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CASE REPORT

# Carcinoma in a Colonic Conduit Post Esophagectomy: a Case Report

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**Abstract**
Colon Conduit is a commonly used form of reconstruction post esophagectomy either for malignancy, strictures due to caustic acid ingestion, or other benign conditions. Carcinoma of the Colon Conduit following esophagectomy is a complication with an extremely low incidence and the management options are not clear. Thorough search of literature showed only 16 such cases. Hence, we report a case of a patient who underwent colon conduit reconstruction for a gastroesophageal (GE) junction tumor and developed a recurrence 4 years after the initial surgery.

**Keywords** Colon conduit · Metachronous cancer · Post esophagectomy

## Introduction

Kelling and Vuillet conducted the first colonic interposition graft as early as 1911 [1]. Complications associated with interposition grafts include anastomotic "leak," stricture, fistula, colonic graft ischemia, and colitis, diverticulitis [2–5]. A thorough search of literature revealed only 16 cases of primary adenocarcinoma in an interposed conduit post esophagectomy. Hence, we present this rare case and suggest an optimum management for such scenario.

## Case Presentation

A 47-year-old lady with no known co morbidities was diagnosed as a case of Carcinoma GE junction. She underwent Total Gastrectomy (D2) with trans hiatal esophagectomy and distal pancreatectomy and the reconstruction with an Ileocoloplasty and Colojejunostomy with Ileocolic anastomosis [6]. Histopathological analysis showed Signet Ring Adenocarcinoma involving stomach and gastroesophageal (GE) junction (pT3N1M0) in 2012. In view of borderline performance status, a multi-disciplinary team advised no adjuvant treatment.

The patient was on regular follow-up and, after a disease-free interval of 4 and a half years, presented with complaints of chest pain, dyspepsia, and dysphagia. Upper gastrointestinal (GI) endoscopy done to evaluate dysphagia showed a circumferential growth at 40 cm in the colonic conduit (Fig. 1). Contrast Enhanced CT scan revealed a long segment circumferential asymmetric mural thickening of the colonic conduit, proximally beginning just above diaphragm and distally until the anastomotic site in the abdomen (Fig. 2). Biopsy revealed an adenocarcinoma, positive for CK 20, suggestive of a colonic primary (Fig. 3). Colonoscopy revealed no other lesion in the large bowel.

Staging laparoscopy revealed no distant metastasis. A left thoraco-abdominal approach was used for the procedure. Intra operative examination revealed an Ileo-colonic conduit based on middle colic vessels, with a 10 × 8-cm growth in the distal end of colonic conduit. The jejuno-colic anastomosis was 10 cm distal to the growth. The mass was adherent to the diaphragm all around and to the left lobe of the liver and left adrenal gland. Resection of tumor bearing colonic conduit along with the adjacent diaphragm was done. The wedge of the involved liver was excised and left adrenalectomy was done. The diaphragmatic rent was repaired with sutures and reinforced with an on-lay composite mesh. The viability of the proximal colonic segment was assessed intra operatively by clamping the feeding middle colic vessels for half an hour. The proximal resection was planned at 5 cm proximal to the proximal end of tumor. The jejuno-

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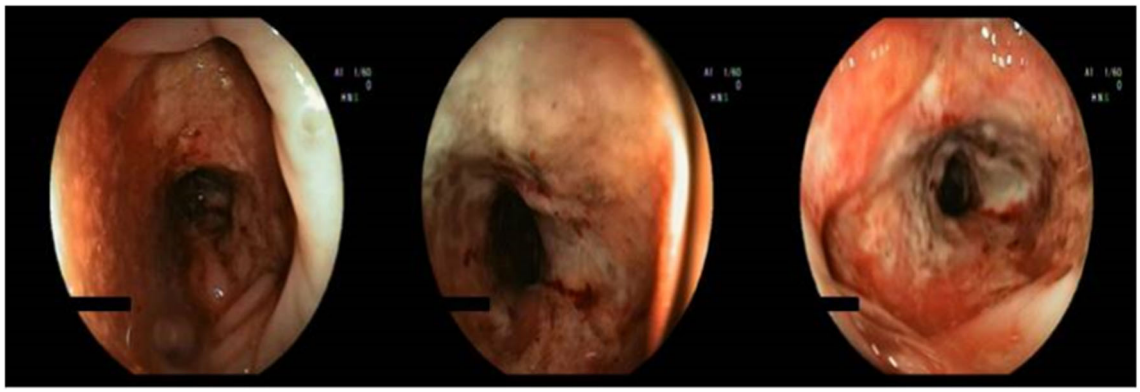

**Fig. 1** An Upper GI Endoscopy showing growth in the left colon conduit. There was no attempt made to negotiate the scope beyond the growth

colonic anastomosis refashioned using a trans oral circular stapler.

Post-operative period was uneventful and the patient was discharged home. A contrast study done on post-operative day 7 revealed no leak.

Histopathological analysis of the specimen revealed an adenocarcinoma of signet cell variant with evidence of extracellular mucin deposition (pT4bN0M0).

On the basis of a multi-disciplinary tumor board recommendation, the patient was started on single-agent capecitabine chemotherapy. At the time of writing the report, the patient is 30 months post-op. She is doing well, with no complaints.

## Discussion

The estimated life time risk of colonic conduit cancer after ureterosigmoidostomy is 477 times more than the general population in the age group 25–30 and eightfold more in the age group 55–60 [7]. Primary colon malignancy after colonic conduit post esophagostomy is less well described. Drawing an analogy to malignancy post ureteric diversion, one can propose that reflux of bile may be the instigating factor [8].

There exist no definite guidelines for surveillance post Esophagectomy. NCCN guidelines recommend diagnostic imaging studies and UGI endoscopy but do not specify the time intervals and whether they should be done for

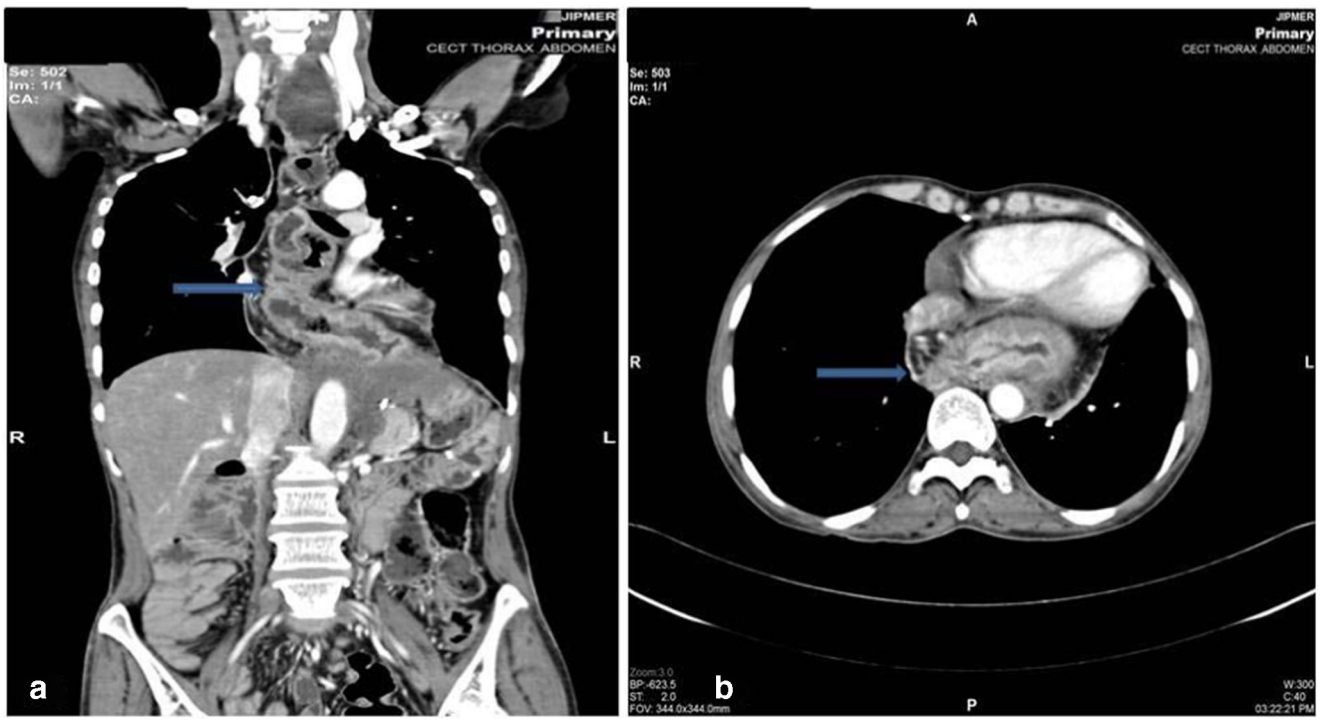


**Fig. 2** **a** The frontal plane of CECT scan showing the left colon used as conduit. (Arrow) Points to the long segment asymmetrical mural thickening in the left colonic conduit. **b** (Arrow) The axial sections of CECT scan showing the thickening of the colonic conduit

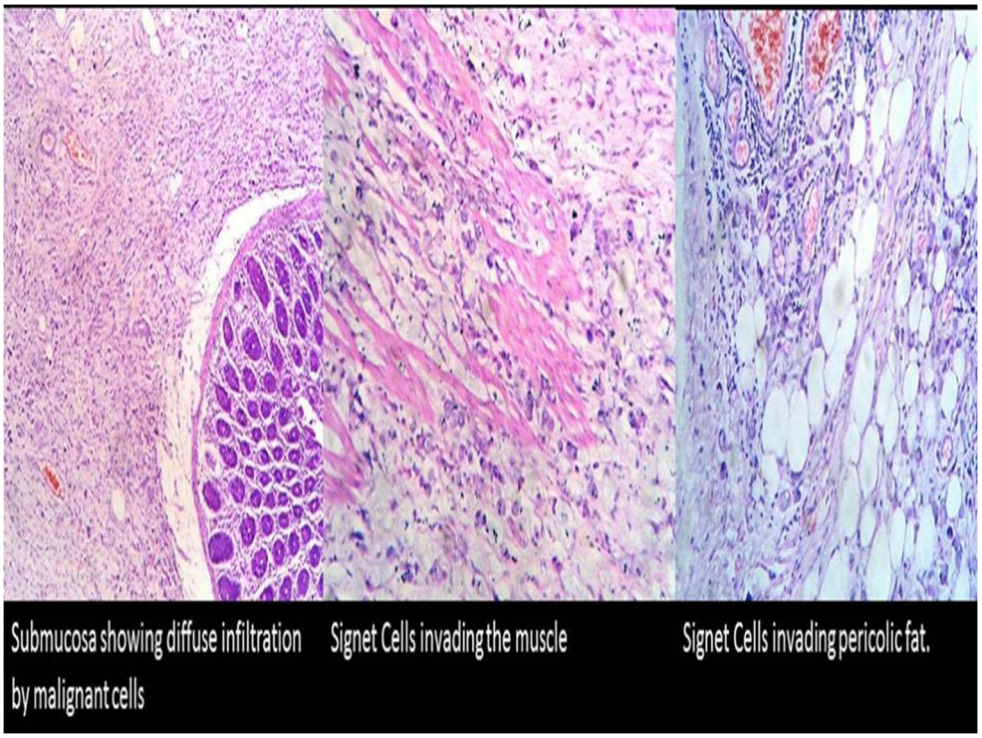


**Fig. 3** HPE images depicting Adenocarcinoma, positive for CK 20, suggetsive of a colonic primary

asymptomatic patients as well. It is imperative that synchronous colonic lesions are ruled out at the time when colonic conduit is the mode of reconstruction. A colonoscopy and Barium enema form the main diagnostic modalities. In our case, the recurrence developed after 3 years; hence, a synchronous lesion is ruled out. Diagnostic work-up should include a UGI scopy, CECT abdomen, and thorax.

Treatment options are limited and require skilled expertise. Reconstruction options include partial resection with cologastrostomy [9], segmental resection followed by a Roux enY Esophagojejunsotomy [10]. A free jejunum interposition flap, super charged jejunum flap, and right colon graft based on right colonic artery form different options. Endoscopic Mucosal Resection has been described in one case [11], but this modality is limited to cases which are diagnosed at an early stage.

Patients with recurrence will generally have a low performance status and efforts should be made to reduce surgical stress. Total colectomy increases morbidity and makes reconstructive options limited. Intraoperative upper GI endoscopy helps in localizing proximal extent of tumor. We propose that viability of the proximal colonic segment assessed intraoperatively by clamping the feeding middle colic vessels for half an hour. The lesion can then be resected following the principles of colonic resection and a 5-cm margin on either side.

## Conclusion

Primary cancer of the colonic conduit is rare. Segmental resection following assessment of viability of proximal margin of colonic conduit by clamping the middle colon artery is a suitable modality to reduce surgical stress.

## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

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