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(CASE REPORT)

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Primary squamous cell carcinoma of the colon in a patient with inflammatory colon disease history: Case report

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Abstract

The vast majority of malignant tumors of the colon and rectum is carcinomas. Primary squamous cell carcinoma (SCC) of the colon is an extremely rare entity, and the etiology and pathogenesis remain unclear; however, it has been linked to inflammatory processes, infectious conditions, radiation exposure, and the development of squamous differentiation in pre-existing colonic adenomas. We report on a 46-year-old male with SCC of the cecum and a 15-year history. During colonoscopy, he presented with a large infiltrative and ulcerative necrotizing lesion with a malignant appearance located in the ascending colon, which extended circumferentially and led to severe stricture and pan-colitis. In metastatic workup evaluation, he had no distant metastases. He underwent total colectomy, omentectomy, and lymphadenectomy. A 6.5 by 6.5 cm tumoral mass in the ascending colon and 31 lymph nodes were resected; one of these lymph nodes had tumoral involvement. After first- and second-line chemotherapy regimens, he experienced progressive disease. According to the results of cytogenetic evaluation, we prescribed immunotherapy along with chemotherapy, and he is currently in relatively stable condition.

Keywords: Primary Squamous Cell Carcinoma; Colon Cancer; Inflammatory Bowel Disease; Non-adenocarcinoma Colon Tumor

1. Introduction

Colorectal cancer (CRC) primarily arises from adenomas or flat dysplastic lesions, evolving into various morphological patterns(1) . Right-sided colon tumors often present as polypoid or fungating masses associated with occult bleeding and iron deficiency anemia, whereas left-sided tumors typically form annular constricting lesions leading to bowel obstruction (1, 2). Histologically, most CRCs are adenocarcinomas(3, 4) , while primary squamous cell carcinoma (SCC) of the colon is exceedingly rare, accounting for only 0.10–0.25 per 1,000 diagnosed colorectal carcinomas (5, 6).

The pathogenesis of colonic SCC remains unclear but is associated with chronic inflammation, infectious agents, radiation exposure, and squamous metaplasia in pre-existing colonic adenomas (6, 7). Most reported cases involve the rectum, with the right colon being the second most common site(8) .Given its rarity, diagnosis requires the exclusion of metastasis from primary SCC sites elsewhere in the body(9, 10)

Here, we present the case of a 46-year-old male with a long-standing history of ulcerative colitis, who developed primary SCC of the ascending colon.

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2. Case Presentation

A 46-year-old male with a 15-year history of ulcerative colitis (UC) in long-term remission presented with a six-month history of progressive weakness, significant weight loss (>10 kg), malaise, and abdominal pain. There was no history of rectorrhagia. Physical examination revealed anemia and a palpable mass in the right iliac fossa.

Urgent colonoscopy showed a large, infiltrative, ulcerative, necrotizing mass in the ascending colon that caused severe stricture and associated pancolitis. Gastric antral erosion was noted on endoscopy. Biopsies were taken from the gastric antrum, the ascending colon mass, and the sigmoid colon.

Histological examination of the ascending colon mass revealed poorly differentiated squamous cell carcinoma (SCC), with dysplastic epithelial cells exhibiting a high nuclear-to-cytoplasmic ratio, hyperchromatic pleomorphic nuclei, and necrosis (Fig. 1). Sections from the sigmoid colon showed chronic inflammation without evidence of dysplasia or viral cytopathic effect.

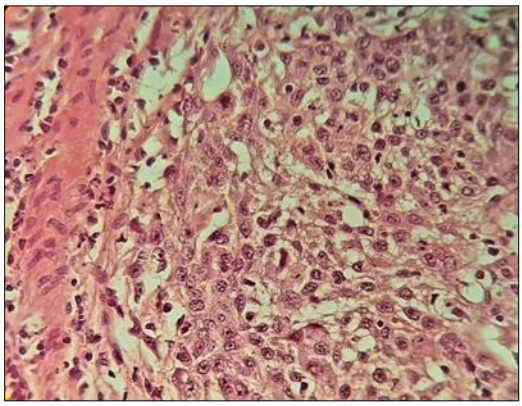

Figure 1 Colon mucosa with IBD (left), muscularis mucosa and squamous cell carcinoma (right)

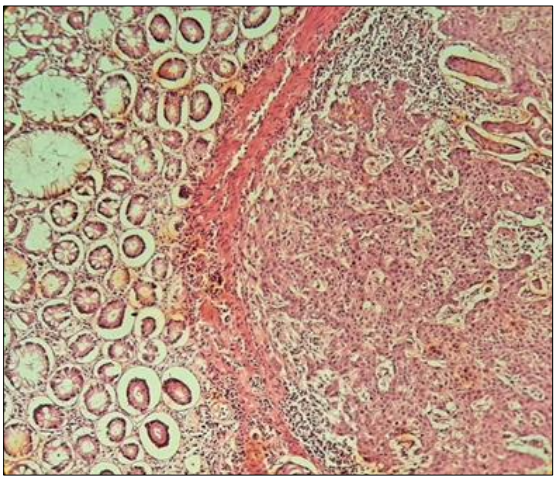

Figure 2 Squamous cell carcinoma invading *muscularis mucosa*

Non-contrast chest CT scan showed no evidence of mediastinal or pulmonary metastasis. The patient underwent a total colectomy and omentectomy. Gross examination revealed a 6.5 × 6.5 cm annular tumor in the ascending colon invading into the pericolic fat. No macroscopic perforation was detected. Thirty-one pericolic lymph nodes were resected, with one node showing metastatic SCC involvement (Fig. 5, Fig. 6).

Microscopic evaluation confirmed a G3 poorly differentiated SCC infiltrating through the muscularis propria into pericolorectal tissue (Fig. 2, Fig. 3), with lymphovascular invasion but no perineural invasion (Fig. 4). Surgical margins were negative.

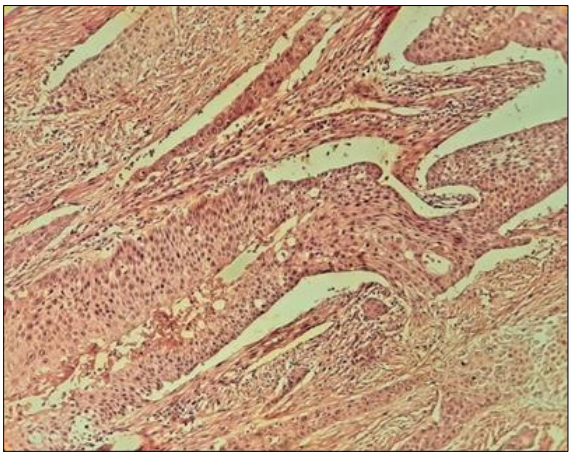

Figure 3 Neoplastic squamous cells invade muscularis propria

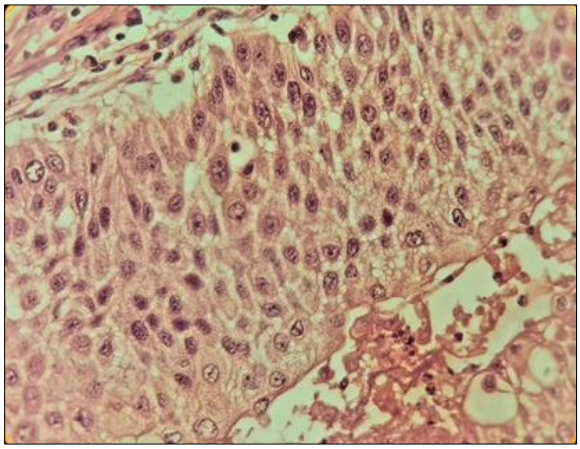

Figure 4 Neoplastic squamous cell; high magnitude

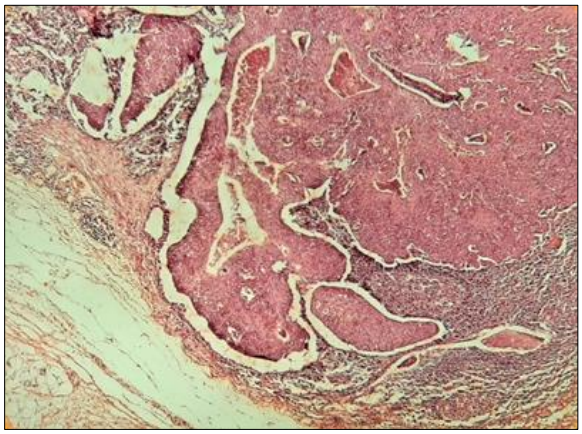

Figure 5 Colon regional lymph node with metastatic SCC

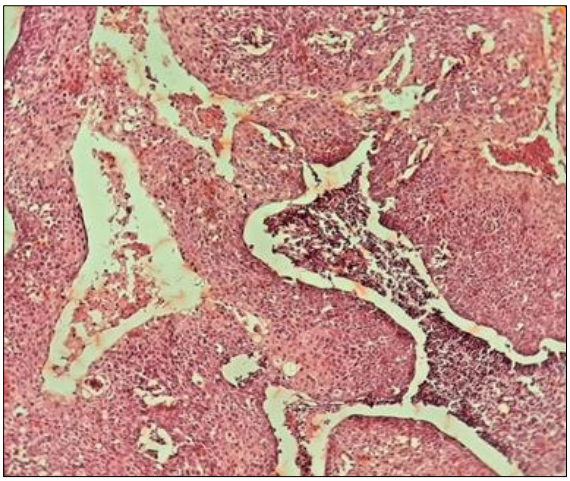

Figure 6 Metastatic SCC; regional lymph node

Initial chemotherapy with Paclitaxel and Carboplatin resulted in progressive disease, with new liver metastasis and retroperitoneal lymphadenopathy detected on PET-CT. Molecular profiling revealed wild-type K-RAS and N-RAS, with no HER-2 overexpression. Subsequently, Cetuximab combined with Vinorelbine/Carboplatin was administered, achieving partial disease control. High PD-L1 expression (>70%) was identified, leading to the initiation of Pembrolizumab and Capecitabine, with the patient currently in relatively stable condition.

3. Discussion

Colorectal cancers (CRCs) mainly arise from adenomas or dysplastic lesions, with right-sided tumors typically presenting as polypoid masses and left-sided ones as constrictive lesions (1, 2).Although most CRCs are adenocarcinomas, primary squamous cell carcinoma (SCC) of the colon is extremely rare, comprising only 0.10–0.25 per 1,000 diagnosed cases(4, 5) . The exact pathogenesis of colonic SCC remains unclear, but it is associated with chronic inflammation, infections, radiation exposure, and squamous metaplasia (6, 7). Most cases involve the rectum, while the right colon is the second most common site(8) .Diagnosing primary SCC requires the exclusion of metastases from other sites and confirmation by histology(11) .In our case, imaging and pathological evaluations confirmed primary SCC of the ascending colon. Due to its rarity, treatment strategies are not standardized. Surgery remains the mainstay, while chemotherapy may offer some benefit (12, 13). Despite aggressive management, prognosis remains poor, with five-year survival rates around 30–35% (3).

4. Conclusion

Primary squamous cell carcinoma (SCC) of the colon is an exceptionally rare and aggressive malignancy, particularly in patients with underlying ulcerative colitis. This case highlights the importance of maintaining a high index of suspicion for non-adenocarcinoma histologies in IBD patients presenting with atypical clinical features such as weight loss, abdominal mass, and strictures. Accurate diagnosis requires thorough histopathological evaluation and exclusion of metastatic disease. Due to the lack of standardized treatment protocols, a multimodal approach—including surgery, systemic chemotherapy, targeted therapy, and immunotherapy—may offer the best chance for disease control. Further studies are needed to better understand the pathogenesis and optimize the management of this uncommon tumor subtype.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

The authors declare that they have no competing interests.

Statement of ethical approval

This study was approved by the Ethics Committee of Guilan University of Medical Sciences under approval code IR.GUMS.REC.1404. 027.Written informed consent was obtained from the patient for participation and publication.

Statement of informed consent

Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

Availability of Data and Materials

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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Authors' Contributions

All authors contributed to the conception, design, data acquisition, analysis, and interpretation of the study. All authors read and approved the final manuscript.

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