Gastric carcinoid tumor after laparoscopic gastric banding: Case report of a patient with weight regain

Daniel N. Velasco Hernández a,∗, Santiago B. De Battista b, Héctor Horiuchi b, Maria M. Zicavo c

a University Hospital Interzonal General San Martin of La Plata, Buenos, Argentina
b Division of Upper Gastrointestinal Surgery, University Hospital Interzonal General San Martin of La Plata, Buenos, Argentina
c Clinical Oncology, University Hospital Interzonal General San Martin of La Plata, Buenos, Argentina

Article history:
Received 10 July 2018
Received in revised form 22 August 2018
Accepted 27 August 2018
Available online 4 September 2018

Keywords:
Gastric carcinoid
Gastric banding
Weight regain

1. Introduction

Although carcinoid tumours are a rare gastrointestinal neoplasm with an incidence rate of 1–2.5 cases per 100,000 inhabitants, they are the most common neuroendocrine tumour of the stomach. Some recent studies have documented its high incidence among the obese population [1,2]. The aim of this communication is to present a treatment of a patient with gastric carcinoid tumour diagnosis and weight regain after laparoscopic gastric banding. We reported and checked this case based on SCARE guidelines [3].

2. Case report

A 70-year-old-man consulted for epigastric pain and dyspepsia symptoms. His past medical and surgical history included obesity (BMI: 53.9 kg/m²), hypertension, hyperlipidemia, diabetes mellitus type 2, cardiac failure and a surgical treatment with laparoscopic gastric banding 12 years before. After the first postoperative year, despite numerous telephone calls, the patient did not show up for follow-up visits. Ten years later, the patient returned with weight regain. Thus, for the analysis and control of the gastric banding, an upper gastrointestinal endoscopy was performed evidencing many small polyps in the gastric antrum, body and fundus. The histopathological examination of the resected specimen revealed a well differentiated carcinoid. Laparoscopic surgery for the removal of the gastric banding and the subtotal gastrectomy leaving a small gastric remnant of approximately 2-cm in size similar to the pouch of a bypass was done. Twelve months after surgery the patient presented a body mass index of 36.6 kg/m².

DISCUSSION: Gastric carcinoid increased incidence among the obese population, although the causing mechanisms are not clear, yet it is likely that metabolic and hormonal effects of the obesity play a role. The resection may be performed either endoscopically when the lesions are small, or surgically according to the tumor type and size.

CONCLUSION: The resective gastric bypass or gastrectomy with anastomosis by Roux-en-Y bypass may be considered as a treatment of choice for patients who after bariatric surgery were diagnosed with gastric carcinoid and weight regain.

© 2018 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
formed with 100 cm of the biliary loop and 100 cm of alimentary loop. Due to the histological type, size and extension depth of the lesions lymphadenectomy was not considered. There were no complications following surgery. The first 24 h the patient remained in the intensive care unit where he was started on oral infusions then he was referred to the general ward to be discharged 72 h postoperatively. Histopathological evaluation confirmed well-differentiated stomach neuroendocrine carcinoma with resected margins and an invasion up to the gastric submucosa. Twelve months after surgery the patient presented a body mass index of 36.6 kg / m² with doses reduction of oral hypoglycemiant and minimum requirements of medication for his cardiovascular disease.

3. Discussion

Although carcinoid accounts for only 1% of all the gastric tumors it is the most common type of neuroendocrine neoplasia of the stomach. Usually it is classified into three types: Type 1 is the most frequent one, representing 70–80% of all the cases and it is associated to atrophic gastritis and pernicious anemia; Type 2 is present in 5–10% of the cases and it is related to Zollinger- Ellison syndrome and Type 1 multiple endocrine neoplasia (parathyroid tumor, pancreatic endocrine tumor and tumor of the anterior pituitary gland). Tumors of Type 1 and 2 are usually small, multiple and located at the mucosa and submucosa. Type 3 tumor occurs with a frequency of 15 to 25% is the most aggressive, single and large tumor not associated to hypergastrinemia [4,5]. Its increased incidence among the obese population in relation to the general population is quite remarkable, 1% vs 0.002% respectively; although the causing mechanisms are not clear, yet it is likely that metabolic and hormonal effects of the obesity play a role. Diagnosis is obtained by endoscopic biopsy and immunohistochemical study for chromogranine A and synaptophysin. For better evaluation and staging ultrasound and CT-scan are recommended [6–8]. Usually the tumor treatment is done by resection with the exemption of some cases of Type 1 tumor in the elderly population where it may be controlled. The resection may be performed either endoscopically when the lesions are small, less than 1-cm in size or few in numbers (up to 5) or surgically which may vary according to the tumor type and size. A subtotal gastrectomy or total gastrectomy with lymphadenectomy in Type 3 tumor such as practiced in adenocarcinoma may be done [1,9,10]. Generally, most literature indicates the resection of the antrum to diminish the gastrin production. In obese subjects, candidates for the bariatric surgery, the indication of a gastric bypass resection would be the most adequate treatment of choice but depending on the patient characteristics, the type of tumor and the location of the lesion, vertical gastrectomy could also be considered as a treatment option [10,11]. Although further research is needed to elucidate the association of the bariatric surgery and the gastric carcinoid, the importance of an early detection of this type of neoplasia through a strict follow up is known [5]. Consequently, the resective gastric bypass or gastrectomy with anastomosis by Roux- Y bypass (one meter of biliary loop and one meter of alimentary loop) may be considered as a treatment of choice for patients who after bariatric surgery were diagnosed with gastric carcinoid and weight regain.

Ethical approval

The ethical approval has been exempted by the institution.

Funding

The sources of financing were their own and without sponsors.

Author contribution

Specific contributions of authors.

Conflict of interest statement

The authors declare that they have no conflict of interest.

Dr. De Battista: Analysis and interpretation of data.

Dr. Zicavo: Drafting of manuscript and bibliography search.

Dr. Horichi: Study conception and design and bibliography search.

Guarantor

Norberto Daniel Velasco hernández.

Research Registration Number

It is a retrospective observational study. Case report.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

Not commissioned, externally peer-reviewed.

References

[1] Cláudio Corá Mottin, Ricardo Pedrini Cruz, Gustavo Gomes Thomé, Alexandre Vontobel Paidon, Carcinoid tumors and morbid obesity. Case reports, Obes. Surg. 19 (2009) 247–249.
[2] C. Delle Fave, G. Capurso, B. Annibale, F. Ponzutto, Gastric neuroendocrine tumors, Neuroendocrinology 80 (Suppl 1) (2004) 16–19.
[3] R.A. Agha, J.A. Fowler, A. Saeta, I. Barai, S. Rajmohlan, D.P. Orgill, The SCARE statement: consensus-based surgical case report guidelines. Int. J. Surg. 16 (2016).
[4] Tolga Erim, Y. Colak, S. Szozstein, Gastric carcinoid tumor after laparoscopic sleeve gastrectomy, Surg. Obes. Relat. Dis. 11 (2015) e51–e52.
[5] L.M. Postlewait, G.C. Baptiste, G.G. Ethun, N. Le, K. Cardona, M.C. Russell, F.F. Willingham, D.A. Kooby, C.A. Staley, S.K. Maithel, A 15 years’ experience with gastric neuroendocrine tumors: does type make a difference? J. Surg. Oncol. 114 (5) (2016) 576–580.
[6] Ara Keshishian, John Hamilton, Lily Hwang, Mikael Petrosyan, Carcinoid tumor and bariatric surgery. Case reports, Obes. Surg. 12 (874875) (2002).
[7] Y. Sayo, Clinical features and management of type I gastric carcinoid, Clin. J. Gastroenterol. 7 (5) (2014) 381–386.
[8] A. Csendes, A.M. Burgos, G. Smok, M. Beltran, Endoscopic and histologic findings of the foregut in 426 patients with morbid obesity, Obes. Surg. 17 January (1) (2007) 28–34.
[9] E.M. López-Tomassetti Fernandez, J. Arteaga González, H. Díaz Luis, A. Carrillo Pallarés, Carcinoid syndrome misdiagnosed a malabsorptive syndrome after bilipancreatic diversion, Obes. Surg. 17 (7) (2007) 989–992.
[10] J.A. Norton, T. Kim, J. Kim, M.D. McCarter, K.J. Kelly, J. Wong, J.K. Sicklek, Current surgical management of gastric tumors, J. Gastrointest. Surg. (August (14)) (2017).
[11] H.E. Jenny, P.A. Ogando, K. Fujitani, R.R. Warner, C.M. Divino, Laparoscopic antrectomy: a safe and definitive treatment in managing type 1 in gastric carcinoid, Am. J. Surg. 211 (4) (2016) 778–782.