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Mixed Goblet Cell Carcinoid-Adenocarcinoma: A Case Series

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INTRODUCTION

Mixed goblet cell carcinoid-adenocarcinoma (GCC) tumors are a group of rare heterogeneous neoplasms of the appendix first described in 1969 by Gagne et al that account for < 5% of all primary appendiceal tumors.[1,2] These hybrid tumors are characterized as an intermediate between classic carcinoid tumors and appendiceal adenocarcinomas, exhibiting both neuroendocrine and glandular/mucinous morphology that most commonly presents in Caucasian females in the fifth and sixth decades.[1,3–6] Their distinct glandular and neuroendocrine differentiation has led to multiple names and designations including adenocarcinoids, mucinous-carcinoid, mixed carcinoid-adenocarcinoma, microglandular goblet cell carcinoma, and crypt cell adenocarcinoma.[7] A broader classification system has been suggested for GCC tumors based on their histologic appearance.[3] The system classifies the tumors into 3 sub-groups: typical goblet cell carcinoid (Group A), adenocarcinoma ex-goblet cell carcinoid; signet-ring cell type (group B), and adenocarcinoma ex-goblet cell carcinoid; poorly differentiated carcinoma type (group C).[3] The most common presentation for GCC tumors is acute appendicitis.[3,8] We present three cases of mixed goblet cell carcinoid-adenocarcinoma presenting as acute appendicitis.

CASE PRESENTATIONS

Case #1 involved a 65-year-old male who presented with right lower quadrant pain, nausea, emesis, and leukocytosis. A CT scan of the abdomen revealed perforated appendicitis. The patient underwent a laparoscopic appendectomy. Pathology revealed a high-grade adenocarcinoma ex goblet cell carcinoid, signet ring type extending through the muscularis propria and into the mesoappendix measuring >3cm. The patient subsequently underwent a colonoscopy that revealed diverticulosis involving the sigmoid colon, but was otherwise normal. Labs revealed that CEA, CA-125, and chromogranin A were negative. Patient then underwent an exploratory laparotomy with a right hemicolectomy and partial omentectomy. Pathology revealed normal ileal and colonic mucosa without evidence of carcinoma. Omental specimen showed no evidence of metastatic carcinoma. 0/12 nodes were positive for metastatic carcinoma.

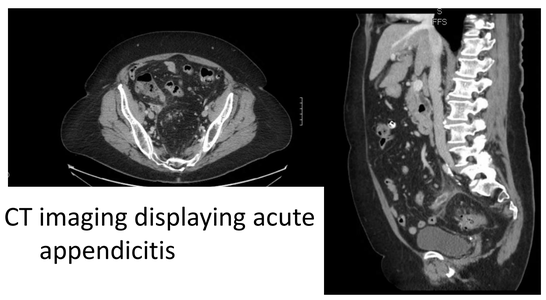

Image 1. CT imaging displaying acute appendicitis

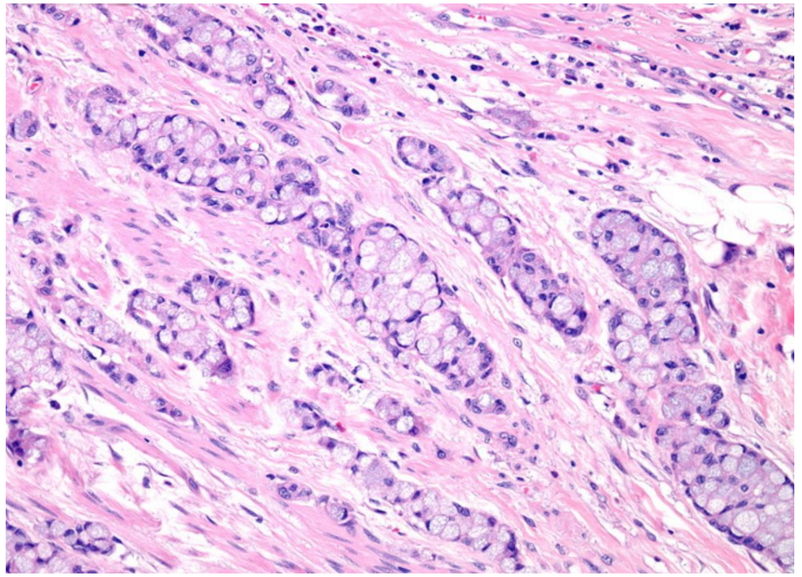

Image 2. H & E stain demonstrating clusters of goblet cells invading the muscular wall of the appendix as seen in Group A mixed goblet cell carcinoid-adenocarcinoma[12]

Case #2 involved a 49-year-old male who presented with periumbilical pain, nausea, emesis, and leukocytosis. A CT scan of the abdomen revealed appendicitis. The patient underwent an uneventful laparoscopic appendectomy. Pathology revealed a high-grade, poorly differentiated, adenocarcinoma ex goblet cell carcinoid invading through the muscularis propria and into the periappendiceal soft tissue measuring 1.5cm. The patient subsequently underwent a colonoscopy that revealed diverticulosis involving the sigmoid colon, but was otherwise normal. Patient then underwent an uneventful laparoscopic right hemicolectomy. Pathology revealed normal ileal and colonic mucosa without evidence of carcinoma. 0/14 nodes were positive for metastatic carcinoma.

Case #3 involved a 70-year-old female who presented with periumbilical pain. A CT scan of the abdomen revealed appendicitis. The patient underwent an uneventful laparoscopic appendectomy. Pathology revealed a high-grade adenocarcinoma ex goblet cell carcinoid extending through the muscularis propria and into the mesoappendix measuring 4cm. Patient then underwent an exploratory laparotomy with a right hemicolectomy. Pathology revealed normal ileal and colonic mucosa without evidence of carcinoma. 0/21 nodes were positive for metastatic carcinoma.

Stage	T	N	M
I	T1: Tumor <2cm	N0	M0
II	T2 or T3 T2: Tumor 2-4cm T3: Tumor >4cm	N0	M0
III	ANY T T4: Tumor invading adjacent organs	N1: Metastasis to regional LN's	M0
IV	Any T	Any N	M1

Table 1. TNM Staging of Mixed Goblet Cell Carcinoid-Adenocarcinoma

CONCLUSION

Mixed goblet cell carcinoid-adenocarcinoma tumors are rare tumors that tend to present at an advanced stage with up to 40% positive lymphadenopathy and most commonly spread via direct extension.[8] Surgical resection with a right hemi-colectomy after an appendectomy has been shown to improve the prognosis and is thus recommended in most cases.[9,10] HIPEC and adjuvant chemotherapy are other therapeutic options, but have not been shown to improve survival.[11] The adjuvant chemotherapy recommended composes of 5-florouracil (5-FU), FOLFOX (5-FU, leucovorin, and oxaliplatin), and FOLFIRI(5-FU, folic acid, and irinotecan).[7,9] In the current age of increasing rates of managing acute appendicitis non-operatively we strongly encourage surgical appendectomy in patients older than 45 years of age to avoid missing this important diagnosis and the opportunity to treat it in a timely manner.

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