

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

MAXWEL CAPSY BOGA RIBEIRO¹, RAQUEL FRANCO LEAL², CLÁUDIO SADDY RODRIGUES COY³, PRISCILLA DE SENE PORTEL OLIVEIRA⁴, DÉBORA HELENA GONÇALVES ROSSI⁵, JOÃO JOSÉ FAGUNDES⁶, MARIA DE LOURDES SETSUKO AYRIZONO²

¹Resident of Digestive System Surgery in the School of Medical Sciences of Universidade Estadual de Campinas (UNICAMP) – Campinas (SP), Brazil. ²Doctor Professor of the Coloproctology Group in the subject of diseases of the digestive system in the School of Medical Sciences of UNICAMP – Campinas (SP), Brazil; Permanent at the Brazilian Society of Coloproctology.

³Associate Professor and Coordinator of the subject of diseases of the Digestive System in the School of Medical Sciences of UNICAMP – Campinas (SP), Brazil; Permanente in the Brazilian Society of Coloproctology. ⁴Medical Assistant of the Coloproctology Group in the subject of diseases of the digestive system in the school of Medical Sciences of UNICAMP – Campinas (SP), Brazil; Associated to the Brazilian Coloproctology Society. ⁵Medical Assistant of the Coloproctology Group in the subject of diseases of the digestive system in the school of Medical Sciences of UNICAMP – Campinas (SP), Brazil.

⁶Associate Professor of the Coloproctology Group in the subject of diseases of the digestive system in the School of Medical Sciences of UNICAMP Campinas (SP), Brazil; Permanent at the Brazilian Society of Coloproctology.

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ABSTRACT: There is a clear association between chagasic megaesophagus 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 chagasic megaesophagus is very clear, indexes that range from 22.4 to 9.2%¹⁻¹⁰. 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 relation¹¹.

Such association seems to be invalid, and even negative, for large intestine neoplasm and chagasic colopathy, due to the few described cases^{5,7,10,12}. In endemic regions for Chagas disease, the incidence of colorectal cancer is about 0.1%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

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had already been reported¹². 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,



Figure 1. Enema demonstrating megarectum and megasigmoid.

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 interurrences, and remains in outpatient follow-up, without intestinal complaints.

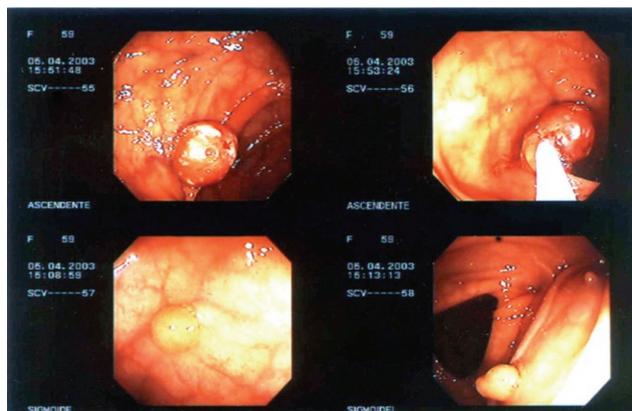


Figure 2. Colonoscopy showing many polyps. Endoscopic resection for the anatomopathological study.



Figure 3. Surgical piece with megacolon and many polyps.

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%¹.

Garcia and Garcia et al.^{13,14} experimentally induced megacolon with the topic 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 *Trypanosoma 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.



Figure 4. Surgical piece with megasigmoid.



Figure 5. Detail of the colic tumor adjacent to the dilated segment.

Table 1. Cases of association between chagasic megacolon and large intestine tumor.

| Author | Year | Age | Gender | Location | Association with adenoma | Surgery | Staging | Survival | Referência |
|-----------------------------------|------|------|--------|------------------|--------------------------------|------------------------|---------|----------------------|----------------|
| Rezende ⁹ | 1988 | N.R. | N.R. | Ascending colon | N.R. | N.R. | N.R. | N.R. | 21 |
| Lima ¹⁶ | 1988 | N.R. | N.R. | Rectosigmoid | 2 villous adenomas | N.R. | N.R. | N.R. | 21 |
| Pucci ¹⁶ | 1988 | N.R. | N.R. | Sigmoid | Familial adenomatous polyposis | N.R. | N.R. | N.R. | 21 |
| Meneses et al. ¹⁶ | 1989 | N.R. | N.R. | Rectum | No | Necropsy finding | N.R. | | 21 |
| Oliveira et al. ⁸ | 1997 | 64 | M | Transverse colon | No | N.R. | T2N0M0 | 7 months | 26 |
| | | 57 | F | Transverse colon | No | N.R. | T2N0M0 | 9 months | |
| Gabriel-Neto et al. ¹⁸ | 1998 | 84 | M | Cecum | No | Right hemicolectomy | Dukes C | N.R. | 11 |
| Crema et al. ¹⁹ | 1999 | 60 | M | Sigmoid | No | Hartman | Dukes C | Much after 24 months | 7 |
| Adad et al. ¹ | 2002 | 60 | M | Sigmoid | No | Hartman | T4N1M0 | Much after 20 months | 3 |
| Fagundes et al. ¹² | 2002 | 47 | F | Descending colon | No | Exploratory laparotomy | T4N3M1 | 3 months | 8 |
| | | 60 | M | Rectosigmoid | 5 adenomas in the left colon | Duhamel-Haddad | T4N3M1 | 8 months | |
| | | 74 | F | Transverse colon | 1 adenoma in descending colon | Total colectomy | T4N0M0 | Much after 48 months | |
| | | 64 | M | Sigmoid | 1 adenoma in sigmoid | Duhamel-Haddad | T1N0M0 | Much after 12 months | |
| Presente trabalho | 2011 | 58 | M | Rectosigmoid | 20 polyps in the colon | Total colectomy | TisN0M0 | Much after 60 months | Presente série |
| | | 79 | M | Descending colon | 1 polyp in rectosigmoid | rectosigmoidectomy | T3N1M1 | 34 days | |

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^{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.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 neoplasm¹². 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.

RESUMO: Há uma clara associação entre megaesôfago por doença de Chagas e o câncer esofágico. Ao contrário, tal relação, entre megacólon chagásico e neoplasias do intestino grosso é, reconhecidamente, incomum. Existem poucos casos relatados na literatura. Destacamos, entre 2000 e 2011, dois casos, sendo ambos adenocarcinomas colorretais e associados a adenomas, que se somam aos outros quatro já descritos por este grupo. A média de idade dos pacientes, foi de 68,5 anos. Todos foram submetidos à ressecção cirúrgica da neoplasia. A sobrevida foi variável e diretamente relacionada ao estágio do tumor no momento do diagnóstico. Dentro desse contexto, relatamos essa série de casos e revisamos a literatura correlata, com relação aos aspectos clínicos e epidemiológicos dessa rara associação.

Palavras-chave: megacólon; doença de Chagas; adenocarcinoma.

REFERENCES

1. Adad SJ, Etchebehere RM, Araújo JR, Madureira AB, Lima VGF, Silva AA, et al. Association of chagasic megacolon and cancer of the colon: case report and review of the literature. *Rev Soc Bras Med Trop* 2002;35:63-8.
2. Abreu RB, Quagliari P, Ribeiro MF, Corsi PR, Castro LT, Gagliardi D, et al. Megaesôfago: doença precursora do câncer de esôfago. *Rev Bras Cirur* 1990;80:91-4.
3. Brandalise NA, Andreollo NA, Leonardi LS, Callejas Neto F. Carcinoma associado a megaesôfago chagásico. *Rev Col Bras Cir* 1985;12:196-9.
4. Huggins D. Carcinoma do esôfago associado ao megaesôfago chagásico (relato de um caso). *An Inst Hig Med Trop* 1976;4:57-62.
5. Livstone EM, Skinner DB. Tumors of the esophagus. In: Berr JE (ed). *Bockus Gastroenterology*. 4th ed. Philadelphia: WB Saunders Co; 1985. p.814-840.
6. Lopes ER. Megaesôfago, megacólon e câncer. *Rev Soc Bras Med Trop* 1988;21:91-4.
7. Lustig ES, Puricelli L, Lansetti JC. Association of Chagas' disease and cancer. *Medicina* 1980;40:43-6.
8. Oliveira EC. Associação entre infecção crônica pelo *Trypanosoma cruzi* e câncer de cólon. Estudo experimental em

- ratos [Dissertação de Mestrado]. Goiânia (GO): Universidade Federal de Goiás; 1998.
9. Rezende JM, Rosa H, Vaz MGM, Andrade-Sá N, Porto JD, Neves Neto J, et al. Endoscopia no megaesôfago. Estudo prospectivo de 600 casos. *Arq Gastroenterol* 1985;22:53-62.
 10. Rocha A, Almeida HO, Esper FE, Moraes DM, Santos EP, Teixeira VPA. Associação entre megaesôfago e carcinoma de esôfago. *Rev Soc Bras Med Trop* 1983;16:94-7.
 11. Pinotti HW, Pollara WM, Gemperi R, Raia AA. O problema do câncer no megaesôfago. *Rev Ass Méd Bras* 1980;26:379-81.
 12. Fagundes JJ, Góes JRN, Coy CSR, Ayrizono MLS, Mochizuki M, Chadu M, et al. Associação entre megacólon chagásico e câncer do intestino grosso: apresentação de casos e revisão da literatura. *J Coloproctol* 2002;22:252-6.
 13. Garcia SB. O câncer no megacólon: estudos da incidência no homem e experimental em ratos [Tese de Doutorado]. Ribeirão Preto (SP): Faculdade de Medicina da Universidade de São Paulo; 1995.
 14. Garcia SB, Oliveira JSM, Pinto LZ, Muccillo G, Zucoloto S. The relationship between megacolon and carcinoma of the colon: an experimental approach. *Carcinogenesis* 1996;17:1777-96.
 15. Oliveira EC, Leite MSB, Miranda JA, Andrade AL, Garcia SB, Luquetti AO, et al. Chronic *Trypanosoma cruzi* infection associated with low incidence of 1,2-dimethylhydrazine-induced colon cancer in rats. *Carcinogenesis* 2001;22:737-40.
 16. Meneses ACO, Lopes MAB, Rocha A, Fatureto MC, Lopes GP, Lopes ER, et al. Megacolon e câncer. Câncer de intestino grosso em chagásicos com megacólon. *Arq Gastroenterol* 1989;26:13-6.
 17. Gabella G. Size of neurons and glial cells in the intramural ganglia of the hypertrophic intestine of the guinea-pig. *J Neurocyt* 1984;13:73-84.
 18. Gabriel-Neto S, Oliveira EC, Carmo FV, Conceição DC, Mendonça GG, Leite MSB, et al. Megacólon chagásico associado à adenocarcinoma de cólon. *Rev Soc Bras Med Trop* 1998;31:46-9.
 19. Crema E, Lima VGF, Madureira AB, Adad SJ, Silva AA, Oliveira CB, et al. Associação de neoplasia obstrutiva com megacólon chagásico. *J Coloproctol* 1999;19:87-9.

Correspondence to:

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