Chagasic megacolon and large bowel neoplasms: case series and literature review

MAXWEL CAPSY BOGA RIBEIRO, RAQUEL FRANCO LEAL, CLÁUDIO SADDY RODRIGUES COY, PRISCILLA DE SENE PORTEL OLIVEIRA, DÉBORA HELENA GONÇALVES ROSSI, JOÃO JOSÉ FAGUNDES, MARIA DE LOURDES SETSUOKO AYRIZONO

ABSTRACT: There is a clear association between chagasic megacolon and the esophageal cancer. On the other hand, the association between chagasic megacolon and intestinal neoplasm is uncommon. There are only a few cases described in literature. We selected two cases of colorectal adenocarcinoma associated with adenoma from 2000 to 2011, which are added to the four patients already described by this group. The mean age of the patients was 68.5 years. Both had been submitted to surgical resection of the neoplasm. Survival rates ranged and were directly related to tumor staging at the time of diagnosis. In this context, we report our case series and reviewed the corresponding literature, especially the clinical and epidemiological aspects of this rare association.

Keywords: megacolon; Chagas disease; adenocarcinoma.

INTRODUCTION

The association between esophageal cancer and chagastic megaesophagus is very clear, indexes that range from 22.4 to 9.2%. Chronic esophagitis secondary to eating cholestasis and the prolonged exposure of the esophageal mucosa to carcinogens that are present in the diet would be predisposing factors for this relation.

Such association seems to be invalid, and even negative, for large intestine neoplasm and chagasic colopathy, due to the few described cases. In endemic regions for Chagas disease, the incidence of colorectal cancer is about 0.1%. From 1984 to 2011, in the Coloproctology Service of Hospital de Clínicas of Universidade Estadual de Campinas (UNICAMP), six cases of this rare association were described, the largest case series known, and four
had already been reported\cite{12}. We bring two cases that occurred in the last decade, their clinical and epidemiological aspects, besides the corresponding literature review.

**CASE REPORT**

**Patient n° 1**

A 58 year-old black woman with positive serology and medical record for Chagas disease reported history of intestinal constipation for 15 years, with many episodes of fecaloma. Thirty six months before, she complained of intermittent and painless enterorrhagia. She underwent enema, which showed megarectum and megasigmoid (Figure 1). Colonoscopy showed many polyps, and six were resected (Figure 2). The anatomopathological test (AP) showed intramucosal adenocarcinoma in one of the polyps, located in the rectosigmoid transition. The patient was submitted to total colectomy. The AP of the surgical piece showed 20 polyps distributed in the colon with no malignancy (Figure 3). She presented with postoperative evolution without intercurrences, and remains in outpatient follow-up, without intestinal complaints.

![Figure 1. Enema demonstrating megarectum and megasigmoid.](image1)

![Figure 2. Colonoscopy showing many polyps. Endoscopic resection for the anatomopathological study.](image2)

![Figure 3. Surgical piece with megacolon and many polyps.](image3)
Patient n° 2
A 79 year-old white man with positive serology and medical record for Chagas disease reported history of intestinal constipation for a year, associated with recurring abdominal pain and poorly characterized. He also reported losing 11 pounds in this period. The colonoscopy showed ulcerative lesions in descending colon. The biopsy showed a moderately differentiated adenocarcinoma. The abdominal computed tomography showed dilated rectum and sigmoid, with a great amount of feces and image suggesting descending colon neoplasm, besides multiple hepatic lesions compatible with metastasis. Due to the bowel subocclusion, he was submitted to a segmental colectomy and primary anastomosis (Figures 4 and 5). He had a mixed shock (cardiogenic and pulmonary sepsis), leading to death on the 34th postoperative day due to multiple organ failure.

Cases reported in literature concerning the association between chagasic megacolon and large intestine neoplasm are demonstrated in Table 1.

DISCUSSION
The relation between chagasic megacolon and large intestine neoplasm is a paradox and also intriguing. First, fecal stasis would lead to chronic bowel irritation and to the prolonged exposure of the mucosa to the carcinogenic factors in the diet. On the other hand, the incidence of chagasic megacolon cancer in endemic regions for Chagas disease is only 0.1%.

Garcia and Garcia et al.13,14 experimentally induced megacolon with the topical application of benzalkonium chloride in the intestinal serosa of Wistar rats, and observed that these animals presented a lower incidence of tumors after being exposed to dimethylhydrazine. Oliveira and Oliveira et al.8,15 observed that Wistar rats chronically infected by *Tripanossoma cruzi* presented a lower frequency of benign and malignant chemically induced neoplastic colics.

Studies with necropsies and surgical specimens confirmed these findings. Meneses et al.16 found only one case of colorectal cancer in 198 necropsies of patients with chagasic megacolon, and no cases in 129 surgical pieces from patients with chagasic colopathy. Garcia13, on the other hand, found one rectal adenocarcinoma out of the 802 studied surgical specimens.
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Age</th>
<th>Gender</th>
<th>Location</th>
<th>Association with adenoma</th>
<th>Surgery</th>
<th>Staging</th>
<th>Survival</th>
<th>Referência</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meneses et al.¹⁶</td>
<td>1989</td>
<td>N.R.</td>
<td>N.R.</td>
<td>Rectum</td>
<td>No</td>
<td>Necropsy finding</td>
<td>N.R.</td>
<td>21</td>
<td></td>
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<tr>
<td>Oliveira et al.⁸</td>
<td>1997</td>
<td>64</td>
<td>M</td>
<td>Transverse colon</td>
<td>No</td>
<td>N.R.</td>
<td>T2N0M0</td>
<td>7 months</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>57</td>
<td>F</td>
<td>Transverse colon</td>
<td>No</td>
<td>N.R.</td>
<td>T2N0M0</td>
<td>9 months</td>
<td></td>
</tr>
<tr>
<td>Gabriel-Neto et al.¹⁸</td>
<td>1998</td>
<td>84</td>
<td>M</td>
<td>Cecum</td>
<td>No</td>
<td>Right hemicolectomy</td>
<td>Dukes C</td>
<td>N.R.</td>
<td>11</td>
</tr>
<tr>
<td>Crema et al.¹⁹</td>
<td>1999</td>
<td>60</td>
<td>M</td>
<td>Sigmoid</td>
<td>No</td>
<td>Hartman</td>
<td>Dukes C</td>
<td>Much after 24 months</td>
<td>7</td>
</tr>
<tr>
<td>Adad et al.¹</td>
<td>2002</td>
<td>60</td>
<td>M</td>
<td>Sigmoid</td>
<td>No</td>
<td>Hartman</td>
<td>T4N1M0</td>
<td>Much after 20 months</td>
<td>3</td>
</tr>
<tr>
<td>Fagundes et al.¹²</td>
<td>2002</td>
<td>47</td>
<td>F</td>
<td>Descending colon</td>
<td>No</td>
<td>Exploratory laparotomy</td>
<td>T4N3M1</td>
<td>3 months</td>
<td>8</td>
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<tr>
<td></td>
<td></td>
<td>60</td>
<td>M</td>
<td>Rectosigmoid</td>
<td>5 adenomas in the left colon</td>
<td>Duhamel-Haddad</td>
<td>T4N3M1</td>
<td>8 months</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>74</td>
<td>F</td>
<td>Transverse colon</td>
<td>1 adenoma in descending colon</td>
<td>Total colectomy</td>
<td>T4N0M0</td>
<td>Much after 48 months</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>64</td>
<td>M</td>
<td>Sigmoid</td>
<td>1 adenoma in sigmoid</td>
<td>Duhamel-Haddad</td>
<td>T1N0M0</td>
<td>Much after 12 months</td>
<td></td>
</tr>
<tr>
<td>Presente trabalho</td>
<td>2011</td>
<td>58</td>
<td>M</td>
<td>Rectosigmoid</td>
<td>20 polyps in the colon</td>
<td>Total colectomy</td>
<td>TisN0M0</td>
<td>Much after 60 months</td>
<td>Presente série</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79</td>
<td>M</td>
<td>Descending colon</td>
<td>1 polyp in rectosigmoid</td>
<td>rectosigmoidectomy</td>
<td>T3N1M1</td>
<td>34 days</td>
<td></td>
</tr>
</tbody>
</table>

N.R.: non reported; M: male; F: female.
The studies by Lima and Pucci were reported by Meneses et al.¹⁶
Changes in the bacterial flora and intestinal pH, as well as in the composition of the affected intestinal wall that would lead to changes in the neurotransmitter and neuropeptide levels, have been studied as protective factors to the occurrence of neoplasms in these patients\textsuperscript{13,14,17,18}. Concerning the described case series, mean age of our patients was 68.5 years, very close to that observed by Fagundes et al.\textsuperscript{12}, in 2002; it is also close to the age group of colorectal cancer incidence in non-chagasic patients.

Men were prevalent in the sample of the service. As to location, we observed that the distal large bowel was mostly affected, and one case was in descending colon, and the other in the sigmoid. Both described adenocarcinomas presented concomitant adenomas. A literature review showed a 36\% incidence of adenoma in patients with chagasic megacolon and colorectal neoplasm\textsuperscript{12}. Thus, adenoma seems to be also a risk factor for colorectal cancer in these patients.

The surgery was related to the tumor location and staging. For patient 1, due to the high number of polyps distributed in the colon, the choice was total colectomy. In case 2, because of the presence of disseminated hepatic metastasis, as well as the clinical performance of the patient, the choice was a palliative partial colectomy.

Generally, literature relates the worst prognosis to intestinal neoplasms that are incident in the chagasic megacolon. This would be related to the late diagnosis in these patients, once the colic dilatation could slow the appearance of obstructive symptoms. We still question if such tumors could not present more aggressive genetics, once they occur in an apparently inhospitable environment for the development of neoplasms.

**CONCLUSION**

The rarity of large intestine neoplasms in patients with chagasic megacolon does not justify the additional colonoscopic monitoring or the performance of enema in patients whose symptomatology does not indicate it. A high level of suspicion is demanded with the occurrence of any change in the clinical picture of patients with chagasic colopathy.

Finally, more studies are necessary to clear up the factors that are really involved in the relation between chagasic megacolon and colorectal carcinogenesis.

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Correspondence to:
Maxwel Capsy Boga Ribeiro
Av. Romeu Tórtima, 359, Cidade Universitária
CEP 13000-001 – Campinas (SP), Brazil
E-mail: maxwelboga@yahoo.com.br