

## Endoscopic Curative Treatment of a Submucosal Invasive Rectal Adenocarcinoma

Carlos Eduardo Oliveira dos Santos<sup>1\*</sup>, Daniele Malaman<sup>1</sup>, César Vivian Lopes<sup>2</sup> and Júlio Carlos Pereira-Lima<sup>2</sup>

<sup>1</sup>Department of Gastroenterology and Endoscopy, Santa Casa de Caridade Hospital, Bagé, RS, Brazil

<sup>2</sup>Department of Gastroenterology and Endoscopy, Santa Casa Hospital, Porto Alegre, RS, Brazil

\*Corresponding author: Carlos Eduardo Oliveira dos Santos, Rua Gomes Carneiro, 1343, CEP 96400-130, Bagé-RS, Brazil, Tel: +55-53-3241-6955; E-mail: clinica@endosantos.com.br

Received date: May 23, 2014, Accepted date: June 18, 2014, Published date: June 24, 2014

Copyright: © 2014 Oliveira dos Santos CE, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

We report a case of a 45-year-old man with the diagnosis of rectal adenocarcinoma, in which a proctocolectomy was proposed and the patient refrained from surgery. A new colonoscopy was performed, which revealed a 2.5 cm diameter sessile lesion with irregular microvascular mesh work, thick capillaries with heterogeneous distribution and avascular areas, suggesting carcinoma with massive invasion of the sub-mucosa (a C3 lesion in the Hiroshima classification). However, we tried endoscopic resection and the lesion has completely elevated after Sub-mucosal hypertonic saline injection. Then the lesion was removed "en bloc" with a polypectomy snare. Histopathological study evidenced a moderately differentiated adenocarcinoma in a villous adenoma with high grade dysplasia with sub-mucosal invasion of 655 µm; there was no angiolymphatic invasion and the lateral and lower margins were lesion-free.

**Keywords:** Colonoscopy; Colorectal neoplasm; Endoscopic diagnosis; Endoscopic mucosal resection

### Introduction

Lymph node metastases are found in up to 15% of colorectal cancers that invade the submucosa. Lymphovascular invasion, cellular differentiation and depth of invasion are predictive of lymph node metastases [1,2].

Chromoendoscopy is an important tool for the differential diagnosis of neoplastic and non-neoplastic lesions and could also be employed in predicting submucosal invasion by early colorectal cancer [3]. We report, herein, a case of a sessile polyp which presented vascular characteristics of deep sub mucosal invasion on magnifying chromoendoscopy. Nevertheless, the lesion was successfully treated by endoscopic mucosal resection (EMR).

### Case Report

A 45 year-old man with lower abdominal discomfort underwent a colonoscopy at another hospital, which revealed a rectal adenocarcinoma at biopsy. Surgical consultation recommended surgical resection with rectal amputation, which was refused by the patient. A family doctor referred the patient to our unit and a new colonoscopy was performed (Fujinon 590ZW5 high-resolution magnifying video colonoscope -Fujifilm Corp., Saitama, Japan), which revealed a sessile polypoid lesion with a diameter of 2.5 cm, with a small fibrin-covered ulcer (Figure 1A). The lesion surface showed an irregular microvasculature, thick capillaries with a heterogeneous distribution, including avascular areas (Figure 1B). This pattern is highly suggestive of deep invasion of the submucosa (Sm-m) as seen by digital chromoendoscopy with magnification as seen by digital chromoendoscopy with magnification. Thus, surgical treatment should be indicated. However, we tried an EMR, and the lesion was

completely elevated after submucosal saline injection (Figure 1C), being grasped with a polypectomy snare and resected "en bloc" (Figure 2). At histopathology, the specimen demonstrated to be a moderately differentiated adenocarcinoma in a villous adenoma with high grade dysplasia, with a 655 µm submucosal invasion, no angiolymphatic invasion and the resected margins were lesion-free (Figure 3). Eighteen months after endoscopic mucosal resection and follow-up every 6 months (Figure 4), no recurrence was observed.



**Figure 1A)** Endoscopic view in white light of a type 0-Is lesion measuring 2.5cm in diameter.

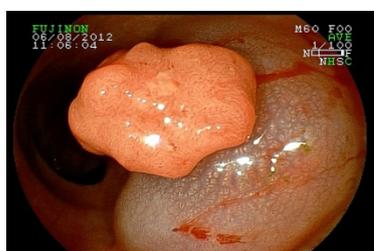
### Discussion

Lymph node metastases – the limiting factor for endoscopic cancer resection – are associated with the depth of submucosal invasion. So, a predictive analysis of depth of invasion by endoscopy or endoscopic ultrasound is of paramount importance to determine the therapeutic strategy for early colorectal cancers. In the Hiroshima Classification of vascular pattern in colorectal lesions, Sm-m invasion occurs only in the C type, which is subdivided in C1 (irregular vessels with a homogeneous distribution), C2 (irregular capillaries with

heterogeneous distribution), and C3 (irregular capillaries, thick heterogeneous vessels with avascular areas) as in our case [4].



**Figure 1B)** Micro vasculature under magnification (80x) and digital chromoendoscopy demonstrating large irregular capillaries with heterogeneous distribution and some avascular areas.



**Figure 1C)** Fully elevated lesion after injection of saline into the submucosa.

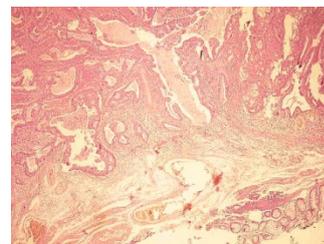


**Figure 2:** Resected specimen stretched in a foamplate.

Kanao et al. [4] demonstrated 11%, 54% and 100% of Sm-m invasion with types C1, C2 and C3, respectively. Oka et al. [5] found similar figures of 3%, 57%, and 93%, respectively. Sensitivity, specificity and accuracy of this classification are between 64% – 100%, 89% – 100%, and 88% – 98% in different studies [6-9].

According to the guidelines of the Japanese Colorectal Cancer Society [10], EMR is considered curative when the resection is complete, the carcinoma is well or moderately differentiated, there is no angiolymphatic invasion and the depth of invasion is less than 1000  $\mu\text{m}$ . According to other groups, these criteria could be even expanded to 1300 or 1500  $\mu\text{m}$  [2,11]. Nakadoi et al. [12] found lymph node metastases in 8.22% of 499 colorectal lesions with submucosal invasion. All metastatic lesions were undifferentiated, had vascular invasion or had a depth of invasion greater than 1800  $\mu\text{m}$ . Other treatment options are endoscopic submucosal dissection (ESD) and transanal endoscopic microsurgery (TEM). In Brazil, few endoscopy

units perform ESD as well as TEM. We have a long experience with EMR, which has been a very safe and effective procedure in our endoscopic unit, and carries significant less morbidity than surgical treatment. In a previous study by our group, complete resection with EMR was achieved in 155 of 172 (90%) cases with few complications and recurrences [13].



**Figure 3:** Moderately differentiated adenocarcinoma into a high grade dysplasia villousadenoma, which slightly invaded the submucosa (655 $\mu\text{m}$ ) (hematoxylin-eosin staining, magnification: 100x).



**Figure 4:** Endoscopic regular scar 18 months after the endoscopic mucosal resection.

This way, for all the reasons listed above, in the presence of colorectal lesions without clear conditions for endoscopic resection, or when the patient refuses, or is frail to undergo surgery, or the surgical procedure is too mutilant, as in this case, it is important to highlight the value of clinical judgment for the best therapeutic decision-making. The lifting or not of the lesion after submucosal saline injection should be attempted, since magnifying chromoendoscopy, either virtual or by means of dyes, does not present an accuracy of 100% for the prediction of deep submucosal invasion, as we have demonstrated in this case report.

In summary, this case presented with typical chromoendoscopic characteristics of a Sm-m submucosal cancer. However, EMR showed to be curative. Thus, in expert hands, EMR could be attempted to accurately stage and even cure early colorectal cancers when they elevate after submucosal saline injection.

## References

1. Choi PW, Yu CS, Jang SJ, Jung SH, Kim HC, et al. (2008) Risk factors for lymph node metastasis in submucosal invasive colorectal cancer. *World J Surg* 32: 2089-2094.
2. Tominaga K, Nakanishi Y, Nimura S, Yoshimura K, Sakai Y, et al. (2005). Predictive histopathologic factors for lymph node metastasis in patients with nonpedunculated submucosal invasive colorectal carcinoma. *Dis Colon Rectum* 48:92-100.

3. dos Santos CE, Lima JC, Lopes CV, Malaman D, Salomão AD, et al. (2010) Computerized virtual chromoendoscopy versus indigo carmine chromoendoscopy combined with magnification for diagnosis of small colorectal lesions: a randomized and prospective study. *Eur J GastroenterolHepatol* 22: 1364-1371.
4. Kanao H, Tanaka S, Oka S, Hirata M, Yoshida S, et al. (2009) Narrow-band imaging magnification predicts the histology and invasion depth of colorectal tumors. *GastrointestEndosc* 69: 631-636.
5. Oka S, Tanaka S, Takata S, Kanao H, Chayama K (2011) Clinical usefulness of narrow band imaging magnifying classification for colorectal tumors based on both surface pattern and microvessel features. *Dig Endosc* 23 Suppl 1: 101-105.
6. Yoshida N, Naito Y, Kugai M, Inoue K, Uchiyama K, et al. (2011) Efficacy of magnifying endoscopy with flexible spectral imaging color enhancement in the diagnosis of colorectal tumors. *J Gastroenterol* 46: 65-72.
7. Ikematsu H, Matsuda T, Emura F, Saito Y, Uraoka T, et al. (2010) Efficacy of capillary pattern type IIIA/IIIB by magnifying narrow band imaging for estimating depth of invasion of early colorectal neoplasms. *BMC Gastroenterol* 10: 33.
8. Tanaka S, Sano Y (2011). Aim to unify the narrow band imaging (NBI) magnifying classification for colorectal tumors: current status in Japan from a summary of the consensus symposium in the 79th Annual Meeting of the Japan Gastroenterological Endoscopy Society. *Dig Endosc* 23:131-139.
9. Wada Y, Kashida H, Kudo SE, Misawa M, Ikehara N, et al. (2010) Diagnostic accuracy of pit pattern and vascular pattern analyses in colorectal lesions. *Dig Endosc* 22: 192-199.
10. Japanese Society for Cancer of the Colon and Rectum (2010). General Rules for Clinical and Pathological Studies on Cancer of the Colon, Rectum, and Anus, 7th edn, Revised Version. Tokyo: KanaharaShuppan.
11. Tanaka S, Haruma K, Oh-E H, Nagata S, Hirota Y, et al. (2000) Conditions of curability after endoscopic resection for colorectal carcinoma with submucosally massive invasion. *Oncol Rep* 7: 783-788.
12. Nakadoi K, Tanaka S, Kanao H, Terasaki M, Takata S, et al. (2012) Management of T1 colorectal carcinoma with special reference to criteria for curative endoscopic resection. *J GastroenterolHepatol* 27: 1057-1062.
13. Santos CE, Malaman D, Pereira-Lima JC (2011) Endoscopic mucosal resection in colorectal lesion: a safe and effective procedure even in lesions larger than 2 cm and in carcinomas. *ArqGastroenterol* 48: 242-247.