

# Giant Gastric Lipoma Mimicking Well Differentiated Liposarcoma

Sameer Ahmed A.H Ansari<sup>1</sup>, Khalid Ahmed Al Sindi<sup>2</sup>,  
Maryam Adam Mohamed Ali<sup>3</sup>, Khalifa Al-Doseri<sup>3</sup>, Ahmed I. Jawad<sup>4</sup>

<sup>1</sup>Senior Registrar, <sup>2</sup>Consultant Histopathologist, <sup>3</sup>Senior House Officer,  
Department of Pathology, King Hamad University Hospital, Bahrain.

<sup>4</sup>Consultant Laparoscopic Surgeon, Department of Surgery, Ibn al Nafees Hospital, Bahrain

Corresponding Author: Sameer Ahmed A.H Ansari

## ABSTRACT

Gastric lipomas are rare benign mesenchymal tumors comprising of only 1- 3% of benign stomach tumors and are usually discovered incidentally. Mostly gastric lipomas are small in size usually less than 2.7 cm and are asymptomatic. However, rarely it becomes large and symptomatic. Gastric lipoma is at times, extremely difficult to differentiate on histopathology from well differentiated liposarcoma as they share many similar features. Immunohistochemistry for Cyclin-dependent kinase 4 (CDK4) and Mouse double minute 2 homolog (MDM2) genes are thus indicated for a definitive diagnosis. We present a case report of a large 11 cm giant gastric lipoma in a 72 years old male.

**Keywords:** lipoma, tumor, benign, stomach.

## INTRODUCTION

Gastric lipomas are rare benign adipose tissue tumors, accounting for less than 3% of all benign gastric cancer. <sup>(1)</sup> The mean diameter usually reported is 2.7 cm <sup>(2,5)</sup> Most of them are located in the submucosa and rarely they are found in the sub-serosa. <sup>(2)</sup> Approximately, 75% of gastric lipomas are found in the antrum. <sup>(2)</sup> They are usually asymptomatic; however symptoms like dyspepsia, hematemesis, abdominal pain and obstruction were reported in some cases. <sup>(3)</sup>

## CASE PRESENTATION

A 72-year-old man, known case of hypertension and dyslipidemia, presented with three-months history of vague abdominal pain and early satiety. He had no previous history of surgery. Family history was negative for presence of any cancer. The patient vital revealed that, he was hemodynamically stable and afebrile. On systemic examination, the abdomen was

soft, lax non-tender with no palpable masses. Abdominal ultrasound was performed and it revealed a well-defined oval mass, measuring 11.5x 10.5x 9 cm, that was isoechoic to the intra-abdominal fat with no vascularity in the epigastric region. The mass was closely related to the transverse colon favoring features of a gastric lipoma. High-dose contrast-enhanced computed tomography (CECT) of the abdomen and pelvis confirmed the presence of a gastric lipoma with a dimension of 11.5x 10.5x 9 cm filling the antrum and extending to the body of the stomach. The patient underwent an upper gastrointestinal endoscopy, which revealed a large submucosal antral lesion with a measurement of 11.5 x 10.5 cm, well-defined, nodular, and soft, occupying the antrum (figure 1a, figure 1b) with normal overlying gastric mucosa.

Subsequently, the patient underwent a Roux-Y gastrojejunostomy with subtotal gastrectomy and the specimen was sent to

histopathology. Macroscopic examination of the sub-total gastrectomy specimen revealed a 11.5 x 10.5 x 9cm soft, tan, encapsulated mass, located on the great curvature and attached to the anterior wall. The cut-surface of the mass was solid homogenous, yellowish, greasy, without necrosis nor hemorrhage. Multiple lymph nodes were retrieved from the greater and lesser omentum with the largest measuring at 1.2 x 0.7 x 0.5cm. Microscopic examination of the specimen reported uniform submucosal adipocyte proliferation with focal variability and focal areas of stromal edema with the presence of inflammatory cells. In addition, there were, occasional atypical nuclei within the stroma and rare adipocytes with large nuclei. No mitosis, necrosis or definitive lipoblasts were seen favouring the diagnosis of gastric lipoma. Immunohistochemistry was negative for CDK4 and MDM2. Thus confirming gastric lipoma. Five lymph nodes showed reactive hyperplasia. The patient is followed up and is currently stable.



Fig 1 : Endoscopy showing 11.5 cm x 10.5 cm well defined tumor mass in the antrum



Fig2 Gross examination showing sub-total gastrectomy having 11.5 x 10.5 x 9cm soft, tan, encapsulated mass, located on the great curvature.

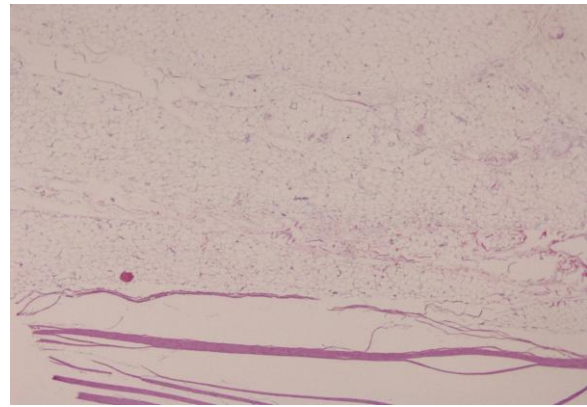


Fig 3 Microscopic examination reveal mature benign adipocytes separated by delicate fibrovascular septa



Fig 4: Immunohistochemistry showing negative CDK2.



Fig 5: Immunohistochemistry showing negative MDM2

## DISCUSSION

Gastric lipomas are rare incidental tumors first described by Cruveiller<sup>(4)</sup> in the mid-19<sup>th</sup> century. A low incidence rate of 0.029% was documented on autopsy.<sup>(5)</sup> The majority of these tumors are seen in the submucosa<sup>(2)</sup> and are commonly located in gastric antrum followed by gastric body.<sup>(5)</sup> The majority of gastric lipomas exist in singularity, however diffuse gastric lipomatosis have been described and published in literature.<sup>(6)</sup> Gastric lipoma

mostly occurs in the 6th decade with mean age 64. <sup>(5)</sup> No sex predilection has been documented so far as a result of the paucity of case studies in published literature. <sup>(5)</sup> Different etiological factors have been hypothesized like chronic irritation and embryological misplacement of adipose tissue precursors. <sup>(7)</sup> Usually, lipomas are asymptomatic with exceptional symptomatic cases in which the lipoma has increased in size up to more than 3cm. The most common symptoms include abdominal pain and gastrointestinal bleeding which rarely leads to gastric outlet obstruction. <sup>(8)</sup> Some of the following endoscopic findings can suggest the possibility of gastric lipoma such as the “cushion sign” (lipoma surface indentation when pushed by forceps), the “tenting sign” (easy grasping of the mass’s mucosa using forceps) and the “naked fat sign” (fat exposure after repeated biopsies in the same spot of the overlying mucosa). Due to the unusual submucosal location of this rare benign tumor, endoscopic biopsies are often insufficient for diagnosis. <sup>(1, 9)</sup> However, Endoscopic US can accurately detect smaller lipomas and those located in the subserosa. <sup>(10,8)</sup> On imaging modalities, the differential diagnosis for gastric lipomas includes GIST, carcinoid, leiomyoma, leiomyosarcoma and adenocarcinoma. <sup>(6)</sup> Computed tomography (CT) scans have high specificity and is the modality of choice for a definitive diagnosis of gastric lipomas. They appear as homogenous, well-circumscribed, ovoid masses with low attenuation. <sup>(10,8)</sup> On microscopy, careful histopathological examination is required to confirm the benign nature of this rare entity. It consists of mature and relatively uniform adipocytes that are proliferating with a well-circumscribed fibrous capsule. They can have inflammatory changes as they progress in size, such as ulceration, necrosis and hemorrhage. Also, hypertrophic or hyperchromatic nucleus can be seen in some cases. <sup>(1,8)</sup> On the histopathology exam, the differential diagnosis that should be considered and ruled out is well differentiated liposarcoma. Immunohistochemistry plays

an important role in differentiating lipoma from well-differentiated liposarcoma as the latter is positive for CDK2 (cyclin dependent kinase 2) and MDM2 (mouse double minute 2 homolog). However, our case was negative for both CDK2 and MDM2, resulting in the diagnosis being lipoma. In addition to CDK2 and MDM2, cytogenetics and molecular tests can be used to differentiate between benign and malignant cases. For instance, most benign lipomas will have chromosomal mutations at 6p, 12q, and 13q. <sup>(1,8)</sup> Malignancy developing in gastric lipoma has never been reported in the literature. <sup>(11)</sup> The treatment of gastric lipomas is not well documented due to the low number of cases being reported in literature. <sup>(2,5)</sup> Although small asymptomatic lipomas can be managed conservatively by a watch and wait approach, endoscopic polypectomy is used for small symptomatic lipomas with bases measuring less than 2 cm. <sup>(2,5,8)</sup> On the other hand, large lipomas are removed by different novel approaches such as mucosal resection, endoscopic submucosal dissection, subtotal gastrectomy with gastrojejunostomy, subtotal gastrectomy with partial duodenectomy and Bilroth II reconstruction and subtotal gastrectomy with D1 lymphadenectomy Roux-en-Y reconstruction. <sup>(2,5,8,12)</sup> In our patient, the submucosal lipoma was removed through Roux-Y gastrojejunostomy with subtotal gastrectomy approach which is described by Neto et al. <sup>(12)</sup> We justify this surgical approach by the fact that it was a tumor of substantial size with multiple lymph nodes.

## CONCLUSION

Gastric submucosal lipomas are rare benign mesenchymal tumors of the stomach that can be large in size and symptomatic as in our case. Histopathology and immunohistochemistry play an important role in confirming the diagnosis and ruling out the close mimicking well differentiated liposarcoma. Different managing techniques are described in literature to remove these

lipomas based on the tumor size and patient's clinical status.

**Conflict of interests:** No potential conflict of interest

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