

GIANT GASTRIC LIPOMA: A CASE REPORT AND LITERATURE REVIEW

LIPOMA GÁSTRICO GIGANTE: CASO CLÍNICO E REVISÃO DA LITERATURA

 Ruben MARTINS¹,  Henrique MORAIS¹

¹ Departamento de Cirurgia, Hospital de Loulé, Loulé, Portugal

Correspondence: Ruben Martins (rubenafpmartins@gmail.com)

Received: 23/10/2023

Accepted: 30/11/2023

Published online: 25/12/2023

ABSTRACT

Introduction: Gastric lipomas are rare and defined as giant when they are greater than 4 cm, which is exceedingly rare. Most of them are asymptomatic; however, some symptoms may occur due to complications such as ulceration, digestive bleeding, or gastric obstruction. **Case report:** A 63-year-old male patient presented with early satiety, dyspepsia, and one episode of melena. Investigation revealed a ulcerated polypoid lesion, suggestive of a lipoma, in the antrum measuring approximately 7cm. The patient was discussed in a multidisciplinary meeting, and laparoscopic enucleation was proposed. The surgery and post-operative period were uneventful. **Literature review:** A total of 40 surgically treated cases of giant gastric lipomas are reported in the literature. The average age at presentation is 55, and the most common symptoms are melena (56%), hematemesis (29%), and epigastric pain (29%). In more than half of the cases, an ulcer is present. On computed tomography, most lesions are well-defined, homogeneous, submucosal, and composed of fat, which is practically pathognomonic. **Discussion:** This rare condition should be managed by a multidisciplinary team. We recommend endoscopic techniques for lesions up to 4cm and surgical management for larger lesions. Minimally invasive surgery should be preferred, and enucleation should be the standard procedure.

Keywords: lipoma, stomach, surgery, laparoscopy

RESUMO

Introdução: A identificação de um lipoma gástrico é uma situação rara, sendo estas lesões definidas como gigantes quando são maiores que 4 cm, o que é excepcional. A maioria destas lesões é assintomática. No entanto, podem surgir algumas queixas relacionadas com complicações como ulceração, hemorragia digestiva ou obstrução gástrica. **Caso clínico:** Paciente do sexo masculino, 63 anos, com queixas de saciedade precoce, dispepsia e um episódio de melena. A investigação identificou uma lesão polipóide, ulcerada, no antro gástrico, medindo cerca de 7 cm, sugestiva de lipoma. O paciente foi discutido em reunião multidisciplinar e foi proposta enucleação laparoscópica da lesão. A cirurgia e o pós-operatório decorreram sem intercorrências. **Revisão da literatura:** Um total de 40 casos de lipomas gástricos gigantes tratados cirurgicamente são relatados na literatura internacional. A idade média de apresentação é 55 anos e os sintomas mais comuns são melenas (56%), hematémese (29%) e dor epigástrica (29%). Em mais da metade dos casos existe uma úlcera associada. Na tomografia computadorizada a maioria das lesões é bem delimitada,



homogénea, submucosa e composta por gordura, o que é praticamente patognomónico. **Discussão:** Esta condição rara deve ser tratada por uma equipa multidisciplinar. Recomendamos técnicas de excisão endoscópica para lesões com um máximo de 4cm e a remoção cirúrgica de lesões maiores. A cirurgia minimamente invasiva deve ser privilegiada, e recomendamos a enucleação como procedimento padrão.

Palavras-chave: lipoma, estômago, cirurgia, laparoscopia.

INTRODUCTION

Gastric lipomas are uncommon, constituting less than 1% of all gastric tumors¹. They are composed of mature adipose tissue surrounded by a fibrous capsule², and can occur at any part of the digestive system. Gastric lipomas are defined as giant when they are greater than 4 cm, which is extremely rare¹.

The majority of gastric lipomas are asymptomatic. When larger than 2 cm, half of them are symptomatic, presenting with abdominal pain. Other commonly associated symptoms can be related to complications namely ulceration, digestive bleeding, or gastric obstruction.

This paper presents a case report of a giant gastric lipoma resolved by minimally invasive surgery, reviews the international literature on all giant gastric lipomas, and proposes a therapeutic algorithm.

CASE REPORT

We report the case of a 63-year-old male patient who complained of early satiety, dyspepsia, and had one episode of melena. His medical history included arterial hypertension and type 2 diabetes as comorbidities. He had previously undergone two surgeries, an appendectomy and a carotid endarterectomy. His regular medications included bisoprolol, metformin, enalapril, lercanidipine, atorvastatin, finasteride, and aspirin.

Following his symptoms, the patient underwent an upper endoscopy which revealed a large amount of solid food in the gastric body and fundus, as well as a polypoid lesion in the antrum measuring approximately 7cm which was ulcerated, biopsies

were performed. The biopsy results indicated chronic gastritis and ulceration of the gastric mucosa, with no signs of intestinal metaplasia, dysplasia, or cancer. Computed tomography confirmed the presence of a homogeneous lesion in the gastric antrum measuring 88x43 mm, suggestive of a lipoma (fig. 1).

The patient's case was then discussed in a multidisciplinary meeting with specialists in surgery, gastroenterology, radiology, and oncology. Based on a strong conviction of the diagnosis of gastric lipoma, surgery was proposed.

As the lipoma was a benign lesion located on the anterior wall of the stomach, a laparoscopic enucleation of the lesion was performed. The surgery was conducted using a total of 3 trocars,



FIGURE 1 – Computed tomography confirmed the presence of a homogeneous lesion in the gastric antrum measuring 88x43 mm, suggestive of a lipoma.



one 12mm in the umbilicus and two 5mm in the right and left flank. A partial anterior gastrotomy was performed over the lesion (fig. 2), including the serosa and muscularis layers, which revealed the lipoma in the submucosa. The enucleation of the lipoma was relatively straightforward (fig. 3), except for the central region where the presence of the ulcer made the dissection difficult, and it was therefore included in the resected specimen. The gastric wall was then closed in layers using an absorbable continuous suture involving the mucosa and submucosa in one layer, and a continuous

suture with v-lock 000 encompassing the serosa, muscle, and partially submucosa in the other (fig. 4). The lesion was removed through the umbilical region using a bag, although the incision had to be slightly extended to accommodate it.

The patient had a smooth postoperative period and was discharged on the second day after surgery.

In the first follow-up visit three weeks after the operation, the patient had no complaints.

Pathological evaluation of the resected specimen confirmed the lesion as a lipoma (fig. 5), which weighed 108.9g and measured 9 x 6 x 3.5cm. The

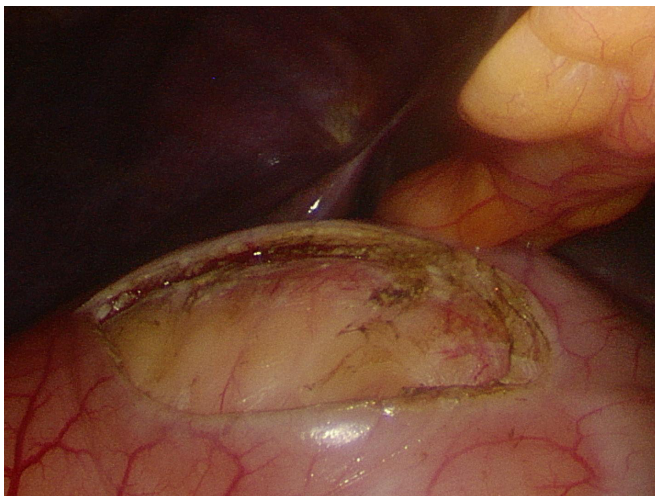


FIGURE 2 – A partial anterior gastrotomy was performed over the lesion.

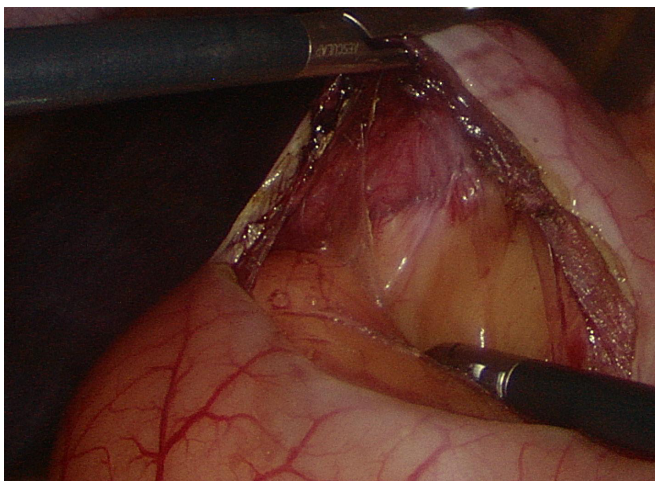


FIGURE 3 – A partial anterior gastrotomy was performed over the lesion.

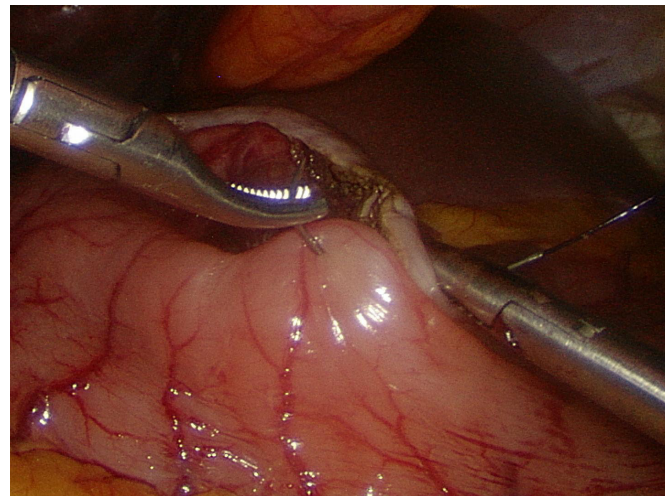


FIGURE 4 – The gastric wall was then closed in layers using an absorbable continuous suture involving the mucosa and submucosa in one layer, and a continuous suture with v-lock 000 encompassing the serosa, muscle, and partially submucosa.

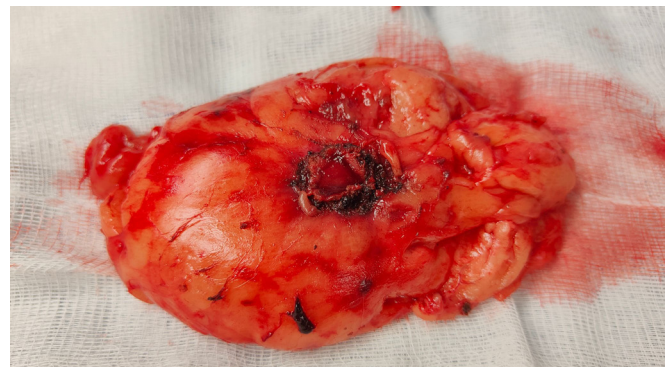


FIGURE 5 – Gastric lipoma specimen.



surface of the lesion was centered with a prominent reddish area corresponding to gastric mucosa, which measured 1.5 x 1.5cm. There were no signs of malignancy.

LITERATURE REVIEW

A literature search was conducted using the PubMed database with the keywords “giant gastric lipoma”. Of the 37 articles identified, some were excluded due to non-gastric lipomas, endoscopic excision, or lack of dimensions specified (less than 4 cm). The classic surgical approach (laparotomy) was assumed if the surgical approach route was not specified. The majority of cases were included in a 2017 study by Cappell MS et al.¹, but some cases from prior years were also included.

As shown in Table 1, only 40 cases of giant gastric lipomas have been treated surgically to date. The average age at presentation was 55 years, and the most common symptoms were melena (56%), hematemesis (29%), and epigastric pain (29%). Two cases were identified incidentally during the study of morbid obesity and were asymptomatic despite the lipomas measuring 4 cm and 6.3 cm, respectively.

The antral location was the most frequent, occurring in 79% of cases in which the location was mentioned endoscopically. In more than half of the cases, there was an ulcer present, most of which was central and superficial. When the ulcer was present, 74% of the patients had melena, which was probably related. On computed tomography, most lesions were characterized as well-defined, homogeneous, submucosal, and composed of fat, which is practically pathognomonic.

Regarding surgery, only 17% were performed laparoscopically. In 15 cases (37.5% of cases in the international literature), a major resection was performed, 11 with anastomosis and 1 total gastrectomy. In 26 cases, a minor procedure was

done, including 1 polypectomy, 10 enucleations, and 15 minor resections.

The average size of the lipomas undergoing surgical resection was 8.4 cm.

Few articles refer to the postoperative evolution, but none refer to unfavorable evolution.

DISCUSSION

This is a very rare condition that should be managed by a multidisciplinary team. We suggest the presence of an experienced radiologist, skilled gastroenterologist, and surgeon able to perform minimally invasive surgery.

Lesions up to 4 cm should be excised by a gastroenterologist experienced in endoscopic techniques. The removal of the lesion from the digestive system should always be considered in order to avoid possible complications such as intestinal obstruction, which have been described in the international literature¹⁴.

We recommend surgical removal of giant lipomas depending on the patient's clinical status and associated co-morbidities. Minimally invasive surgery should be preferred, depending on the size of the lesion. Laparoscopy may be challenging when the smallest dimension of the lesion is greater than 8cm, due to difficulties of exposure and the need of a large incision to remove the lesion, nonetheless these lesions are fairly compressible and the bag is useful on that regard.

With the intention of reducing the risk of complications and maintaining the physiology of the digestive system, we suggest enucleation of the lesion. Major resections alter the anatomy of the stomach and may cause stenosis, besides the risk of anastomotic leakage. Enucleations performed and described in the international literature, even for enormous lesions up to 17 cm, support this approach. When the lesion is located in the middle of the stomach, it may be considered a minor or atypical resection, as it has fewer technical difficulties and is faster.



TABLE 1 – A literature review on gastric lipoma.

N.	Year	Age	Clinical presentation	Upper Endoscopy	CT	Surgery	Pathology dimensions	Major dimension	Outcome	Ref.
1	1983	61	melena	5cm lesion in antrum, lesser curve		resection + pyloroplasty		5	Uneventful	[1]
2	1987	40	melena	polypoid lesion in body and antrum, with ulcer		subtotal gastrectomy	18 × 10 × 10 cm	18		[1]
3	1990	73	melena + hematemesis	lesion in posterior greater curvature, with ulcer		resection	5 x 4cm	5	Remained well	[1]
4	1991	76	melena	3,5 cm lesion with ulcer		Partial gastrectomy		4	no complications	[1]
5	1997	13	melena + hematemesis + abdominal pain	8 cm polypoid mass in antrum, with ulcer		polypectomy		8	Uneventful	[1]
6	1997	60	melena + abdominal pain + nausea/vomiting + early satiety	deformity in antrum	4 cm lesion	partial gastrectomy		4	Remained well	[1]
7	1998	61	vomiting	protruding yellowish tumor in antrum, with ulcer		distal gastrectomy	7 x 6cm	7		[1]
8	1999	52	melena + hematemesis	3,5 cm lesion in anterior wall of antrum, with ulcer	4 cm lesion	distal gastrectomy		4		[1]
9	1999	54	melena	lesion in greater curvature of body and antrum, with ulcer	5.1 cm lesion	resection	5.2cm	5		[1]
10	2002	72	nausea + early satiety	mucosal hypertrophy		Gastrotomy + resection	10 cm × 5 cm	10		[1]
11	2002	22		large, soft and sessile mass in greater curvature		Resection	12 cm × 9 cm × 2.5 cm	12		[1]
12	2003	71	melena + hematemesis	4 cm lesion with ulcer	4 cm lesion	laparoscopic transgastric resection		4	without complications	[1]
13	2006	58	early satiety	10 cm lesion in antrum		Enucleation		10		[1]
14	2009	44	melena + hematemesis	5cm lesion in greater curvature, with ulcer	4.5 cm lesion	resection	4.8 cm	4,8	Uneventful	[1]
15	2010	44	melena	4 cm lesion in fundus, with ulcer		resection		4		[1]
16	2010	20	melena + hematemesis			resection	13.5 × 6.5 × 4.5 cm	13,5		[3]
17	2012	51	abdominal pain	lesion in antrum, with ulcer	9 cm lesion	total gastrectomy	9 × 7.5 × 5 cm	9		[1]
18	2012	63	abdominal pain	large bulging mass in posterior wall, with ulcer		Subtotal gastrectomy		12		[1]
19	2012	52	early satiety + dyspepsia		15 × 14 cm	Subtotal gastrectomy		15		[1]
20	2013	37	melena + abdominal pain + vomiting	lesion in body, with ulcer		distal gastrectomy		4	uneventful recovery	[1]
21	2013	60	melena	lesion in lesser curvature		gastrotomy + resection	15 cm × 12 cm	15		[1]



22	2015	61	melena + hematemesis + abdominal pain	lesion in antrum, with ulcer	8,5 cm lesion	enucleation		8,5	Remained well	[1]
23	2015	72	melena	lesion in antrum, with ulcer	4,3 cm	Gastrotomy + resection		4,3	Good recovery	[1]
24	2015	46	melena	lesion in antrum, with ulcer		distal gastrectomy	14 × 11 × 5 cm	14	No reported complications	[1]
25	2015	59	abdominal pain	8 cm polypoid lesion in antrum		distal gastrectomy		5		[1]
26	2016	56	dyspepsia	5 cm lesion in antrum	6 cm lesion	Gastrotomy + resection		6		[1]
27	2016	41	morbid obesity	3 cm lesion in antrum	3,5 cm lesion	laparoscopic gastrotomy + enucleation + sleeve gastrectomy	4 cm × 3 cm × 2 cm	4		[1]
28	2017	63	melena + abdominal pain + early satiety	13 cm lesion in antrum, with ulcer	13,4 cm lesion	subtotal gastrectomy		14,5	no complications	[1]
29	2017	78	melena	lesion in antrum, with ulcer	9,5 cm lesion	distal gastrectomy		9	no further bleeding	[1]
30	2017	62	hematemesis	large bulging submucosal tumour from the gastroesophageal junction to the pylorus	17 cm lesion	Enucleation		17		[2]
31	2018	55	abdominal pain + vomiting		6,3 cm lesion	laparoscopic gastrotomy + enucleation		6,3		[4]
32	2018	58	abdominal pain + vomiting	9,9 cm lesion in fundus with ulcer	10,3 cm lesion	gastrotomy + resection		10,3		[5]
33	2018	65	vomiting + dyspepsia		8 cm lesion	enucleation		8		[6]
34	2018	80	melena + hematemesis	smooth bulge lesion in posterior wall of antrum, with ulcer	8 cm lesion	enucleation		8		[7]
35	2020	50	abdominal pain + morbid obesity		6,3 cm lesion	Laparoscopic sleeve gastrectomy		6,3		[8]
36	2021	38	melena + hematemesis	lesion in antrum		Subtotal gastrectomy	13×6×4 cm	13		[9]
37	2021	54	haematemesi	large submucosal lesion in antrum, with ulcer	5 cm lesion	laparoscopic gastrotomy + resection		5		[10]
38	2021	79	melena	large submucosal lesion in antrum	6,2 cm lesion	gastrotomy + enucleation	9.5×4.8×2.5 cm	9,5		[11]
39	2021	60	haematemesi + abdominal pain + vomiting	large submucosal lesion in posterior wall of antrum	8 cm lesion	enucleation	80 × 35 × 35 mm	8		[12]
40	2022	52	melena	large submucosal lesion in antrum, with ulcer	5,9 cm lesion	laparoscopic resection	5 x 5 x 2 cm	5		[13]
41	2023	63	melena + early satiety + dyspepsia	lesion in anterior wall of antrum, with ulcer		laparoscopic enucleation		9		actual case



As described, although giant gastric lipomas may be associated with worrisome clinical conditions, their surgical resolution has a good recovery, with virtually no major complications described.

The case here described supports minimally invasive surgical resolution, even for giant gastric lipomas. Enucleation allows the treatment of the lesion without long term consequences and practically without associated complications.

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