EJGO European Journal of Gynaecological Oncology

Ovarian mucinous tumor with anaplastic carcinoma and sarcoma-like mural nodule: about a difficult case

F. Lai-Tiong

Institut de Cancérologie du Gard, Rue du Professeur Henri Pujol, Nîmes (France)

Summary

Development of mural nodules in mucinous or serous ovarian tumors are exceptional. These nodules can be benign or malignant. The author reports the seventh case of mucinous ovarian tumor associated with both sarcoma-like mural nodules and anaplastic carcinoma, in a 58-year-old, post-menopausal Caucasian female. The patient underwent surgery, followed by adjuvant chemotherapy for a pT1aN0 lesion. Shortly after completion of chemotherapy, diffuse metastases appeared. Second-line chemotherapy by anthracyclin was administered. After one cycle, disease progression with ascites was observed. Third-line chemotherapy by gemcitabine was decided. The prognosis of these tumors is poor, depending on the characteristics of the mural nodule. No consensus for treatment exists after surgery.

Key words: Mucinous ovarian tumor; Sarcoma-like mural nodule; Anaplastic carcinoma.

Introduction

Cases of ovarian mucinous tumors with mural nodules are rare. Those with both sarcoma-like mural nodule and anaplastic carcinoma are exceptional. These tumors can be benign, borderline or malignant with various types of mural nodules (benign, malignant or mixed) [1].

To the best of the author's knowledge, there are only six cases of mucinous ovarian tumors associated with both sarcoma-like mural nodules and anaplastic carcinoma [2]. Here she reports the seventh case of ovarian mucinous tumor with sarcoma-like mural nodules with foci of anaplastic carcinoma that developed metastasis shortly after completion of adjuvant chemotherapy.

Case Report

A 58-year-old Caucasian woman, gravida 3, para 2, presented with a few-weeks history of a lower abdominal distension. The clinical findings showed a normal vaginal discharge during a pelvic examination. She had no medical past history and underwent menopause at 54 years of age.

The level of cancer antigen Ca125 was 17.6 U/ml (normal range < 35 U/mL). CT scan of the abdomen showed a 24 cm mass originating from the right ovary and consisted of a mixed solid and cystic mass. Biopsies were performed; they confirmed the presence of a mucinous ovarian carcinoma (Figure 1).

The patient underwent radical surgery: a total hysterectomy, a bilateral salpingo-oophorectomy, omentectomy, and appendicectomy. Large lymph nodes dissection was performed. A total of 46 lymph nodes were dissected, all negative for carcinoma. Peritoneal cytology did not contain any malignant cell. The specimen consisted of a 18-cm (greatest diameter) round mass with a smooth external surface. Section analysis showed that cysts were filled with mucoid, hematic fluid. The inner surface of the ovary was superelevated by multi-locular cysts measuring 1×1cm in size, some of two other locules were 8×14 cm and 10×8 cm with a solid component and necrosis areas. Microscopic observation showed both cells with eosinophilic cytoplasm and abundant clear nuclei with many mitosis. They resembled rosette cells because of their perivascular distribution. Necrosis and inflammation areas were diffuse. Near the cysts there were foci of atypics cells, composed of eosinophilia with abundant cytoplasm and fusiform cells with irregular nuclei like sarcoma. Coloration with Alcian Blue showed mucin in the epithelial component. The mural nodules were strongly positive for Vimentin and in some places for Cytokeratin. Cytokeratin 7 and 20 highlighted glandular proliferation. CDX 2 was positive in some areas. Progesterone and estrogen receptors were negative in this part. The anaplastic component was negative for CK7. It was strongly positive for Vimentin and CD68. WT1 was positive in the cytoplasm of some elements. Ki67 was high in the anaplastic foci.

The patient was diagnosed as having a Stage Ia borderline mucinous carcinoma associated with both sarcoma-like and anaplastic mural nodules. After discussion in a multidisciplinary gynecological round, adjuvant chemotherapy with platinium regimen was decided. The patient received six cycles of paclitaxel + carboplatin AUC 5 chemotherapy regimen. The treatment was well tolerated with no grade 3 or more adverse effect.

One month after completion of chemotherapy, metastasis in the two lungs, in the liver, on the right adrenal gland appeared and also multiples adenomegalies. A 37×26 cm mass developed in the left iliac pit. Resection of the mass concluded by a metastasis of high-grade anaplastic carcinoma. Microscopic findings showed similar characteristics of the primary tumor. On immunochemistry (Benchmark XT) the metastasis was positive for cytokeratin AE1-AE3 and CD68. WT1 antibody was positive. It was negative for cytokeratin 7 and cytokeratin 20. Ki67 was high at 60%. Second-line chemotherapy by anthracyclin was decided.

Three weeks after the first cycle of liposomal doxorubicin, the patient presented with ascitis. CT scan showed RECIST progression and the apparition of pulmonary lymphangitic carcinomato-

Revised manuscript accepted for publication March 9, 2016

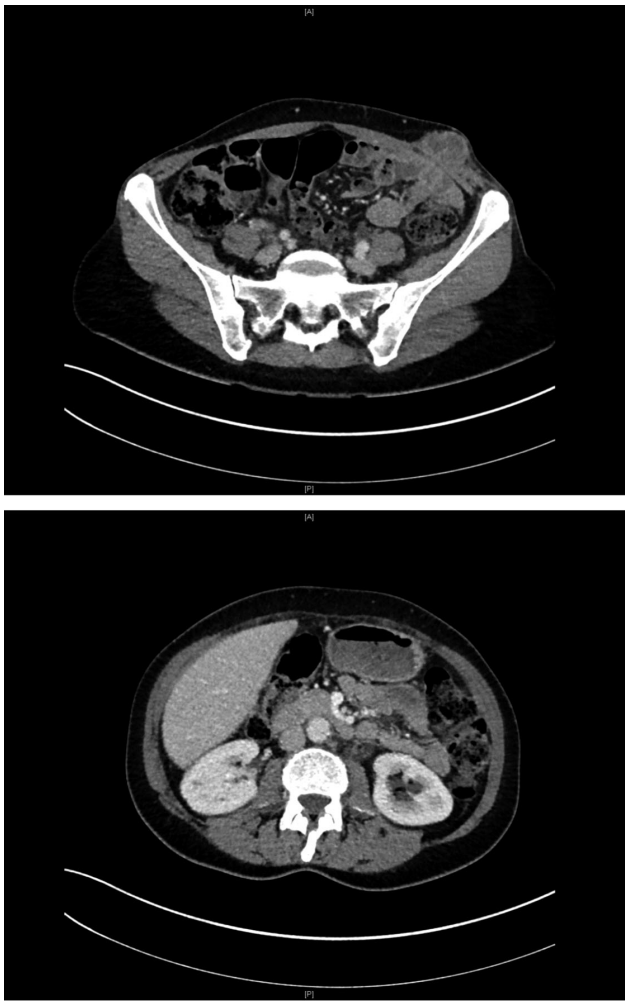

Figure 1. — CT scan after completion of adjuvant chemotherapy.

sis. A third-line of gemcitabine was initiated.

Discussion

Prat and Scully first described sarcoma or sarcoma-like mural nodules occurring in association with mucinous epithelial neoplasia in 1979 [3]. They recognize three types of mural nodules: sarcoma-like nodule, sarcoma or sarcomatous and anaplastic carcinoma.

The presence of mural nodules in serous or mucinous malignancies is exceptional. These nodules can be found in benign, borderline or malignant ovarian cancers. These nodules can be benign, malignant or mixed type. Eighty-two cases of mural nodules have been reported in the literature to the best of the present author's knowledge, all types included. However only six cases of mixed mural nodules have been described [4].

Mural nodules are rare, developing into lesions specially in the wall of the tumors. They appear more often to be cystic. The mural nodules appear exclusively in mucinous tumors. Their aspects can be variable. They can be reactional, neoplastic or mixed types, which is rare [5]. The physiopathology remains unclear. The nodules are different from carcinomatosis nodules. The prognosis of the tumor can be modified by the presence of the nodule, if they are malignant.

Cases reports suggest that sarcoma-like mural nodules are reactive rather than neoplastic, based on clinicopathological features and the follow up [6]. Sarcoma-like mural nodules are differentiated from sarcomas and foci of anaplastic carcinoma and their prognosis is favorable. Nevertheless, there are difficulties because of the existence of tumors containing both sarcoma-like mural nodule and foci of anaplastic carcinoma that can make the diagnosis difficult [7].

Foci of anaplastic carcinoma in mucinous ovarian tumor are extremely rare. It can occur not only in patients with cystadenocarcinoma, but also in patients with benign mucinous cystadenoma [8]. Immunohistochemistry can be useful.

Bague *et al.* showed that the prognosis of sarcoma-like mural nodules is excellent if they are circumscribed and do not invade the surrounding tissues or vascular spaces. In contrast, the foci of anaplastic carcinoma are aggressive [9].

Most patients with mural nodules of anaplastic carcinoma have had a malignant, often rapid course. The mortality, even if adjuvant treatment was administered and even in benign or borderline ovarian cancers, was high. The prognosis reported by Chang *et al.* is poor, with 50% mortality within five years time [10].

Cases of ovarian mucinous tumors associated with mural nodules are rare, reported mainly as case reports. That is the reason why no conclusion can be made concerning the management of these tumors.

Conclusion

In conclusion, too few cases of sarcoma-like mural nodule and anaplastic carcinoma in mucinous ovarian carcinoma have been published to establish guidelines for the treatments. More cases are needed to understand the pathogenesis and to make conclusions.

References

[1] Park T.C., Lee H.N., Shin O.R., Lee K.H.: "A case of a borderline mucinous tumor of the ovary with sarcoma-like mural nodules producing granulocyte colony-stimulating factor". *Eur. J. Gynaecol. Oncol.*, 2012, *33*, 526.

[2] Jinfeng Z., Ming G., Peifeng L., Yi L., Yongcheng C.: "Ovarian mucinous cystic tumor with sarcoma-like mural nodules and multifocal anaplastic carcinoma: a case report". I*nt. J. Clin. Exp. Pathol.*, 2013, *6*, 1688.

[3] Prat J., Scully R.E.: "Ovarian mucinous tumors with sarcoma-like mural nodules: a report of seven cases". *Cancer*, 1979, *44*, 1332.
[4] Gungor T., Altinkaya S.O., Akbay S., Bilge U., Mollamahmutoglu L.: "Malignant mural nodules associated with serous ovarian tumor of borderline malignancy: a case report and literature review". *Arch. Gynecol. Obset.*, 2010, *281*, 485.
[5] Allende D.S., Drake R.D., Chen L.: "Muralnodules of clear cell carcinoma in a mucinous borderline tumor of the ovary: a case report". *Pathol. Res. Int.*, 2010, *2010*, 438534.
[6] Prat J., Scully R.E.: "Ovarian mucinous tumors with sarcoma-like mural nodules: a report of seven cases". Cancer, 1979, *44*, 1332.
[7] Fujii S., Konishi I., Kobayashi F., Okamura H., Yamabe H., Mori T.: "Sarcoma-like mural nodules combined with a microfocus of anaplastic carcinoma in mucinous ovarian tumor". *Gynecol. Oncol.*, 1985, *20*, 219.
[8] Nichols G.E., Mills S.E., Ulbright T.M., Czernobilsky B., Roth L.M.: "Spindle cell mural nodules in cystic ovarian mucinous tumors. A clinicopathologic and immunohistochemical study of five cases". *Am. J. Surg. Pathol.*, 1991, *15*, 1055.
[9] Bagué S., Rodriguez I.M., Prat J.: "Sarcoma-like mural nodules in mucinous cystic tumors of the ovary revisited: a clinicopathologic analysis of 10 additional cases". *Am. J. Surg. Pathol.*, 2002, *26*, 1467.
[10] Chang W.C., Sheu B.C., Lin M.C., Chow S.N., Huang S.C.: "Carcinosarcoma-like mural nodule in intestinal-type mucinous ovarian of borderline malignancy: a case report". *Int. J. Gynecol. Cancer*, 2005, *15*, 549.

Corresponding Author:
F. LAI-TIONG, M.D.
Institut de Cancérologie du Gard
Rue du Professeur Henri Pujol
30900 Nîmes (France)
e-mail: florencelt@hotmail.fr