical or surgical history was noted. The patient was vitally stable and per abdomen and per rectal examinations were unremarkable.

Colonoscopy revealed an ulcero-proliferative mass 15 cm from anal verge beyond which the scope could not be negotiated. Histopathology report was moderately differentiated adenocarcinoma. Carcino-Embryonic Antigen (CEA) was within normal limits (1.55 ng/ml). Chest X ray revealed normal position of the heart with a midline gastric air bubble.

Contrast Enhanced Computed Tomography scan (Fig.1) was suggestive of

- Liver extending into both hypochondrium.
- Multiple spleen of variable sizes in right hypochondrium s/o polysplenia.
- Stomach on the right with duodeno-jejunal junction on the left side. Entire small bowel on the left and large bowel on the right side with ileo-caecal junction to the left of the midline. Cecum and ascending colon was on the left of the descending and sigmoid colon.
- IVC to the left of the aorta.
- Short segment circumferential irregular wall thickening (9 mm) of length 3.5 cm in rectum, 13 cm from anal verge, with mild luminal narrowing and fat stranding.
- Rest of the abdomen and thorax was normal.

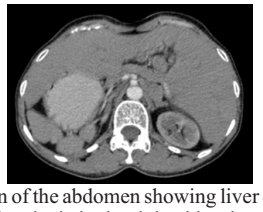

Fig. 1 CECT section of the abdomen showing liver extending into both hypochondium, polysplenia in the right side, absent spleen on the left side, stomach on the right.

Patient was posted for laparascopic anterior resection. With the patient in Lloyd Davies postion, Trendelenberg with right side up, the operating surgeon stood on the patient's left side and assistant on the right (a reversal from the normal orthotopic position). Two 10 mm ports were used: umbilical (for laparoscope) and left hypochondrium (for Gastro-Intestinal-Anastomosis stapler). Two 5 mm ports were inserted in the left lumbar and iliac fossa region. The operative findings were conforming with the CT scan findings (Fig.2). After trial dissection, procedure was converted to open with a midline infra umbilical incision due to suspected involvement of the posterior vaginal wall. Specimen was excised with adequate margins and anastomosis done using a circular stapler.

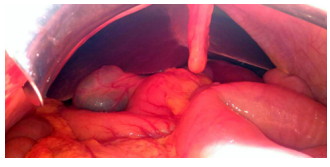

Fig. 2 Stomach and large bowel to the right and small bowel to the left with liver spanning both sides of the midline.

Final histopathology report confirmed a moderately differentiated adenocarcinoma infiltrating the muscularis layer. None of the 13 lymph nodes dissected was positive. [Stage I - pT2 N0 M0]. Patient had an uneventful recovery and was discharged on post-operative day 5 on a full diet.

DISCUSSION

Transposition of the viscera is an unusual anomaly often described as "the mirror image of normal." Fabricius (1600) reported the first known case of reversal of the liver and spleen in man, and Kuchenmeister (1824) was the first to recognize the condition of situs inversus in a living person.[6]

The typical cardiac anomaly is transposition of the great vessels with a right sided aortic arch. Abdominal vascular anomalies include preduodenal portal vein and variations of the celiac trunk and superior mesenteric artery. Other associated anomalies of the gastrointestinal tract are biliary tree atresia, duodenal atresia, colonic aganglionosis, malrotation of the intestine, annular pancreas and diaphragmatic hernia. It may also be a part of a Kartagener's syndrome (situs inversus, chronic rhinosinusitis and bronchiectasias).[5]

A surgeon may be expected to encounter this anomaly only once or twice in a lifetime. Although it is not a serious hazard to life, the identification of a situs abnormality is essential for the right surgical approach, especially when laparoscopy is considered.[4] Atypical circumstances increase the frequency of intra-operative complications.[7]

In our scenario, the position of the operator, assistants and trocars were reversed from the usual locations and some amount of mechanical discomfort was noted in handling surgical instruments in the presence of a reversed spatial relationship. One cannot but emphasise the fact that a surgeon should be aware of the possibility of a situs abnormality and, if discovered on laparoscopy, should be well prepared to operate in a logistically reverse setting.

CONSENT OF PATIENT

The patient signed the informed consent for surgery and the publication of this case before the intervention.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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