A case report of signet-ring cell carcinoma of the colon in a 21 year old man

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Abstract

Signet-ring cell carcinoma of the colon is a rare and aggressive form of colonic cancer which is associated with a very poor prognosis. Various studies have shown that the majority of these cases are encountered in late adulthood. We report a case of a 21-year old man who presented with abdominal pain and altered bowel habit. Colonoscopy examination showed a circumferential growth causing a narrowed bowel lumen at the descending colon. Both barium enema and computed tomography findings showed a long segment malignant stricture at the descending colon. Tissue biopsy indicated features of signet-ring cell carcinoma. He underwent segmental resection of the cancerous lesion with end colostomy when he presented to us with an obstructed and advanced malignant stricture of the descending colon.

Keywords: Carcinoma, Colon, Colonoscopy.

INTRODUCTION

Signet-ring cell carcinoma of the colon is a rare and aggressive form of colonic cancer which is associated with a very poor prognosis. Patients with signet-ring cell carcinoma of the colon are commonly diagnosed at a younger age than patients with other form of colorectal carcinoma. The mean age of diagnosis is about 60 years compared to 64 years in other cancer types [1] while the overall median survival time was 12.7 months and the 5-year survival rate was 9.4% (6). Most reported cases presented at late adulthood and presentation at an early age was rare.

CASE REPORT

A 21-year old man who had no known medical illness presented with intermittent colicky abdominal pain occurring about 3-4 times in a month for 9 months. Prior to seeing us, he also complained of altered bowel habit as he developed frequent diarrhoea and at times constipation. There was also a feeling of incomplete defecation with occasional episodes of passing blood per rectum. He also complained of passing dark-coloured stool on and off. His weight had reduced considerably and so was his appetite. Otherwise, he didn't complaint of any vomiting or fever. He didn't have any previous abdominal surgery or any family history of malignancy.

Upon presentation to the Emergency Department, he was pale, with a blood pressure of 130/80mmHg and heart rate of 115/min. His abdomen was soft and not tender; there was neither organomegaly nor palpable mass. Digital rectal examination showed brownish stool. After resuscitating and stabilising him, he underwent Oesophagogastroduodenoscopy (OGDS) and colonoscopy. OGDS just showed the presence of gastritis while colonoscopy showed luminal narrowing caused by a suspicious growth at the descending colon. Biopsy of the suspicious growth was taken. He was planned to undergo a barium enema study and a Computed Tomography (CT) of the thorax, abdomen and pelvis.

Barium enema study showed an abrupt tapering of the lumen of the mid descending colon with shouldering of the adjacent mucosa at the distal end. It was noted that the proximal end of the stricture was irregular and tapered. There was a tight circumferential irregular narrowing of the bowel lumen measuring approximately 8.8cm in length. CT findings were of circumferential bowel wall thickening causing long segment stricture at the descending colon and there wasn't any metastatic lesion at the lung and liver, or any ascites noted.

Tissue biopsy showed fragments of colonic mucosa exhibiting distortion in glandular architecture with a few fragments showing infiltration by cords and diffuse sheets of singly distributed malignant cells within the lamina propria. These malignant cells showed eccentrically located nuclei with intracytoplasmic mucin featuring a signet ring pattern. There were also infiltrations by chronic inflammatory infiltrates with eosinophils within lamina propria. These features are compatible with signet-ring cell carcinoma.

He was initially planned for an elective left hemicolectomy, but unfortunately he presented earlier to us with large bowel obstruction secondary to the malignant stricture. He underwent segmental resection of the descending colon with end colostomy instead. Intra-operatively, it was found that there were extensive peritoneal seedlings. The tumour was located at the descending colon and had infiltrated to the underlying Gerota fascia. The small and large intestine proximal to this tumour were dilated. There were nodules felt on the surface of the right lobe of the liver. There was no synchronous tumour noted.

Histopathological examination report reveals a pathological staging of pT4 pN2 pM1. After being discharged from the ward, he was referred to the oncology unit for palliative chemotherapy.

DISCUSSION

Signet-ring cell carcinoma is a form of adenocarcinoma which shows the presence of signet ring cells. It is most often found in the glandular cells of the stomach, but it may develop in other areas of the body. Along the gastrointestinal tract, up to 99% of cases are found in the stomach. Signet-ring cell carcinoma of
the colorectal is extremely uncommon [2]. The incidence is between 0.1-2.4 percent of all colorectal cancer [3]. It is presumed to be caused by genetic mutations as there is a high level of phenotype MSI (MSI-H) [4]. The incidences of k-ras mutation in these cases are lower compared to the other types of colorectal cancer. [5]. It presents earlier in life compared to other types of colon cancers. The common presenting symptoms were rectal bleeding and small bowel obstruction. The most common tumour location is the rectum and the right hemi colon. The gross morphology of signet-ring cell carcinoma is usually scirrhous or ulcerated [6]. Most patients presented at an advanced stage and had a higher frequency of distant metastases thus has a poor prognosis [7]. In contrast to other types of colorectal carcinoma, signet-ring cell carcinoma of the colon was characterized by a significantly higher incidence of peritoneal tumour spread [8, 9]. Patients suffering from signet-ring cell carcinoma of the colon had a more locally advanced disease and almost all patients had no early-detected tumours. It is associated with less haematogenic spread, and very poor surgical outcomes compared to other colon cancers [10]. Treatment for signet cell carcinoma of the colon is the same as with other types of colon cancer. Thus, surgery is the mainstay of curative therapy which requires the excision of the
primary tumour along with its lymphatic drainage with a good margin of normal tissue.

In summary, signet ring cell carcinoma of the colon is a rare and aggressive type of colon cancer which usually presents at an advanced stage hence the prognosis is poor. It usually affects people in the older age group, however occasionally; we do read reports of young patients who were unfortunate to suffer from this rare type of colon cancer. Due to the rarity of this disease, further multi-institute research is required to understand and analyse this disease.

REFERENCES
