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# Mucinous Adenocarcinoma Associated With Diverticular Disease in Young Male Clinical Case

**Hernandez-Luna JEE[1,*], Rodriguez-Sosa SH[2], Espadas-Velasques JA[1], Perez-Castillo E[3], Echevarria-Fernandez F[3], Lujan-Vargas H[3] and Padron-Arredondo G[3]**

[1]*Resident in General Surgery, General Hospital of Playa del Carmen, Quintana Roo, Mexico*
[2]*Resident in General Surgery, Hospital Clinic of the Institute of Social Security and Services for State Workers, Merida, Yucatan, Mexico*
[3]*General Surgeon, General Surgery Service, General Hospital of Playa del Carmen, Quintana Roo, Mexico*

[*]**Corresponding author:** Hernandez-Luna JEE, Servicio de Cirugia General, Hospital General de Playa del Carmen, Constituyentes AV. w/n 135 Street, Ejidal Suburb, Solidaridad, Playa del Carmen, Quintana Roo, Mexico. PC. 77712, Tel: +524772408125; E-mail: hernandez.jedgar91@gmail.com, heinar.rodriguez@gmail.com

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## Abstract

**Introduction:** Mucinous adenocarcinoma (MAC) is a subtype of adenocarcinoma characterized by more than 50% of the tumor tissue comprised of extracellular mucinous components.

**Clinical case:** A 31-year-old male with no significant medical history began suffering a month ago with generalized abdominal pain, constipation, and rectal bleeding, previously with medical management without showing improvement. Therefore, he went for an external tomography, which reported a cecal appendix of 12 to 14 mm, with severe inflammatory changes and a hypertensive appearance with abundant peripheral fluid compatible with complicated appendicitis. Free fluid is present in the pelvic cavity, hypogastrium, and both fossae, where images of complicated appendicitis are present. The reason he went to the hospital was that after that physical examination, he presented a soft, depressible abdomen, pain on palpation in the left iliac fossa, and negative appendicular signs, with no evidence of peritoneal irritation.

**Discussion:** Increasing evidence demonstrates that mucinous adenocarcinoma differs from nonspecific adenocarcinoma in terms of its clinicopathological characteristics and genetic profile. For example, mucinous adenocarcinoma is associated with faster tumor growth, more invasive potency, poorer differentiation, advanced tumor stage, as well as dMMR, KRAS, and BRAF mutations. Furthermore, patients with mucinous adenocarcinoma tended to have a worse prognosis when receiving the same treatment as patients with nonspecific adenocarcinoma. However, there are still some studies that consider that mucinous adenocarcinoma is not an adverse prognostic factor for colorectal cancer.

**Conclusion:** When performing the bibliographic review, contradictory results regarding the prognosis and overall survival of patients with mucinous-type colorectal adenocarcinoma were found in the literature. Colorectal adenocarcinoma currently receives treatments based on the same standard guidelines as colorectal cancer. However, considering its poor response to standard chemotherapies, specialized treatments for patients with mucinous colorectal adenocarcinoma histology are necessary, providing an opportunity for future work.

**Keywords:** Diverticula; Mucinous adenocarcinoma; Colorectal cancer; Surgical treatment; Appendectomy

## Introduction

Colorectal cancer (CRC) has caused a significant burden on global health. World Health (WHO) estimated >1.9 million new CRC cases and 935,000 related deaths occurred in 2020, with 10% (3rd) and 9.4% (2nd) incidence and mortality rates, respectively, among all types of cancer. According to the WHO classification of digestive system tumors, histological subtypes of CRC include adenocarcinoma, adenosquamous carcinoma, spindle cell carcinoma, squamous cell carcinoma, and undifferentiated carcinoma. Adenocarcinoma originating from the epithelial cells of the colorectal mucosa represents more than 90% of CRC cases. Mucinous adenocarcinoma (MAC) is an early subtype of adenocarcinoma characterized by more than 50% of the extracellular mucinous components of the tumor tissue. Malignant epithelial cells float in the mucus, forming alveoli in rows or scattered cells. Tumors with a significant mucinous component (10-50%) are called adenocarcinomas with mucinous characteristics or mucinous differentiation [1,2]. CRC is a leading cause of cancer-related death worldwide. Improvement in individualized treatments requires refinement of subtypes. Statistics suggest that between 10 and 20% of CRC patients are of the mucinous subtype, but this rate is lower in Asian countries and higher in Western countries. Regarding clinical pathology, mucinous colorectal adenocarcinoma is more frequent in the proximal than rectal or distal colon. The proportion of female and younger patients with mucinous colorectal adenocarcinoma is higher than that of nonmucinous colorectal adenocarcinoma. Furthermore, mucinous colorectal adenocarcinomas are more common when they are in advanced stages and have worse responses to chemotherapy compared to their nonmucinous counterparts [3].

## Clinical Case

A 31-year-old male with no significant pathological history for the case began suffering a month ago with generalized abdominal pain, constipation, and rectal bleeding. He reported going to consultation on two occasions without improvement. Therefore, he went for a private CT scan today, in which images suggestive of complicated appendicitis were reported. That is why he came to this unit. They are evaluated by the general surgery service, where a physical examination is found upon admission of an active, reactive, conscious, oriented patient with good coloration of the integuments and good hydration. Cardiopulmonary without apparent compromise; soft, depressible abdomen, pain on palpation in the left iliac fossa, negative appendiceal signs, no signs of peritoneal irritation, regular laboratories. Abdominal tomography Images are suggestive of complicated appendicitis. Reports a cecal appendix of 12 to 14 mm, with severe inflammatory changes and a hypertensive appearance with abundant peripheral fluid compatible with complicated appendicitis. Free fluid is present in the pelvic cavity, hypogastrium, and iliac fossae. It was necessary to urgently transfer him to the operating room to perform an exploratory laparotomy due to suspicion of diverticulitis. The following findings were found in said surgery: 2000 cc of peritoneal reaction fluid. A tumor of 12 x 8 centimeters of omentum adhered to the sigmoid, multiple diverticula parallel to the hand that span from the splenic flexure to the rectum. Small intestine mesentery thickened with whitish plaques and punctate reactions, which is resected appendix with adhesions of 7 centimeters chalky, congestive edema. Respected base. Acute appendicitis phase II surgical event ends without accidents or incidents. The patient responded excellently to surgical management, presenting an adequate post-surgical evolution. The patient stayed in the hospital for seven days, and we gave him a medical discharge without incident. He was sent to the Oncological Hospital of the state of Campeche for corresponding management (Figures 1,2).

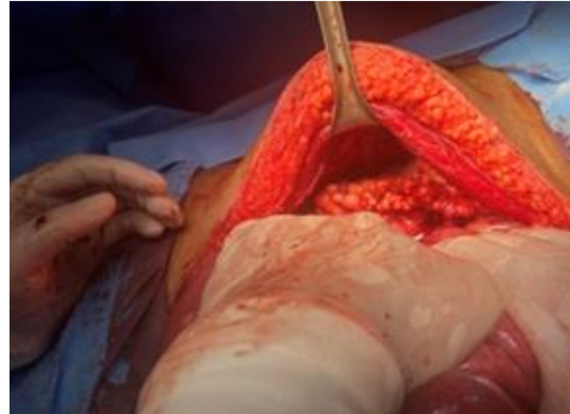

***Figure 1:*** *Multiple lesions at the descending colon level.*

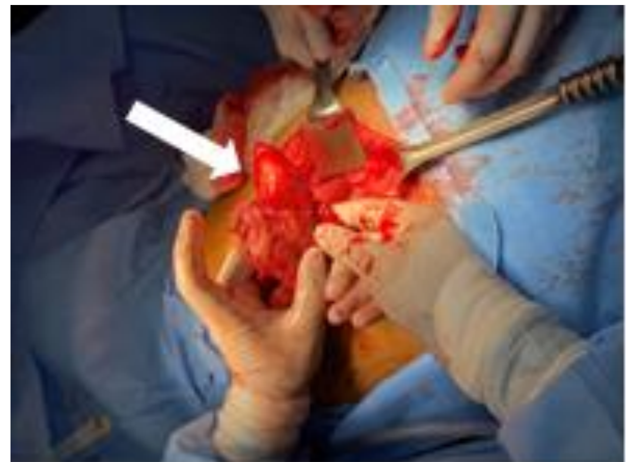

***Figure 2:*** *Omentum tumor adhered to sigmoid.*

## Histopathology report

Well-differentiated mucinous adenocarcinoma of colon segment with inked edges positive for malignancy

## Discussion

When performing the bibliographic review, contradictory results regarding the prognosis and overall survival of patients with mucinous-type colorectal adenocarcinoma were found in the literature. Colorectal adenocarcinoma currently receives treatments based on the same standard guidelines as colorectal cancer. However, considering its poor response to standard chemotherapies, specialized treatments for patients with mucinous colorectal adenocarcinoma histology are necessary and are an opportunity for future work. Since mucinous colorectal adenocarcinoma is more commonly diagnosed in the advanced clinical stage, studies on Treatments for mucinous colorectal adenocarcinoma have focused mainly on stages II, III, and IV [1]. MAC is a distinct type of CRC, arbitrarily defined by more than 50% extracellular mucin composition. This definition was first described by Parham in 1923 and adopted by WHO in 1989 since then. This variant of the tumor occurs in 1.6 to 25.4% of all CRC and carries a poor prognosis and resistance to treatment. According to a meta-analysis, MACs increase the risk of death, which persists after correction for stage, and this tumor also showed a worse response to both adjuvant chemotherapy and chemoradiotherapy [4]. Mucinous tumors were associated with a poor prognosis in patients with locally advanced colorectal cancer treated with first-line postoperative adjuvant chemotherapy after surgery. It also indicated a worse prognosis regardless of overall survival, disease-free survival, cancer-specific survival; increasing evidence demonstrates that mucinous adenocarcinoma differs from nonspecific adenocarcinoma in terms of its clinicopathological characteristics and genetic profile. For example, mucinous adenocarcinoma is associated with faster tumor growth, more invasive potency, poorer differentiation, advanced tumor stage, as well as frequent dMMR, KRAS, and BRAF mutations. Furthermore, patients with mucinous adenocarcinoma tended to have a worse prognosis when receiving the same treatment as patients with nonspecific adenocarcinoma. However, there are still some studies that consider that mucinous adenocarcinoma is not an adverse prognostic factor for colorectal cancer [5].

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## Conflicts of Interests

There was no conflict of interest during the study, and no organization did not fund it.

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