Ovarian carcinoma presenting with axillary lymph node metastasis: a case report

F. Ceccarelli, S. Barberi, A. Pontesilli, S. Zancla, E. Ranieri

Department of Surgery "P. Valdoni", Sapienza University of Rome, Rome (Italy)

Summary

Ovarian cancer is usually limited to the abdomen and frequently remains confined. The occurrence of extrabdominal mestastases is unusual. In this report we describe a rare case of axillary involvement at initial presentation of ovarian cancer in a 48-year-old woman. The axillary mass was the only clinical abnormality. Cytological and histological findings, performed on axillary lymph nodes, showed the presence of psammoma bodies and specific immunohistochemical tumor markers (OC-125 and WT1), supporting the evidence of a metastatic axillary lymphadenopathy from ovarian cancer. Subsequently, chest and abdominopelvic computed tomography showed a right ovarian complex mass of 30 x 25 mm and biochemical tests showed high levels of CA125. Surgical therapy was performed. Histology confirmed the diagnosis, evidencing a poorly differentiated serous-papillary carcinoma of the right ovary. In conclusion, cytological and histological findings can play a crucial role in suggesting the correct origin of a metastatic adenocarcinoma when the clinical presentation is atypical.

Key words: Metastatic axillary Lymphadenopathy; Ovarian cancer; Psammoma bodies; Fine-needle aspiration biopsy.

Introduction

Ovarian cancer is the most important cause of death from gynecological malignancies in Western countries [1]. Because most women with ovarian cancer are asymptomatic or experience only non specific symptoms, approximately 75% of patients are diagnosed with advanced disease. Usually, ovarian carcinoma spreads directly to the peritoneal cavity; distant metastases are infrequent and generally occur late during the course of disease [2, 3]. Metastases to extra-abdominal lymph nodes are uncommon with only isolated cases reported in the literature [4-8]. Identification of the origin of a metastatic lymphadenopathy may be very difficult, especially when it is the only clinical evidence of disease. When axillary lymph nodes are involved, the differential diagnosis includes several neoplasms, particularly breast cancer. A correct diagnosis is clearly of great clinical importance because the treatment and prognosis differ significantly.

Case Report

A 48-year-old woman was admitted to the Breast Unit of "Sapienza" University of Rome (Department of Surgery "Pietro Valdoni") because she noted the development of a nodular mass in her right axilla. Clinical examination confirmed the presence of a palpable, mobile, painless mass suspected for lymphadenomegaly. No pathologic nodules were detected in the mammary gland bilaterally, or was the mass referred to other superficial lymph nodes. Anomalies of the thyroid gland were excluded; no skin lesions were evidenced. Chest and abdominal examination did not evidence any gross masses; the liver and spleen were not palpable. Instrumental examination of the breast, i.e., mammography plus ultrasound sonography (US) were negative. However, in the right axilla US revealed a well demarked hypoechoic nodule 25 x 20 mm in size, which was considered a lymph node undergoing structural changes. After fine-needle aspiration biopsy (FNAB), cytology revealed the presence of malignant cells with many psammoma bodies. Complete excision of the enlarged lymph node was performed for histopathological evaluation. At immunocytochemical examination the positive staining for antiovarian carcinoma antibody 125 (OC-125) and Wilms Tumor Gene (WT1) supported the diagnosis of lymph node metastasis from ovarian carcinoma. Chest and abdominopelvic computed tomography (CT) scanning showed a right ovarian complex mass 30 x 25 mm in size, consisting of cystic and solid regions. There was no evidence of disseminated intraabdominal disease, ascites or pelvic and paraortic lymph node involvement. Parenchymal metastases were not detected. Routine hematological and biochemical tests were found to be normal and serum CA125 level was 230 UI/ml (normal value < 35 UI/ml). The patient was treated by surgery plus simultaneous hyperthermic intraoperative intraperitoneal chemotherapy (HIPEC). Intraoperative histological examination confirmed the diagnosis of an ovarian neoplasm. Surgical therapy included hysterectomy, bilateral salpingo-oophorectomy, omentectomy, pelvic and paraaortic lymphadenectomy and pelvic peritonectomy. The entire peritoneal surface was inspected and multiple peritoneal biopsies were performed in absence of gross extrapelvic disease. HIPEC was given with a closed technique, using cisplatin (dose = 75 mg/mq) at a temperature ranging from 42-43°C, for 60 min. Final histological findings showed a poorly differentiated papillary serous cystadenocarcinoma of the right ovary (G3; pT3c pN0 pM1; Stage IV). No complications were observed postoperatively. After hospital discharge, the patient was scheduled for systemic chemotherapy with carboplatin at a dose at an area under the curve (AUC) of six, plus paclitaxel, 175 mg/mq 3-hour IV infusion given every three weeks for six courses. The patient was followed-up every six months with clinical examination, serum markers (CEA, CA125, CA19.9) and chest and abdominopelvic CT. No recurrence was determined after 48 months of follow-up.

Revised manuscript accepted for publication August 26, 2010

Fig. 1

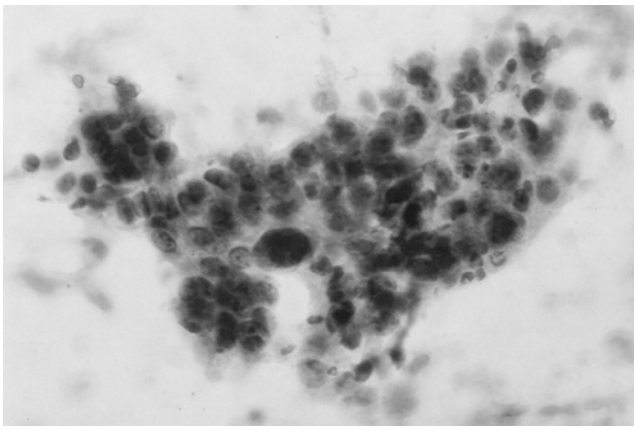

Figure 1. — FNAB from lymph node metastasis: neoplastic cells.

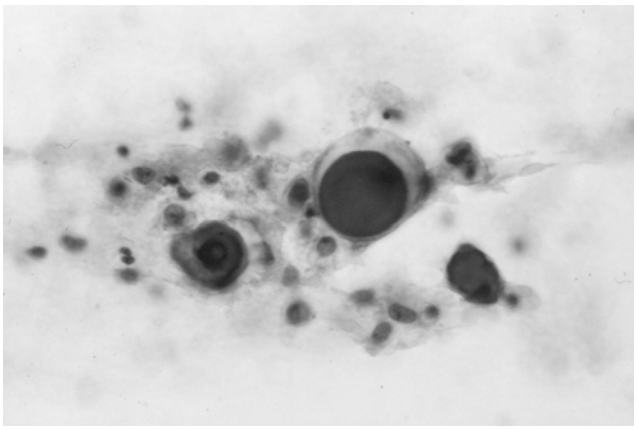

Figure 2. — A large psammoma body.

Fig. 2

Discussion

Ovarian cancer is usually limited to the abdomen, where it frequently remains confined. Although it may potentially disseminate in numerous ways, it typically takes only some possible routes.

The most common route of spread is by local extension to the adjacent viscera and dissemination throughout the peritoneal cavity by implant of malignant cells on the peritoneal surface. The lymphatic way is also a frequent route of spread in ovarian cancer; the most commonly involved lymph nodes are the abdominal, paraaortic and pelvic groups. Lymph node involvement occurs by dissemination throughout lymphatic drainage, mainly via the infundibulopelvic ligament. Extra-abdominal lymph node dissemination is uncommon and may be explained by the ability of ovarian cancer cells occasionally disseminate through atypical modes of drainage; infiltration of the lymphatic duct could be associated with direct involvement of mediastinal and supra-clavicular lymph nodes, without any involvement of the retroperitoneal lymph nodes [8]; dissemination to inguinal ipsilateral lymph nodes could be explained by spread throughout the lymph vessels, following the round ligament of uterus into the inguinal canal and inguinal region [9]. Hematogenous routes represent a rare mode of dissemination, occurring in 2-3% of cases only [5]. For this reason, distant parenchymal metastases are rare. Cheng et al. reported 20 cases of distant dissemination among 665 patients with serous epithelial ovarian cancer. Distant metastasis may occur anywhere, however the pleura, liver and lung represent the most commonly involved sites [3]. Interestingly, Ang *et al*. hypothesized that the exceptional involvement of the axillary and contralateral inguinal lymph nodes, apparently disconnected from the lymphatic network, could occur throughout the hematological path [5].

Whatever the genesis was, unusual lymph node metastases represent a clinical dilemma because diagnostic difficulties may arise. Demonstrating the exact origin of metastatic disease is important because prognosis and treatment may differ significantly. When axillary lymph nodes are involved, the differential diagnosis includes several neoplasms, especially breast and skin cancer. A complete physical examination may be useful to determine the cancer origin (breast mass, skin anomalies). Moreover, because neoplastic lymphadenomegaly may be the first evidence of metastatic dissemination of a preceding cancer disease, the oncologic anamnesis should be attentively considered. In the reported clinical case, with the exception of axillary lymphadenomegaly, the physical examination was not indicative of a neoplasm; clinical history resulted negative for oncologic disease, the patient was asymptomatic, and the instrumental investigation excluded breast cancer. The diagnosis was performed by cytological and pathologic findings (Figures 1 and 2). At cytological examination, the presence of psammoma bodies aroused the suspicion of adenocarcinoma of the ovary [10, 11]. Psammoma bodies are concentric lamellate calcified structures, usually associated with papillary neoplasms (thyroid, ovary) and meningioma. Although not pathognomonic, they are considered diagnostically helpful; one-third of serous cystadenocarcinomas of the ovary show psammoma bodies [12, 13]. The following immunohistochemical studies, performed on excised lymph nodes, showed staining of CA125 and WT1, two very sensitive markers for ovarian cancer. In contrast the marker for breast cancer cells (GCDFD-15) resulted negative [14]. Chest and abdominopelvic CT confirmed the presence of an ovarian neoplastic mass. Thus, our patient received a correct diagnosis and the appropriate therapy.

Conclusion

Axillary metastasis at the initial presentation of serous ovarian cancer is rare, but possible. This case underlines the need to consider ovarian carcinoma in the differential diagnosis of women with axillary lymphadenopathy, especially when mammography and mammary US examination exclude breast cancer. Because of the presence of

an atypical pattern (psammoma bodies, CA125, WT1), cytological and histological findings can be useful in indicating the correct diagnosis.

References

[1] Bonadonna G., Robustelli Della Cuna G.: "Medicina Oncologica. Neoplasie dell'ovaia". In: Masson Editor, 6th ed. Milano, 2003, 1089.

[2] Cheng B., Lu W., Xiaoyun W., YaXia C., Xie X.: "Extra-abdominal metastases from epithelial ovarian carcinoma. An analysis of 20 cases". *Int. J. Gynecol. Cancer,* 2009, *19,* 611.

[3] Cormio G., Rossi C., Cazzolla A., Resta L., Loverro G., Greco P., Selvaggi C.: "Distant metastases in ovarian carcinoma". *Int. J. Gynecol. Cancer*, 2003, *13,* 125.

[4] Skagias L., Ntinis A., Vasou O., Kondi-Pafiti A., Politi E.: "Ovarian carcinoma presenting with axillary lymph node metastasis: a case diagnosed by fine-needle aspiration and brief review of literature". *Diagn. Cytopathol*., 2008, *36*, 891.

[5] Ang D., Ng K.Y., Tan H.K., Chung A.Y., Yew B.S:, Lee V.K.: "Ovarian carcinoma presenting with isolated controlateral inguinal lymph node metastasis: a case report". *Ann. Acad. Med. Singapore,* 2007, *36,* 428.

[6] Hockstein S., Keh P., Lurain J.R., Fishman D.A.: "Ovarian carcinoma initially presenting as metastatic axillary lymphadenopathy". *Gynecol. Oncol.,* 1997, *65,* 543.

[7] Fanti S., Nanni C., Castellucci P., Farsad M., Rampin L., Gross M.D. *et al*.: "Supra-clavicular lymph node metastatic spread in patients with ovarian cancer discoded at 18F-FDG-PET/CT: an unusual finding". *Cancer Imaging*, 2006, *23*, 20.

[8] Aydin Ç., Unalp H.R., Baloğlu A., Inci A.G., Yiğit S., Yavuzcan A.: "Axillary lymph node metastasis from serous ovarian cancer: a case report and review of literature". *Arch. Gynecol. Obstet.,* 2009, *279,* 203.

[9] Benedetti-Panici P., Greggi S., Maneschi F., Scambia G., Amoroso M., Rabitti C., Mancuso S.: "Anatomical and pathological study of retroperitoneal nodes in epithelial ovarian cancer". *Gynecol. Oncol*., 1993, *51,* 150.

[10] Ferenczy A., Talens M., Zoghby M., Hussain S.S.: "Ultrastructural studies on the morphogenesis of psammoma bodies in ovarian serous neoplasia". *Cancer,* 1997, *36,* 2451.

[11] Recine M.A., Deavers M.T., Middleton L.P., Silva E.G., Malpica A.: "Serous carcinoma of the ovary and peritoneum with metastases to the breast and axillary lymph nodes: a potential pitfall". *Am. J. Surg. Pathol*., 2004, *28,* 1646.

[12] Das D.K.: "Psammoma body: a product of dystrophic calcification or of a biologically active process that aims al limiting the growth and spread of tumor?". *Diagn. Cytopathol*., 2009, *37,* 534.

[13] Parwani A.V., Chan T.Y., Ali S.Z.: "Significance of psammoma bodies in serous cavity fluid. A cytophathologic analysis". *Cancer,* 2004, *102,* 87.

[14] Monteagudo C., Merino M.J., La Porte N., Neumann R.D.: "Value of gross cystic disease fluid protein-15 in distinguishing metastatic breast carcinomas among poorly differentiated neoplasm involving the ovary". *Hum. Pathol*., 1991, *22,* 368.

Address reprint requests to:
F. CECCARELLI, M.D.
Department Surgery "P. Valdoni"
Via Fabrica di Roma, 33
01030 Carbognano (VT) Italy
e-mail: fra.ceccarelli@virgilio.it