Gynecologic Oncology Reports 17 (2016) 16–19

Contents lists available at ScienceDirect

Gynecologic Oncology Reports

journal homepage: www.elsevier.com/locate/gynor

Case report

Solitary fibrous tumor of the greater omentum mimicking an ovarian tumor in a young woman

Elisabet Rodriguez Tarrega *, Juan Jose Hidalgo Mora, Vicente Paya Amate, Olivia Vega Oomen

Department of Obstetrics and Gynecology, University Hospital La Fe, Avenida de Fernando Abril Martorell, 106, 46026, Valencia, Spain

ARTICLE INFO

Article history:
Received 8 February 2016
Received in revised form 9 April 2016
Accepted 24 April 2016
Available online 26 April 2016

Keywords:
Solitary fibrous tumor
Hemangiopericytoma
Greater omentum
Laparoscopic surgery
Mesenchymal tumor
Vascular tumor

ABSTRACT

We report a case of solitary fibrous tumor (SFT) of greater omentum in a young woman. SFT arising from the greater omentum can mimic a gynecologic neoplasm. SFTs are generally benign but some of them are malignant and have uncertain prognosis. An adequate follow-up is essential in these patients.

1. Introduction

A solitary fibrous tumor (SFT) is a rare mesenchymal tumor previously called hemangiopericytoma (Fletcher, 2014). It has been commonly considered as intrathoracic tumor, although there have been many reported cases of extrathoracic SFT, such as those in skin, muscles, thyroid, retroperitoneum, liver and so on (Van Houdt et al., 2013). SFT originating from greater omentum is extremely rare and only few cases in this location have been described.

We report a case of SFT of the greater omentum in a young woman, which mimicked a gynecologic neoplasm. We have also summarized the clinical data of the reported cases of SFT arising from greater omentum (Table 1).

2. Case report

A 34-year-old woman with unremarkable medical history was diagnosed of pelvic mass in a routine gynecological exam. On physical examination, a hard, mobile and nontender mass was palpated in retrouterine location. Ultrasound revealed a pelvic mass of 6 cm with echogenicity similar to myometrium (Fig. 1). A solid ovarian lesion (risk of malignancy of 34% with logistic regression model LR2) vs. subserous uterine myoma was suspected by sonographic findings. Tumor marker levels (CA-125, CA 19-9, CEA) were within the normal range.

With this differential diagnosis a laparoscopy was performed which showed a well-circumscribed, pedunculated, vascular tumor appended to the great omentum (Fig. 2). The feeding artery to the tumor was gastroepiploic artery and two lymph nodes with diameter greater than 1 cm were observed in the omentum. Laparoscopic resection of the tumor and great omentum was performed and then, both of them were removed by open mini-laparotomy (Fig. 3).

Histological examination showed characteristic features of benign solitary fibrous tumor in some areas of the tumor, such as a patternless architecture varying cellularity variably prominent hyaline stromal collagen and branched blood vessels. However elsewhere, the tumor was much more hypercellular and consisted of rounded or ovoid cells with limited amounts of amphophilic cytoplasm showing frequent mitotic figures numbering up 13 per 10 high-power fields (HPF). Immunohistochemical staining revealed diffuse positivity for CD34, multifocal positivity for CD99 and nuclear positivity for beta catenin, while smooth muscle actin (SMA), desmin, kit and DOG-1 were negative. According to these findings, the final diagnosis was malignant SFT.

The patient experienced no postoperative complications. The case was reviewed by a multidisciplinary oncology team and she was advised not to undergo adjuvant treatment, but a careful follow up was initiated to rule out local recurrence or distant metastasis. At 32 months after surgery, the patient is disease-free.

* Corresponding author.
E-mail addresses: e.rodriguez.tarrega@gmail.com (E. Rodriguez Tarrega), hidalmo@yahoo.es (J.J. Hidalgo Mora), vpayaa@sego.es (V. Paya Amate), oliviaoomen@hotmail.com (O. Vega Oomen).

http://dx.doi.org/10.1016/j.gore.2016.04.004

Table 1
Solitary fibrous tumors originating from the greater omentum: summary of reported cases.

N°	Reference	Age (years)	Gender	Symptoms	Treatment	Tumor size (cm)	Mitotic figures	Recurrence	Outcome (months)
1	Stout et al (Kaneko et al., 2003)	92	M	Abdominal mass	None	12 × 9	Absent	–	DOO
2	Stout et al (Kaneko et al., 2003)	63	M	Abdominal mass with pain	Excision	14 × 13	Absent	None	NED (13 months)
3	Stout et al (Kaneko et al., 2003)	57	F	NA	Excision	NA (3090 g)	2/50HPF	NA	NA
4	Stout et al (Kaneko et al., 2003)	64	M	Abdominal pain, nausea	Excision	28 × 20	11/50HPF	Yes, peritoneum, liver and lung	DOD (24 months)
5	Goldberger et al (Kaneko et al., 2003)	30	F	Abdominal pain	Excision	8 × 8	NA	None	NED (16 months)
6	Imachi et al (Kaneko et al., 2003)	62	F	Abdominal distensión with pain	Excision, omentectomy and chemotherapy	24 × 20	12/10HPF	Peritoneum	AWD (11 months)
7	Schwartz et al (Kaneko et al., 2003)	40	M	Abdominal mass with pain and weight loss	Excision (laparotomy), omentectomy and chemotherapy	20 × 13.5	20/10HPF	Peritoneum	DOD (20 months)
8	Cajano et al (Kaneko et al., 2003)	49	F	Abdominal pain	Excision, omentectomy and chemotherapy	10 × 10	NA	Peritoneum and liver	DOD (24 months)
9	Bertolotto et al (Bertolotto et al., 1996)	33	F	Abdominal pain	Excision	6 × 5	Absent	None	NED (24 months)
10	Rao et al (Kaneko et al., 2003)	67	F	Abdominal mass	Excision and omentectomy	17 × 12	Sparse	None	NED (22 months)
11	Kaneko et al (Kaneko et al., 2003)	70	F	Abdominal mass	Excision	10 × 8	Absent	None	NED (12 months)
12	Bovino et al (Bovino et al., (2003)	46	F	Abdominal pain, nausea and vomiting	Excision, omentectomy, appendectomy and double adnexectomy	7 × 4	<10/HPF	None	NED (6 months)
13	Ahmad et al (Ahmad et al. (2004)	74	F	Abdominopelvic mass	Excision	NA	Many	Yes, paraaortic lymph nodes, liver	DOD (4 months)
14	Patriti et al (Zong et al. (2012)	24	M	Abdominal pain, diarrhea, fever and hemoperitoneum	Excision and omentectomy (laparoscopic)	3.2 × 2.5	3/HPF	None	NED (24 months)
15	Shiba et al (Shiba et al. (2007)	41	F	Abdominal pain	Excision	5.5 × 4.5 × 4	Absent	None	NED (6 months)
16	Slupski et al (Slupski et al. (2007)	43	M	NA	Excision	NA	NA	Yes, local, retroperitoneum and liver	NED 18 years, NED (3 months)[a]
17	Küçük et al (Küçük et al., 2009)	70	M	Abdominal pain, nausea and vomiting	Urgent excision (laparotomy) by intraabdominal bleeding	12 × 10 × 6	Absent	None	NA
18	Zong et al (Zong et al., 2012)	29	M	Abdominal mass and weight loss	Excision (laparotomy)	28 × 25 × 11	<4/10HPF	None	NED (48 months)
19	Harada et al (Harada et al., 2014)	62	F	Abdominal mass and endometrial adenocarcinoma	Excision (laparotomy), omentectomy, lymphadenectomy, hysterectomy, double adnexectomy and chemotherapy[b]	10	>10/10HPF	None	NED (48 months)
20	Sato et al (Sato et al., 2014)	85	F	Abdominal mass and portal venous dilatation	Excision and omentectomy (laparotomy)	19 × 17 × 13	2/10HPF	None	NED (28 months)
21	Urabe et al (Urabe et al., 2015)	52	M	Asymptomatic casual finding	Excision (laparoscopy + laparotomy)	1.6	NA	None	NED (11 months)
22	Present case	34	F	Asymptomatic abdominal mass	Excision and omentectomy (laparoscopy)	6 × 5	13/10HPF	None	NED (32 months)

NA: not available, HPF: high-power fields, DOO: died of other causes, NED: no evidence of disease, DOD: died of disease, AWD: alive with disease.
[a] Patient with NED for 18 years, then local recurrence and metastases were diagnosed, second surgery was performed and later patient with NED for 3 months.
[b] For the uterine cancer.

3. Discussion

The prevalence of SFT is low and those originating from greater omentum are extremely rare.

Patients diagnosed of this type of tumor can experience abdominal pain or vomiting due to an abdominal mass, but they are mostly asymptomatic, as in the current case. An acute abdomen because of the rupture of the tumor has been described in some patients (Bovino et al., 2003; Küçük et al., 2009).

According to the reported cases, SFT of the greater omentum usually occurs in the fifth to seventh decade of life, with no gender predilection. Nevertheless, our patient was younger than most of the other patients affected by this tumor.

Diagnosing SFT is difficult because of the resemblance to other lesions such as leiomyoma or mesothelioma (Van Houdt et al., 2013). Moreover, if SFT originates from greater omentum and is pedunculated as our case, it can mimic other more common pelvic tumors.

Immunohistochemical staining is useful to establish the diagnosis. SFTs are generally positive for CD34, CD99 and bcl-2 and occasionally SMA, but they are usually negative for S-100, desmin and cytokeratins (Fletcher, 2014; Van Houdt et al., 2013).

Ultrasonographic appearance of SFT has been described as a highly vascularized solid mass with well-defined margins; computerized tomography usually shows similar findings (Bertolotto et al., 1996). However, imaging studies are not specific and preoperative diagnosis becomes almost impossible.

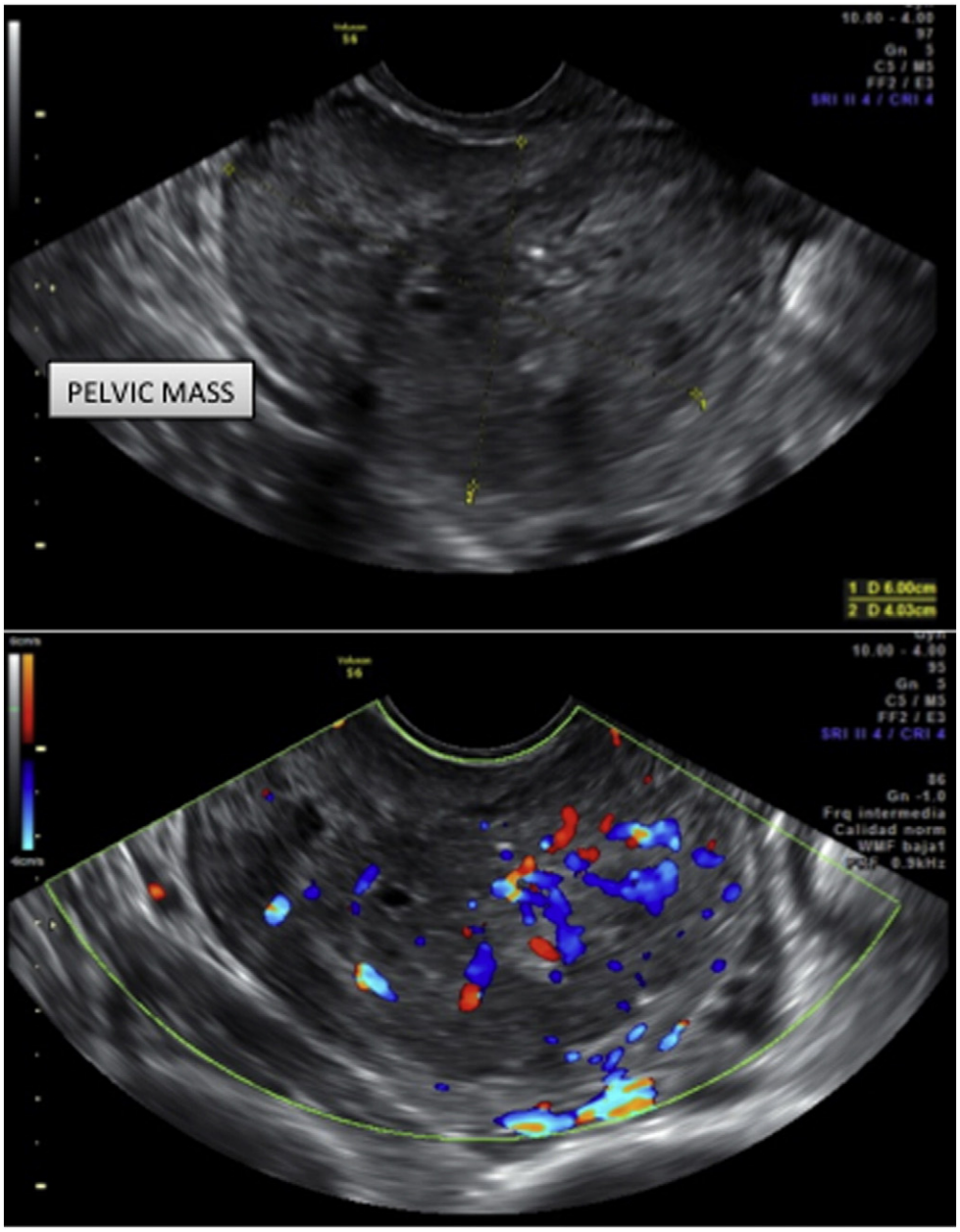

Fig. 1. Ultrasound images showing a pelvic mass measuring 60 × 40 mm.

SFTs are generally benign. Nevertheless, approximately 15–20% of them are malignant; especially tumors larger than 10 cm. Histological criteria of malignancy include high cellularity and mitotic activity (more than 4 per 10 HPF), pleomorphism, cytonuclear atypia and tumor hemorrhage or necrosis (Demicco et al., 2012).

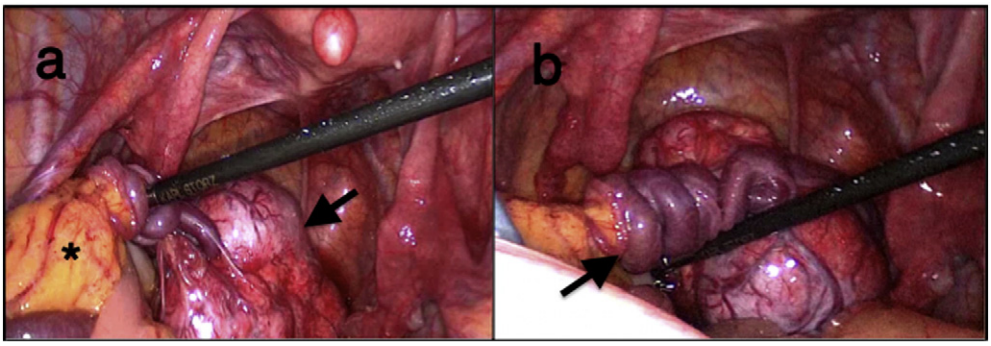

Fig. 2. Laparoscopic findings. a) A well-circumscribed, pedunculated, vascular tumor (arrow) arising from the great omentum (asterisk). b) Detail of vascular pedicle (arrow).

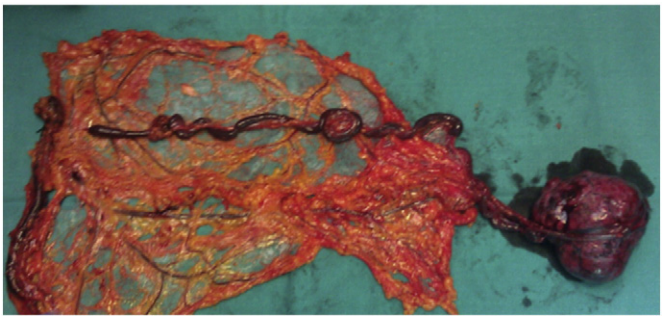

Fig. 3. Image showing surgical specimen: tumor and great omentum.

Surgical resection is the treatment of choice, but malignant SFT has a potential for local recurrence and metastases, even several years after surgery (Slupski et al., 2007). In some of the reported cases, an omentectomy was carried out in addition to tumor excision, even though there is no evidence that it decreases local recurrence. We decided to resect the great omentum due to the finding of two suspicious lymph nodes.

At present, based upon the low incidence of SFT and poor existing data, the prognosis of these patients remains uncertain. Few studies have reviewed the prognostic markers of SFTs regardless of their location. Demicco et al. (2012) carried out a retrospective study involving 110 patients and they found 5- and 10-year disease-specific survival rates of 89 and 73%, respectively. Moreover, they did a risk of metastasis stratification model based on age, size and mitotic index, which classified patients into low, moderate or high risk groups. According to this model, our patient would be into a moderate risk group. Later, Van Houdt et al. (2013) analyzed the outcomes after diagnosis and treatment of SFT in 81 patients, local recurrence rate at 5 years was 29% and metastasis rate was 34%. Factors related to worse prognosis were tumor size (>10 cm), positive resection margins and high mitosis rate (more than 4 per 10HPF).

Of the 21 cases of SFT of the greater omentum reported, only 9 had a tumor size ≤10 cm, as our patient, and it is considered a good prognostic factor. On the other hand, high mitosis rate seems to be related to local recurrence and metastases, although data are not conclusive due to the limited number of cases.

The current case was considered as malignant because of the histological findings and complete excisional laparoscopic surgery was performed, with tumor-free surgical margins. Because of its size of 6 cm, it could be expected as a good outcome, but the high mitosis rate increases the risk of recurrence and metastases.

Nowadays, there is no evidence for a beneficial role of adjuvant treatment, but some reports proposed adjuvant radiotherapy and show response to chemotherapy and other biological treatments, although its effectiveness has not been proven (Park et al., 2011; Van Houdt et al., 2013). Therefore, we decided not to provide adjuvant treatment to our patient. However, as the clinical behavior of solitary fibrous tumors is difficult to predict and she had a significant risk of recurrence or metastasis, a long-term follow up was initiated.

Fortunately, she is disease-free 32 months after surgery.

4. Conclusions

In summary, we have presented a rare case of SFT arising from greater omentum in a young woman, which mimicked a gynecologic tumor. This case is novel because the age of the patient is lower than the expected in this type of tumor; besides, the combination of prognostic factors is not the most common: on the one hand, tumor size is a good prognostic factor, but otherwise the high mitotic index is associated with poor prognosis.

We want to emphasize that the diagnosis of a malignant tumor in a woman of reproductive age has some implications since tumor treatment and follow-up can affect her fertility. The gynecologist should consider alternative diagnoses when faced with a pelvic tumor and have support of other specialists to ensure the best treatment for each patient. In cases of uncertain prognosis like this, an adequate follow-up is essential.

Conflict of interest statement

The authors declare that there are no conflicts of interest.

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.

References

Ahmad, G.F., Athavale, R., Hamid, B.N.A., Davies-Humphreys, J., 2004. Pelvic malignant hemangiopericytoma mimicking an ovarian neoplasm; a case report. J. Reprod. Med. 49, 404–407.

Bertolotto, M., Cittadini, G., Crespi, G., Perrone, C., Pastorino, R., 1996. Hemangiopericytoma of the greater omentum: US and CT appearance. Eur. Radiol. 6, 454–456.

Bovino, A., Basso, L., Di Giacomo, G., Codacci Pisanelli, M., Basile, U., De Toma, G., 2003. Haemangiopericytoma of greater omentum. A rare cause of acute abdominal pain. J. Exp. Clin. Cancer Res. 22, 649–650.

Demicco, E.G., Park, M.S., Araujo, D.M., Fox, P.S., Bassett, R.L., Pollock, R.E., Lazar, A.J., Wang, W.-L., 2012. Solitary fibrous tumor: a clinicopathological study of 110 cases and proposed risk assessment model. Mod. Pathol. 25, 1298–1306. http://dx.doi.org/10.1038/modpathol.2012.83.

Fletcher, C.D.M., 2014. The evolving classification of soft tissue tumours — an update based on the new 2013 WHO classification. Histopathology 64, 2–11. http://dx.doi.org/10.1111/his.12267.

Harada, N., Nobuhara, I., Haruta, N., Higashiura, Y., Watanabe, H., Ohno, S., 2014. Concurrent malignant solitary fibrous tumor arising from the omentum and grade 3 endometrial endometrioid adenocarcinoma of the uterus with p53 immunoreactivity. Case Rep. Obstet. Gynecol. 2014, 1–4. http://dx.doi.org/10.1155/2014/216340.

Kaneko, K., Shirai, Y., Wakai, T., Hasegawa, G., Kaneko, I., Hatakeyama, K., 2003. Hemangiopericytoma arising in the greater omentum: report of a case. Surg. Today 33, 722–724. http://dx.doi.org/10.1007/s00595-003-2559-6.

Küçük, H.F., Gülmez, S., Kaptanoğlu, L., Akyol, H., Kurt, N., Yavuzer, D., 2009. Acute abdomen due to rupture of hemangiopericytoma of the greater omentum: case report. Ulus. Travma Acil Cerrahi Derg. 15, 611–613.

Park, M.S., Patel, S.R., Ludwig, J.A., Trent, J.C., Conrad, C.A., Lazar, A.J., Wang, W.-L., Boonsirikamchai, P., Choi, H., Wang, X., Benjamin, R.S., Araujo, D.M., 2011. Activity of temozolomide and bevacizumab in the treatment of locally advanced, recurrent, and metastatic hemangiopericytoma and malignant solitary fibrous tumor. Cancer 117, 4939–4947. http://dx.doi.org/10.1002/cncr.26098.

Sato, T., Yamaguchi, S., Koyama, I., Okada, Y., Kato, Y., 2014. Acute life-threatening portal venous dilatation induced by a huge solitary fibrous tumor of the omentum. Hepato-Gastroenterology 61, 2200–2202.

Shiba, H., Misawa, T., Kobayashi, S., Yokota, T., Son, K., Yanaga, K., 2007. Hemangiopericytoma of the greater omentum. J. Gastrointest. Surg. 11, 549–551. http://dx.doi.org/10.1007/s11605-007-0099-x.

Slupski, M., Piotrowiak, I., Wlodarczyk, Z., 2007. Local recurrence and distant metastases 18 years after resection of the greater omentum hemangiopericytoma. World J. Surg. Oncol. 5, 63. http://dx.doi.org/10.1186/1477-7819-5-63.

Urabe, M., Yamagata, Y., Aikou, S., Mori, K., Yamashita, H., Nomura, S., Shibahara, J., Fukayama, M., Seto, Y., 2015. Solitary fibrous tumor of the greater omentum, mimicking gastrointestinal stromal tumor of the small intestine: a case report. Int. Surg. 100, 836–840. http://dx.doi.org/10.9738/INTSURG-D-14-00141.1.

Van Houdt, W.J., Westerveld, C.M.A., Vrijenhoek, J.E.P., van Gorp, J., van Coevorden, F., Verhoef, C., van Dalen, T., 2013. Prognosis of solitary fibrous tumors: a multicenter study. Ann. Surg. Oncol. 20, 4090–4095. http://dx.doi.org/10.1245/s10434-013-3242-9.

Zong, L., Chen, P., Wang, G.-Y., Zhu, Q.-S., 2012. Giant solitary fibrous tumor arising from greater omentum. World J. Gastroenterol. 18, 6515–6520. http://dx.doi.org/10.3748/wjg.v18.i44.6515.