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PRIMARY LIPOSARCOMA OF THE STOMACH: A RARE MESENCHYMAL TUMOR

NOUSHIN AFSHAR MOGHADDAM, M.D.,* AND MANSOUR SAFAEI, M.D.**

*From the *Pathology Department, Faculty of Medicine, Isfahan University of Medical Sciences, and the **Surgery Department, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, I.R. Iran.*

ABSTRACT

Gastric liposarcoma is very rare such that only a few cases have been reported to date.

We present a case of a 62 – year – old diabetic man who presented with epigastric pain, vomiting, constipation and melena. The physical examination was unremarkable. By computed tomography (CT), a large mass with low attenuation value was seen in the left abdominal cavity. Histologic examination of a gastric biopsy was nondiagnostic. The patient underwent subtotal gastrectomy. On microscopic examination, the tumor showed features of a benign lipoma but with a distinctive capillary network and dense fibrotic areas. In immunohistochemial staining, positive S100 and negative CD117 reactions were seen, and less than 1%; Ki_{67} positive cells could be found. These findings suggested a highly differentiated gastric liposarcoma.

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Keywords: Gastric, Mass, Lipoma, Well differentiated liposarcoma.

INTRODUCTION

Liposarcomas are one of the most common soft tissue sarcomas of adulthood. In the collective experience of the Armed Forces Institute of Pathology (AFIP) and the Mayo Clinic, 75% of cases develop in the deep muscles of the extremities and 20% in the retroperitoneum, with the remainder are divided between the groin, spermatic cord, and miscellaneous sites.[1,2]

Liposarcomas at sites such as the oral cavity, larynx,[3] breast,[4] mediastinum[5] and stomach are largely curiosities. Only nine cases of gastric liposarcoma have been reported in the literature.[6,7]

Histologically there are four types of liposarcomas: differentiated, myxoid, round cell, and pleomorphic. Histologic appearance is important because it explains the macroscopic features of the tumor. Gastric liposarcomas are generally described as large exophytic masses connected to the gastric wall. The exophytic growth, typical of these lesions, explains the lack of specific gastrointestinal symptoms and delayed diagnosis. CT findings are related to histopathologic patterns. The differentiated liposarcoma shows the classic heterogenous fatty density, while the myxoid type shows liquid / paraliquid HU (Hounsfield Units) numbers. On the contrary, the high-grade forms (round cell and pleomorphic) show a non-specific solid structure complicated by necrosis and hemorrhage.[8,11]

The neoplastic cells of well-differentiated liposarcomas are readily recognized as lipocytes. In the other variants, most of the tumor cells are not obviously adipogenic, but some cells, indicative of fatty differentiation (lipoblasts) are almost always present. A delicate plexiform capillary vascular network is present in myxoid areas and provides an important diagnostic clue. Immunohistochemically, the tumor cells are immunoreactive for S100.[2]

In this article we present another case of well differentiated gastric liposarcoma.

Correspondence: Noushin Afshar Moghaddam, M.D., Department of Pathology, Isfahan University of Medical Sciences, Hezarjerib St, postal code: 81744 – 176, Isfahan, Iran, Tel: +98-311-77922475, Fax: +98-311-66688597, +98 – 913-33093317 , Email: afshar moghadam @ med.mui.ac.ir; safaei @ med. ac. ir

CASE REPORT

A 62- year- old diabetic man having epigastric pain, occasional vomiting, constipation and melena, was admitted in Alzahra Hospital of Isfahan University.

The physical examination was unremarkable. No abdominal mass could be palpated and there was no abdominal tenderness. The stool guaiac test was positive.

Abdominal ultrasound reported normal size and uniform echogenicity of the liver and spleen. There was no biliary ectasia and cystic or solid space occupying lesion. By computed tomography, a large mass with low attenuation value had replaced the left abdominal cavity (Fig.1).

At endoscopy a large submucosal mass was seen protruding from the lesser curvature. A small ulcer was seen on the bulging area. Several biopsies were taken from the mass. Histologic examination was nondiagnostic.

The patient underwent a subtotal gastrectomy. On macroscopic examination, a large (6×7cm) ulcerated submucosal mass was seen in the antrum of the lesser curvature. The lesion was well – circumscribed, smooth - bordered, multilobular and had white color (Fig.2). On microscopic examination, the tumor consisted predominantly of mature fat but with a distinctive capillary network and dense fibrotic areas containing collagen fibrils (Fig. 3).

After extensive sampling, a rare number of atypical spindle cells were identified. In immunohistochemical staining, the positive S100 and negative CD_{117} reactions were seen. Negative immunoreactivity for CD_{117} excluded the gastrointestinal stromal tumors (GISTs).

Less than 1% Ki_{67} positive cells could be found thus suggesting a highly differentiated primary gastric liposarcoma.

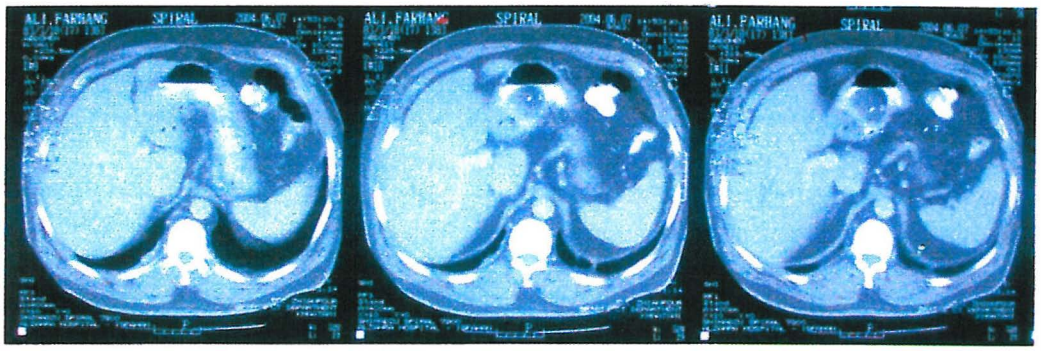

Fig. 1. Abdominal computed tomographic scan showing a large gastric mass.

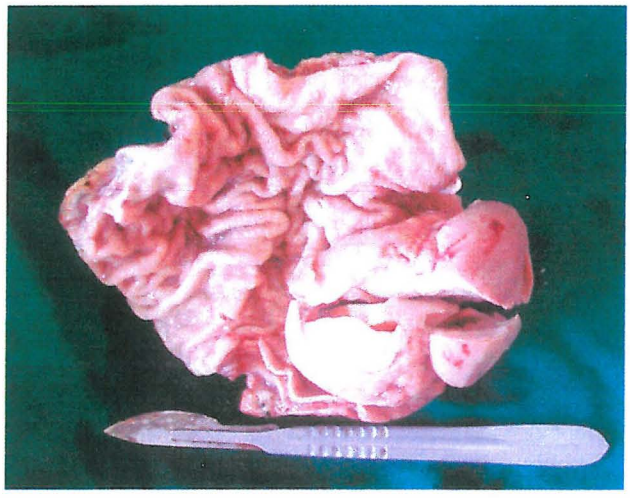

Fig. 2. Macroscopic appearance of the gastric tumor showing a well circumscribed, multilobular and white colored mass.

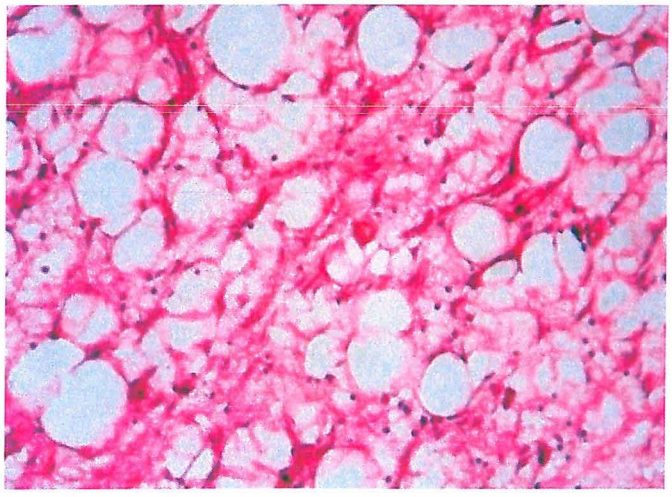

Fig. 3. Microscopic appearance of the gastric mass showing features of a benign lipoma (Hematoxylin and Eosin×100).

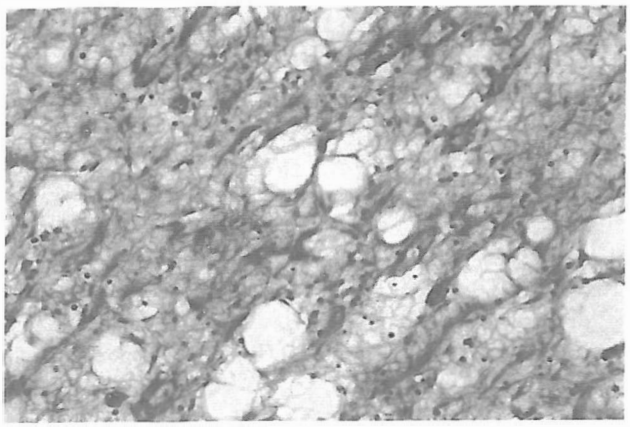

Fig. 4. Microscopic appearance of the gastric mass showing the distinctive capillary network (Hematoxylin and Eosin×100).

DISCUSSION

Liposarcoma is the second most frequent soft tissue sarcoma in adults. Primary gastric liposarcoma is exceptional.[6,7]

There have already been rare reports of this tumor in other articles.

Loppez – Negrete[7] and Ferrozzi[9,12] described the radiologic findings of this neoplasm and have emphasized the correlation between computed tomography (CT) and the macroscopic morphology of the tumor which is conditioned by its histology.

Shokouh – Amiri presented a primary gastric liposarcoma in a 15- year old boy.[13]

Philipps reported primary liposarcoma of the stomach wall in a 74-year-old who presented with weight loss and a therapy- resistant ulcer of the stomach wall. Pre- and perioperative findings suggested a benign lipoma. The patient was treated with subtotal gastrectomy. On microscopic examination the tumor showed features of a benign lipoma together with a distinctive capillary network.[6]

Seki described gastric liposarcoma in a 68-year-old woman who presented with repeated tarry stools and hematemesis. Endoscopic examination revealed a large ulcerated submucosal mass at the gastric angle. The patient was treated by total gastrectomy. On microscopic examination, the tumor showed the features of a well-differentiated sclerosing liposarcoma.[14]

Yamamoto described a gastric liposarcoma that was resected endoscopically.[15] Costa e Silva presented a well differentiated type of this tumor in the submucosa of the antrum.[16]

Laky described gastric liposarcoma in a 67-year old patient with repeated hematemesis. Surgery revealed an ulcerated tumor 5×2×1.5cm, involving the tunica muscularis up to the serosa.

Histologic examination showed a liposarcoma with intricate myxomatous zones, round cells, pleomorphous clearly differentiated lipoblastic aspects and hemorrhagic areas.[11]

Since endoscopic biopsies do not penetrate the submucosa, the diagnosis of gastric liposarcoma can not be made on the basis of biopsy findings. Thus a histological diagnosis is rarely obtainable without abdominal operation.[6] At imaging and microscopic aspect, the differential diagnosis of this tumor is a variety of gastric tumors containing fatty tissue such as lipoma, primary and reactive lipomatosis, carcinoma engulfing the perivisceral fat and other mesenchymal neoplasms.[17]

The preoperative diagnosis of lipoma plays a major clinical role because it often makes surgery unnecessary.[12]

Regarding the nondiagnostic findings in biopsy samples, precise diagnosis and distinction of this tumor from other primary gastric tumors is usually possible in postoperative biopsies.

In this case, the biopsy findings were nondiagnostic and sub-total gastrectomy was carried out due to the giant size of the lesion and high clinical risk of malignancy.

On microscopic examination, benign lipoma was ruled out due to distinctive capillary network and focal atypia.

Negative immunoreactivity for cytokeratin and CD_{117} markers ruled out carcinoma and gastrointestinal stromal tumors.[18]

REFERENCES

1. Lucas DR, Nascimento AG, Sanjay KSS, Rock MG: Well-differentiated liposarcoma: the Mayo Clinic experience with 58 cases. Am J Clin Pathol 102: 677, 1994.
2. Weiss SW, Goldblum JR: Liposarcoma, In: Weiss SW, Goldblum J R (eds), Enzinger and Weiss's Soft Tissue Tumors. St. Louis: Mosby, pp. 641 – 690, 2001.
3. Wenig BM, Heffner DK: Liposarcomas of the larynx and hypopharynx: a clinicopathologic study of eight new cases and a review of the literature. Laryngoscope 105: 747, 1995.
4. Austin R M, Dupree WB: Liposarcoma of the breast: a clinicopathologic study of 20 cases. Hum Pathol 17: 906, 1986.
5. Klimstra DS, Moran CA, Perino G, Koss MN, Rosai J: Liposarcoma of the anterior mediastinum and thymus: a clinicopathologic study of 28 cases. Am J Pathol 19(7): 782–91, 1995.
6. Philipps B, Lorken M, Manegold E, Easperk R, Schumpelick V: Primary liposarcoma of the stomach wall- a rare mesenchymal tumor. Chirurg 71 (3): 334–6, 2000.
7. Lopez – Negrete L, Luyando L, Sala J, Lopez C, Menendes

de Llano R, Gomez JL: Liposarcoma of the stomach. Abdom Imaging 22 (4): 373-5, 1997.
8. Rosai J: Soft tissues, In: Rosai J (ed.), Rosai and Ackerman's Surgical Pathology, Edinburgh – London: Mosby, pp. 2237-2272, 2004.
9. Ferrozzi F, Bova D, Garlaschi G: Gastric Liposarcoma: CT appearance. Abdom Imaging 18: 232-3, 1993.
10. Heiken JP, Forde KA, Gold RP: Computed tomography as a definitive method for diagnosing gastrointestinal lipomas. Radiology 142: 409–14, 1982.
11. Laky D, Stoica T: Gastric liposarcoma. A case report. Path Res Pract 181: 112–5, 1986.
12. Ferrozzi F, Tognini G, Marchesi G, Spaggiari E, Pavone P: Gastric tumors with fatty components. CT findings and differential diagnosis. Radiol Med (Torino) 100 (5): 343–7, 2000.
13. Shokouh – Amiri MH, Hansen CP, Moesgard F: Liposarcoma of the stomach: a case report. Acta Chir Scand 152: 289–91, 1986.
14. Seki K, Hasegawa T, Konegawa R, Hizawa K, Sano T: Primary liposarcoma of the stomach, a case report and a review of the literature. Japanese Journal of Clinical Oncology 28(4): 284 – 288, 1998.
15. Yamamoto K, Teramae N, Uehira H, Wakabayashi N, Fukuda S, Kodama T, Kashina K, Tsuchihashi Y: Primary liposarcoma of the stomach resected endoscopically. Endoscopy 27 (9): 711, 1995.
16. Costa e Silva N, Melo CM, Naves EB, Dias MA: Gastric liposarcoma: report of a case. Revista do Hospital das Clinical; Faculdade de Medicina Da Universidade de Sao Paulo 47(2): 89-91, 1992.
17. Ferrozzi F, Tognini G, Bova D, Pavone P: Liposarcoma tumors of the stomach: CT findings and differential diagnosis. J Comput Assist Tomogr 24 (6): 854–8, 2000.
18. Rosai J: Stomach, In: Rosai J (ed), Rosai and Ackerman's Surgical Pathology. Edinburgh – London: Mosby, pp. 648–686, 2004.