Case report

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

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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.

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

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.

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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, it can mimic other more common pelvic tumors. Immunohistochemical staining is useful to establish the diagnosis.

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.

Table 1

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

| No | 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 | Excision | 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 (3000 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 | NED (24 months) |
| 5  | Goldberger et al (Kaneko et al., 2003) | 30 | F | Abdominal pain | Excision | 8 × 8 | NA | – | NED (16 months) |
| 6  | Imachi et al (Kaneko et al., 2003) | 62 | F | Abdominal distension 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) | 39 | F | Abdominal pain and vomiting | Excision, omentectomy and chemotherapy | 10 × 10 | NA | Peritoneum and liver | NED (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 | 12 × 10 | 4/10HPF | None | NED (12 months) |
| 11 | Kaneko et al (Kaneko et al., 2003) | 70 | F | Abdominal mass | Excision, omentectomy, appendectomy and double ade
nectomy | 28 × 20 | 12/10HPF | Peritoneum | AWD (20 months) |
| 12 | Bovino et al (Bovino et al., 2003) | 46 | F | Abdominal pain, nausea and vomiting | Excision, omentectomy and chemotherapy | 6 × 5 | 13/10HPF | Peritoneum | NED (24 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 | NA | Absent | None |
| 16 | Slupski et al (Slupski et al., 2007) | 43 | M | NA | Excision | NA | NA | Yes, local, retroperitoneum and liver | NED (6 months) |
| 17 | Kacić et al (Kucić et al., 2009) | 70 | M | Abdominal pain, nausea and vomiting | Urgent excision (laparotomy) by intraabdominal bleeding | 12 × 10 | 10/HPF | None | NA |
| 18 | Zong et al (Zong et al., 2012) | 29 | M | Abdominal mass and weight loss | Excision (laparotomy) | 28 × 25 | <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 | 19 × 17 | 10/HPF | None | NED (48 months) |
| 20 | Sato et al (Sato et al., 2014) | 85 | F | Abdominal mass and portal venous dilatation | Excision (laparatomy) | 19 × 17 | 3/HPF | None | NED (28 months) |
| 21 | Uraabe et al (Uraabe et al., 2015) | 52 | M | Asymptomatic | Excision (laparoscopy) | 1.6 | NA | None | NED (11 months) |
| 22 | Present case | 34 | F | 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.
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. 1. Ultrasound images showing a pelvic mass measuring 60 × 40 mm.

Fig. 2. Laparoscopic findings. a) A well-circumscribed, pedunculated, vascular tumor (arrow) arising from the great omentum (asterisk). b) Detail of vascular pedicle (arrow).
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., Gittadi, 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 Pisanielli, M., Basile, U., De Toma, G., 2003. Haemangiopericytoma of greater omentum. A rare cause of acute abdominal pain. J. Exp. Clin. Cancer Res. 22, 695–699.
Demicco, E.G., Park, M.S., Araujo, D.M., Fox, P.S., Basset, 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.83.2012.83.
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., Nohbuhara, 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
Shiba, H., Misawa, T., Kobayashi, S., Yokota, T., Son, K., Yanaga, K., 2007. Solitary hemangiopericytoma mimicking an ovarian neoplasm; a case report. J. Reprod. Med. 52, 407–409. http://dx.doi.org/10.3748/jrm.52.407
Satoh, 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.
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.
Urabe, M., Yamagata, Y., Aikou, S., Mori, K., Yamashita, H., Nomura, S., Shibahara, J., Fukayama, M., Seto, Y., 2015. 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
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.