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CASE REPORT

Squamous Cell Carcinoma of Colon—an Etiopathological Surprise

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Introduction

Colorectal cancer is the second and third most common cancer in females and males worldwide, with an estimated incidence of 1.4 million new cases per year in the USA. The incidence in India is 4.3 and 3.4 per 100,000 in males and females respectively [1]. Adenocarcinomas are the most commonly encountered type, accounting for 90% of all colorectal malignancies [2]. Squamous cell carcinomas (SCC) of the colon and rectum, however, are extremely rare, with fewer than 100 reported cases in available literature since 1919 and an estimated incidence of 0.025 to 0.1% of all colorectal malignancies [3–7]. The exact etiopathogenesis is still unclear, with a variety of proposed mechanisms.

We report a case of a 60-year-old lady who presented with an acute intestinal obstruction due to a malignant lesion in the hepatic flexure of the colon, which on histopathological examination, turned out to be SCC. The scarcity of the available literature made us think whether SCC of the colon is a reality or a myth, and if such an entity exists, is it a primary malignancy or a secondary lesion. Hence, we decided to report this very interesting case.

Case Report

A 60-year-old lady was admitted to the hospital under the department of medicine with complaints of abdominal pain, intermittent vomiting, and loose stools since 2 months.

The pain was insidious in onset, localised to the epigastrium and right hypochondrium, and non-radiating. It was aggravated following meals and had no specific relieving factors. The pain was associated with vomiting, which was non-projectile and non-bilious and contained food particles. She additionally complained of 3–4 loose, watery stools per day. She did not give any history of sticky stools, malaena, haematochezia, or weight loss. She had no known comorbidities, with no past history of any major medical or surgical illness.

Clinically, her abdomen was soft, with mild tenderness in the epigastric and right hypochondriac regions. Murphy's sign was negative. There was no palpable lump or hepatosplenomegaly. There was no evidence of free fluid in the abdomen, and bowel sounds were normal. Examinations of the chest and nervous system were normal.

Her blood investigations were normal, and chest x-ray was unremarkable. Ultrasonography of the abdomen showed signs of chronic calculous cholecystitis. She was thus managed as a case of acute gastroenteritis, with empirical Inj. Metronidazole 500 mg IV 8 hourly, Inj. Pantoprazole 40 mg IV daily, Inj. Hyoscine Butylbromide IV 8 hourly, and IV fluids. She was transferred to the department of surgery following resolution of symptoms for cholecystectomy.

During workup for cholecystectomy, she suddenly developed increased abdominal pain, tachypnoeia, and tachycardia. The abdomen was distended and tender. Bowel sounds were hyperperistaltic. An erect abdominal x-ray was performed which showed signs of intestinal obstruction (Fig. 1). There was no evidence of perforation.

A contrast-enhanced computed tomography (CECT) of the abdomen was performed urgently, which revealed a mass in the hepatic flexure of the colon, with dilated loops of bowel proximally and collapsed bowel distally (Fig. 2).

She was therefore taken up for an emergency exploratory laparotomy. At laparotomy, the small bowel was found to be grossly dilated, and a few mesenteric nodules were seen. A hard 8 × 6-cm lump was seen at the hepatic flexure of the colon. The caecum and the ileo-caecal junction were pulled up superiorly. There were no signs of metastasis, and remaining viscera were grossly normal.

A radical right hemicolectomy was performed, with primary side to side ileo-transverse anastomosis (Fig. 3). Post-op

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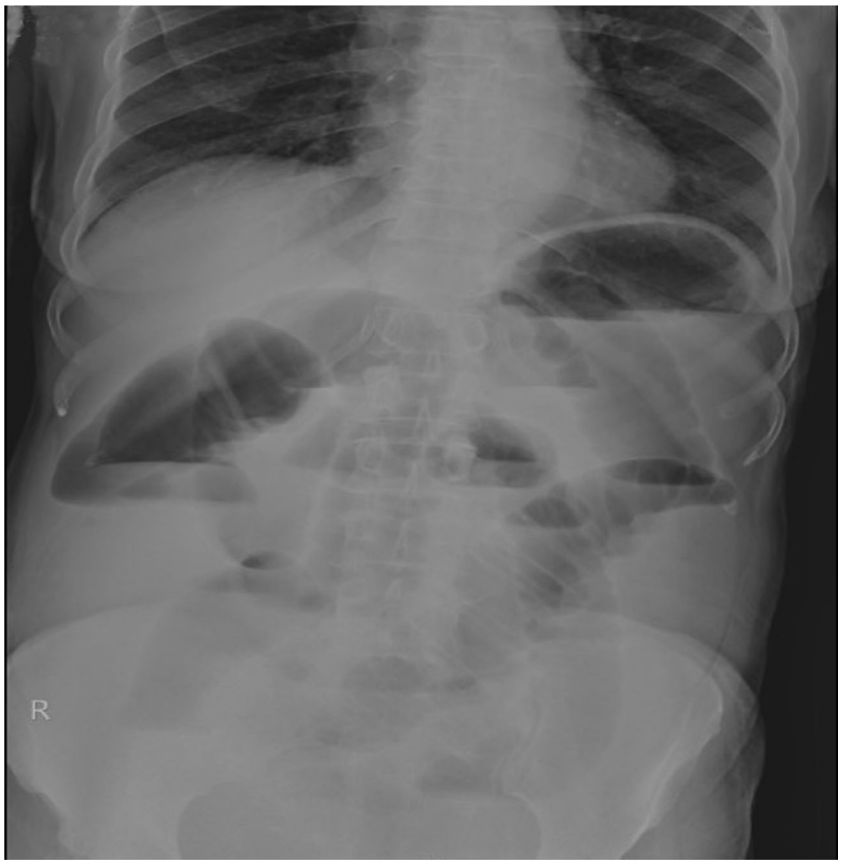

Fig. 1 Erect abdominal x-ray showing signs of obstruction

recovery was uneventful, with liquids being initiated on the third post-operative day, and solids the day after.

Histopathological examination of the lump surprisingly revealed moderate to well-differentiated SCC (Fig. 4). The

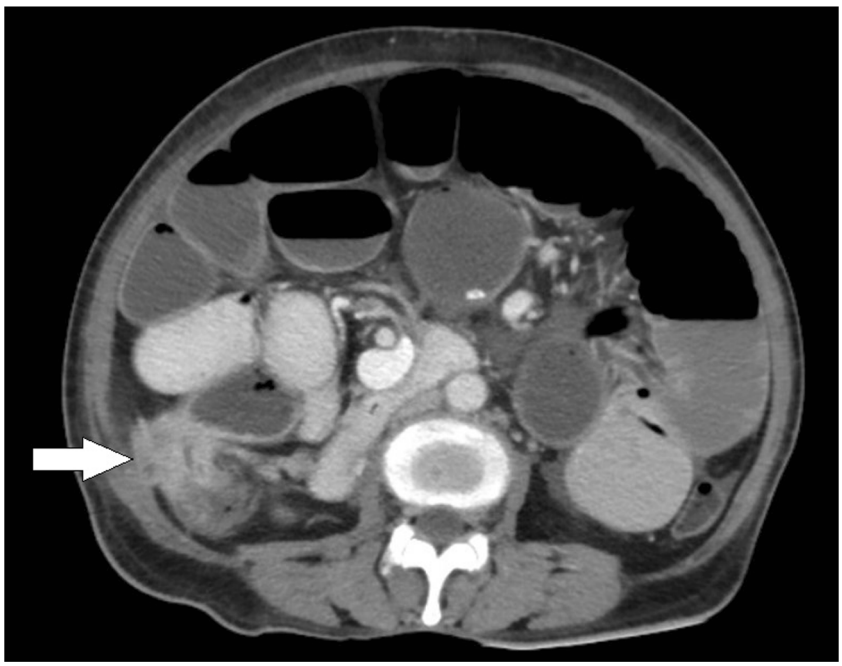

Fig. 2 CECT showing mass at hepatic flexure of colon (arrowed)

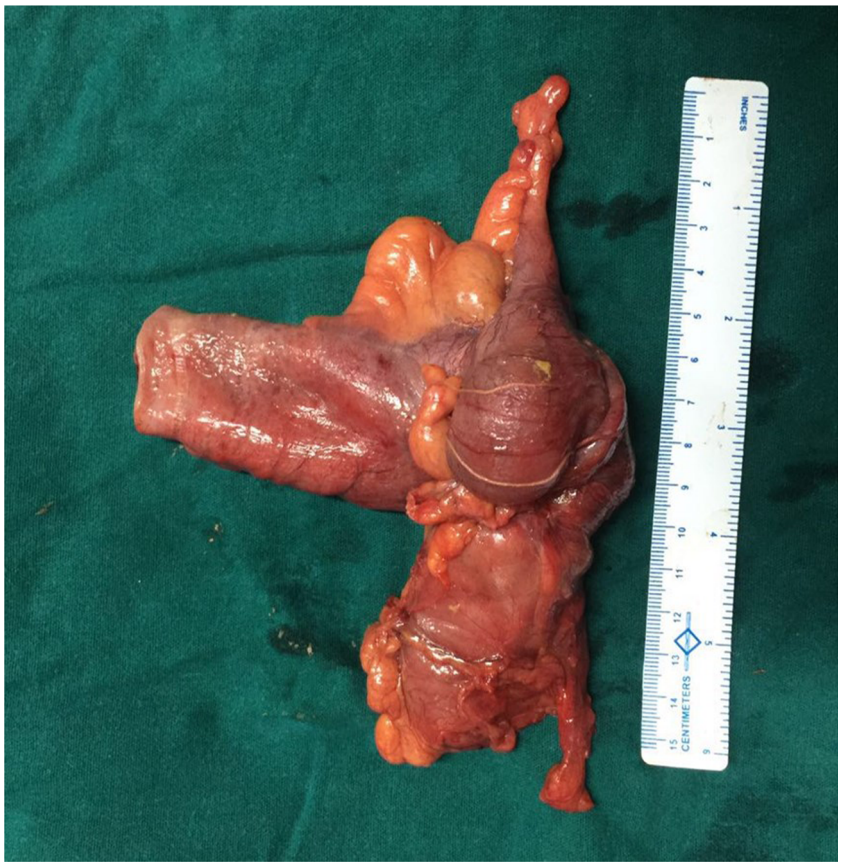

Fig. 3 Part of excised specimen showing mass at hepatic flexure

excised mesenteric nodule did not show any signs of malignancy on examination. Proximal and distal resection margins were free of tumour.

Considering the rarity of primary SCC of the colon, metastasis from an occult primary had to be ruled out. Possible primary sites like the oropharynx, oesophagus, lungs, and

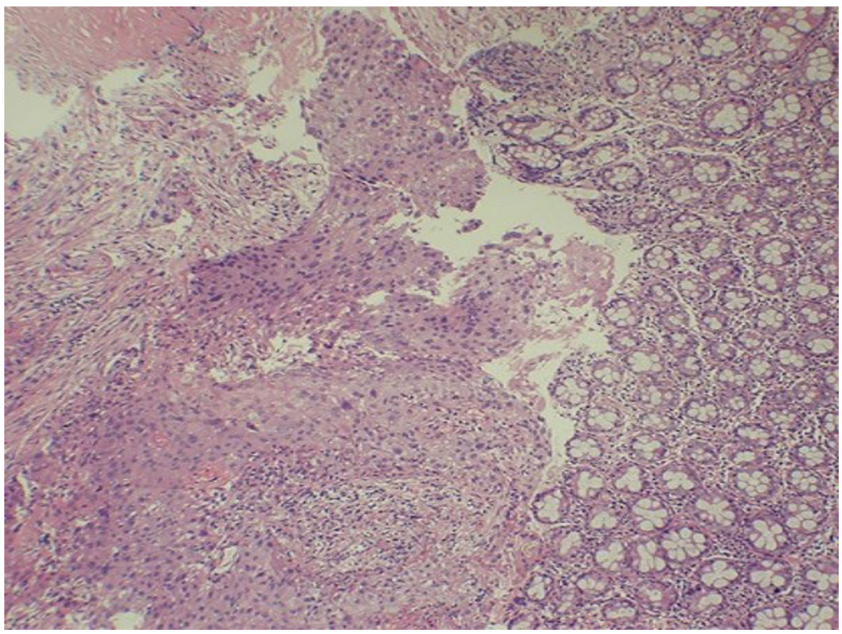

Fig. 4 Micrograph showing well-differentiated squamous cells with cell bridges alongside normal colonic tissue

cervix were ruled out through further investigations. An oncologist's opinion was taken, and no further treatment was advised as there was no evidence of metastasis.

The patient made a full recovery and, at follow up, till date, has not shown any signs of recurrence.

Discussion

Adenocarcinomas are the commonest type of malignancy reported in the colon and rectum, with well-established etiopathogenesis and treatment protocols. SCCs of the colon, however, are extremely rare, with an incidence of 0.025 to 0.1 per 1000 colorectal neoplasms [4]. Literature suggests a mean age of 55 to 60 years, with some authors citing a male preponderance, while others, including Yoshida J et al., claimed an increased incidence in females [4, 8–10].

Patients present with complaints similar to that of other colorectal neoplasms, with pain, rectal bleeding, and altered bowel habits. A small percentage present as acute surgical emergencies like obstruction, as in our case [11]. As in adenocarcinoma of the colon, the duration of symptoms is highly variable and ranges from several weeks to many months. The natural history of the disease remains poorly understood. However, it does not appear to be different from that of adenocarcinoma, with similar lymphatic spread, and similar sites of distant metastasis. Majority of patients reported have presented with stage II or stage III disease [12].

The exact etiopathology is poorly understood, with various hypotheses proposed to explain its pathogenesis. Kontozoglou et al. suggested neoplastic transformation of heterotrophic embryonic rests of squamous epithelium and direct transformation of glandular epithelium into squamous cells [13]. The pleuripotent stem cell theory, suggested by Sameer et al. and Dyson et al., states that SCC develops from undifferentiated basal cells in the colon after mucosal injury [14, 15]. Dyson also theorised that epithelial damage could stimulate the proliferation of uncommitted basal cells into squamous cells which then become malignant [15]. Inflammation secondary to infection or inflammatory bowel disease could also lead to development of SCC of the colon, and alternatively, the presence of squamous cell differentiation in other carcinomas has led some to believe that these cancers may develop from established adenomas or adenocarcinomas [6, 14, 15].

Prior to establishing a diagnosis of primary SCC, metastasis from a distant primary must be ruled out. Possible primary sites include the skin, the cervix, lungs, and oesophagus. The guidelines established by Williams et al. also require ruling out of a squamous lined fistulous tract to the colon, and direct extension from the anal canal [16]. Although secondaries to the colon are extremely rare from these sites, they must still be thoroughly ruled out using careful examination and radiological investigations like contrast-enhanced CT scans and PET scans. In the absence of a distant primary, visual confirmation of the lesion along with histopathological confirmation of SCC is enough to establish a diagnosis [17]. The squamous cell carcinoma antigen (SCC Ag), already in use for SCC of the lungs, cervix, and head and neck, has been used in a way analogous to carcinoembryonic antigen (CEA) in adenocarcinoma. Elevated levels of this tumour marker can be correlated with recurrence of disease [18].

Most authors agree that surgery is the mainstay of treatment of primary SCC of the colon. In available literature, secondary SCC of the colon was treated according to the site of the primary and stage of malignancy. Nigro et al. suggested the protocol of SCC directed chemotherapy (5-fluorouracil and mitomycin-C) combined with external beam radiotherapy if the lesion is less than 5 cm, followed by surgical excision if needed [19]. Similar protocols were suggested by Schneider et al. and Lafraniere et al., who agreed that chemoradiotherapy was a useful treatment option in addition to surgery [12, 20]. However, there is still no consensus on what would be an ideal treatment protocol for primary SCC of the colon.

Follow-up is aimed at detecting recurrence, as this tumour has been found to be more aggressive than other histological types, with poorer prognosis [21]. Symptoms such as rectal bleeding and altered bowel habits must be investigated using clinical and endoscopic examination. Al Hallak et al. suggested a follow-up protocol of six monthly colonoscopies for a period of 2 years, followed up yearly follow-up unless symptoms recur [17]. Serum SCC Ag levels can also be used to monitor recurrence if facilities exist.

Prognosis of the disease is poor in reported literature. Comer et al. reported a 5-year survival rate of 30% in their series of 20 patients [22]. Earlier reports reported a far more dismal prognosis of 13.6% after a mean follow-up period of 6.9 months [12]. However, this may be due to the typically advanced stage of presentation and paucity of larger studies. Frizelle et al. in their study of 44 patients found a similar survival rate for stage I and stage II node-negative disease with that of adenocarcinoma. However, patients with node-positive disease fared worse as compared to those with adenocarcinoma [21]. Unfortunately, factors predicting prognosis and precise survival rates for each stage of the disease remain unknown due to the rarity of the tumour.

Conclusion

Primary as well as metastatic SCC of the colon is a rare tumour, with a presentation similar to that of adenocarcinomas. At present, there is no consensus on a particular management protocol for these cases. Surgery remains the mainstay of treatment, while the Nigro protocol using combination chemoradiotherapy has shown promising results.

Greater awareness of this clinical entity and documentation of these cases can help us understand the exact etiopathogenesis of this rare variety of colorectal malignancy, as well as help set a standard management protocol for the same.

Compliance with Ethical Standards

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

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