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Surgical indication of type I gastric neuroendocrine tumors

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Dear Editor,

Gastric neuroendocrine tumors (GNETs) account for less than 2 % of gastric neoplasms (1) and type 1 GNETs (GNETs-1), which are associated with chronic atrophic gastritis (2), account for 70-80 % of all GNETs (3).

Case reports

Table 1 shows the characteristics of the patients that underwent surgery for GNETs-1. The surgical indications in all cases were the impossibility of complete endoscopic resection of the multiple gastric lesions (mostly enterochromaffin cell hyperplasia and some GNETs-1) with the consequent difficulty of follow-up, and also in case 2, positive endoscopic resection margins. GNETs-1 larger than 2 cm and T2 tumors were diagnosed by histopathological analysis of the surgical specimen. There were no postoperative complications. In case 3, there was a persistence three months after surgery which was treated endoscopically.

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Discussion

According to the European Neuroendocrine Tumor Society (ENETS), the risk of metastasis of GNETs-1 is 5-10 % (1), but it increases in tumors > 1 cm (3). Thus, in GNETs-1 > 2 cm, the risk of metastatic adenopathies is close to 20 % (4). Therefore, endoscopic resection is recommended for GNETs-1 > 1 cm (3).

There are three scenarios for the surgery of GNETs-1:

1. GNETs-1 > 2 cm, with invasion of the muscularis propria layer (T2) or positive endoscopic resection margins. Surgical options include local resection and subtotal or total gastrectomy, with or without associated lymphadenectomy (1,3-5).
2. GNETs-1 with metastatic adenopathies, distant metastases or poorly differentiated. Surgical options include subtotal or total gastrectomy with associated lymphadenectomy (1,3-5).
3. Multiple lesions in the body and fundus (mostly enterochromaffin cell hyperplasia and some GNETs-1) impossible to resect endoscopically or multiple and recurrent GNETs-1 after endoscopic treatment, with the consequent difficulty of follow-up (1). In this case, antrectomy may be indicated, as suppressing the gastrin stimulus produced by G-cells usually causes these lesions to regress (1,5). However, antrectomy may not be effective to prevent recurrence or metastases, as GNETs-1 may have acquired an autonomous growth independently of gastrin stimulation (5). In this situation, the authors preferred to perform a subtotal gastrectomy rather than an antrectomy, because it is just as safe and feasible. The complete removal of G-cells from the gastric antrum was ensured and enough lesions were removed from the gastric body with a considerable gastric remnant remaining to provide a good quality of life for the patients.

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Table 1. Characteristics of patients with GNETs-1 undergoing surgery

	Case 1	Case 2	Case 3	Case 4	Case 5
Age (years)	53	70	57	53	50
Gender	Male	Female	Male	Female	Female
Location	Fundus and body	Fundus and body	Body	Body	Fundus and body
OctreoScan	Negative	Negative	Positive	Negative	Negative
Preoperative gastrin	Elevated	Elevated	Elevated	Elevated	Elevated
Surgical approach	Laparoscopic	Laparoscopic	Laparoscopic	Laparoscopic	Laparoscopic
Surgery	Subtotal gastrectomy	Wedge resection	Subtotal gastrectomy	Subtotal gastrectomy	Subtotal gastrectomy
Number of GNETs-1	9	4	2	4	10
Size of the largest GNET-1	0.5 cm	0.9 cm	0.3 cm	2.7 cm	0.6 cm
Differentiation	Well differentiated	Well differentiated	Well differentiated	Well differentiated	Well differentiated
Histologic grade	G1	G1	G2	G1	G1
Mitoses/10 HPF	< 2	< 2	2-20	< 2	< 2
Ki67 (%)	< 3	< 3	3-20	< 3	3-20
pTNM	pT1N0M0	PT2N0M0	pT1N0M0	PT2N0M0	PT2N0M0
Postoperative gastrin	Normal	Elevated	Normal	Normal	Normal
Persistence	No	No	Yes	No	No
Recurrence	No	No	No	No	No
Follow-up (months)	87	54	46	21	15
Mortality	No	No	No	No	No

GNET: gastric neuroendocrine tumors.

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