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Primary signet ring cell carcinoma of the colon: A rare condition with a poor prognosis. A report on two cases☆

Carcinoma primario de colon con células en anillo de sello: una rara entidad de mal pronóstico. Comunicación de 2 casos

Signet ring cell carcinoma of the colon is a rare subtype of mucinous adenocarcinoma, making up less than 1% of all tumors of the colon and rectum.[1] There must be a primary origin in the colon or rectum and at least 50% of the tumor must have a signet ring cell pattern to make the diagnosis. Its presentation is usually late and associated with a high degree of aggressiveness.[2]

We describe 2 cases herein of patients with signet ring cell carcinoma of the colon.

The first case was an 89-year-old woman with no family history of colon cancer. She presented with insidious clinical symptoms of 3-month progression that included anorexia, weight loss, and abdominal pain. Laboratory work-up results reported hypochromic anemia, leukocytosis with no neutrophilia, and elevated C-reactive protein. A computed tomography (CT) scan identified irregular thickening of the cecum, with infiltration of the pericecal fat and the terminal ileum wall, and no signs of obstruction, as well as numerous regional and retroperitoneal adenopathies (fig. 1A). Long colonoscopy detected an ulcerated and strictured mass that took up almost the entire cecal lumen and impeded the passage of the endoscope. Biopsies were positive for signet ring cell adenocarcinoma. Right oncologic hemicolectomy was performed and infiltration at the level of the right parietocolic peritoneum and the mesocolon was observed.

Anatomopathologic report: poorly differentiated adenocarcinoma of the colon with > 50% signet ring cell pattern (fig. 1B) with multiple tumor nodules and countless lymphatic embolisms, disperse tumor implants, and stage T4aN2bM1b (2010 ICC/AJCC TNM classification, 7th Edition). Immunohistochemistry showed microsatellite instability in

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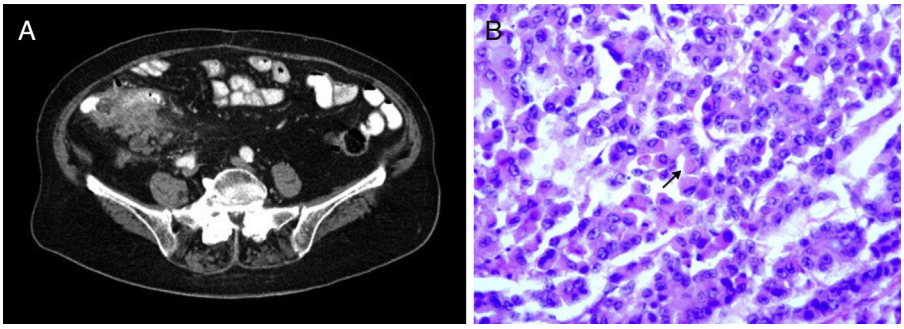

Figure 1 A) Abdominal CT scan showing irregular thickening of the cecum, with pericecal fat and terminal ileum infiltration, as well as multiple regional adenopathies. B) Histology study (H/E stain, x400): adenocarcinoma of the colon with signet ring cell pattern (arrow).

the PMS-2 and MLH-1 genes. Adjuvant oncologic treatment was rejected.

The second case was a 38-year-old man with no family history of colon cancer. He was recently diagnosed as seropositive for human immunodeficiency virus, stage A1, with a viral load of 120000 copies/ml. He presented with asthenia and 10-day progression of abdominal pain, nausea, vomiting, absence of bowel transit, and great abdominal distension. Plain x-ray showed marked small bowel dilation. Emergency CT scan identified an irregular 6 x 6 cm mass at the level of the hepatic angle (fig. 2A) with proximal cecal dilation up to 6.2 cm, along with multiple retroperitoneal lymph node conglomerates and millimetric hypodense lesions in the liver parenchyma. Emergency right hemicolectomy was performed, with the intraoperative finding of diffuse intestinal carcinomatosis (fig. 2B), mesenteric implants, and numerous hepatic lesions suggestive of metastasis.

The anatomopathologic diagnosis was poorly differentiated adenocarcinoma of the colon with > 50% signet ring cells, multiple metastatic peritoneal implants, lymph node conglomerates, and stage T4aN2bM1b. Immunohistochemistry showed microsatellite instability in the PMS-2 and MLH-1 genes and mutated K-ras gene.

The oncologic extension study revealed mediastinal adenopathies infiltrated with signet ring cell adenocarcinoma. Palliative chemotherapy was decided upon.

Primary carcinoma of the colon with a signet ring cell pattern is a rare variety characterized by histologic differentiation, whose cells typically contain a high quantity of mucin that pushes the nucleus to the periphery, giving the distinctive signet ring morphology.[3] It was first described in 1951,[4] with an estimated incidence of 0.1-2.4%.[5]

The most frequent location of tumors with the signet ring cell pattern is the stomach (96%), followed by the colon, rectum, gallbladder, pancreas, and bladder. When biopsies include this histologic pattern, it is often necessary to initially exclude the diagnosis of metastasis from other organs.[3,5]

Late clinical presentation is common, resulting in important diagnostic delay, and the disease can simulate other clinical entities.[6] The finding of this subtype of colorectal neoplasia is a factor of poor prognosis, regardless of comorbidity or tumor extension. As was shown in the intraoperative and histologic findings of our patients, a high degree of aggressiveness is customary, with diffuse intramural infiltration and rapid and contiguous peritoneal and lymphatic extension. There is a lower incidence of hepatic metastases.[1,5] The presence of signet ring cells not meeting the diagnostic criteria now appears to be associated with a

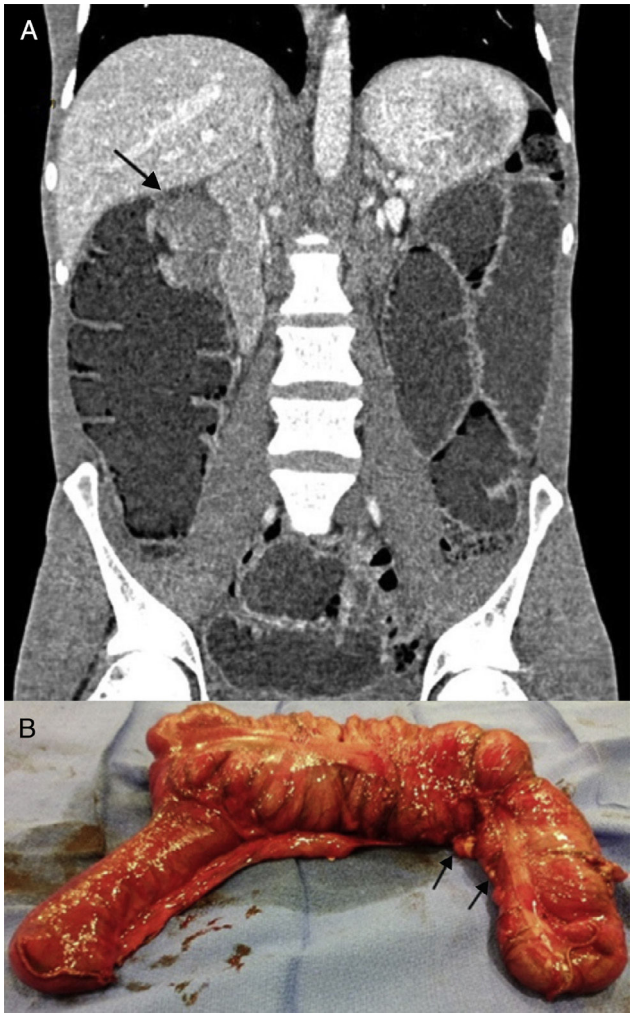

Figure 2 A) Abdominal CT scan that detected a mass at the level of the hepatic angle, suggesting an obstructive cause. B) Macroscopic study of the surgical specimen (right colon) with multiple implants (arrows) suggestive of diffuse carcinomatosis.

predisposition to metastases to the peritoneum or ovaries.[2] The most common presentation is stage III or IV, with a low median survival rate, compared with non-signet ring cell mucinous adenocarcinoma (18.6 months vs 64 months, according to Thota et al.).[1]

The most common location is the ascending colon, with sessile morphology that does not follow the classic adenoma-carcinoma sequence. This fact, together with the anatomic location, could partially explain the diagnostic delay, in addition to the fact that these tumors are not easily viewed in colonoscopy screening.[1]

One of our patients was elderly and the other was young. The latter presented with immunosuppression secondary to human immunodeficiency virus, and both patients had microsatellite instability. In the medical literature, there is a greater incidence at earlier age that could be associated with hereditary non-polyposis colorectal cancer or Lynch syndrome, with instability in 25% of the cases.[1,7]

The treatment lines to follow in these cases are based on surgery, when possible, or chemotherapy, with very poor response rates.

Conflict of interest

The authors declare that there is no conflict of interest.

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