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Case Report

Isolated late recurrence of epithelial ovarian cancer in cervical lymph nodes

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Summary

Ovarian cancer is the most common cause of gynecologic cancer death worldwide. Ninety-five percent of ovarian malignancies derive from epithelial cells. Dissemination of ovarian cancer is usually locoregional and occurs by invasion of adjacent viscera. Recurrence in the supradiaphragmatic lymph nodes is rare and only reported in a few cases in the literature. The authors describe the finding of a late metastasis in the cervical lymph nodes in a 56-year-old patient with ovarian serous cell carcinoma.

Key words: Chemotherapy; Computerized tomography; Neck metastasis; Ovarian cancer.

Introduction

Ovarian carcinoma is the most common cause of death from gynecologic cancer and the second most common gynecologic malignancy after endometrial cancer. It is well known that ovarian cancer tends to remain intra-abdominal even in advanced cases. The biology of ovarian carcinoma differs markedly from the classic hematogenously metastasizing tumors because ovarian cancer cells primarily disseminate within the peritoneal cavity and are only superficially invasive. Spread commonly occurs with invasion of neighboring organs, diffuse intraperitoneal implantation, and metastatic involvement of the aortic and pelvic lymph nodes. Lymphatic spread to the pelvic and para-aortic lymph nodes is commonly observed in the advanced stages [1]. Spread of cancer cells through the lymphatic channels of the diaphragm and through the retroperitoneal lymph nodes, can lead to dissemination above the diaphragm. Extra-abdominal lymph nodes are rarely involved [2, 3]. Supradiaphragmatic lymph node metastasis has been described only in very few cases in the literature. Herein, the authors report a case of ovarian serous carcinoma that had an isolated late recurrence in the cervical lymph nodes.

Case Report

This is a 56-year-old female patient who was diagnosed with Stage IIIC papillary serous ovarian carcinoma in October 2012. She underwent optimal cytoreductive surgery with total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAHBSO) and omentectomy in November 2012. The tumor extended into the fallopian tubes and peritubal tissues, into the serosal surface of the uterus, with extensive metastatic deposits in the omentum. CA-125 post-surgery was 63. She received six cycles of adjuvant chemotherapy with carboplatin/paclitaxel, one cycle every three weeks. She was followed up regularly and was tumor free until July 2017, when she presented to the oncology clinic with a large rapidly growing right cervical mass of two months duration. The mass was hard, fixed, and painless. CT scan of the neck, showed a large heterogeneously enhancing mass with multiple hypodense foci suggesting central necrosis measuring approximately 6×7×7.5 cm seen underneath the right sternocleidomastoid muscle compressing the adjacent vascular and soft tissue structures (Figure 1A). CT scan chest/abdomen/pelvis was free of disease. CA-125 was 5500. Ultrasound guided core biopsy was performed. Histologic examination revealed sheets of confluent nests and sheets of cohesive tumor cells (Figures 2A and 2B) denoting undifferentiated carcinoma. Immunohistochemistry staining for WT-1 showed diffuse strong nuclear staining of tumor cells (Figure 2C). PAX 8 showed moderate nuclear staining for tumor cells (Figure 2D). The clinical history, morphologic findings, along with the immunostaining results were highly specific for serous carcinoma of ovarian origin. The patient received two cycles of carboplatin/caclitaxel/bevacizumab and had almost complete clinical response. CT scan follow up after two cycles (50 days after the baseline CT scan) showed substantial resolution of the bulk of the right supraclavicular mass and substantial resolution of the mass-effect on the trachea and neck structures (Figure 1B). CA-125 after two cycles was 123. The plan was to continue same treatment for a total of four cycles followed by bevacizumab maintenance until intolerance or disease progression.

Discussion

Approximately 90% of malignant ovarian neoplasms are epithelial in origin; however, other less common pathologic

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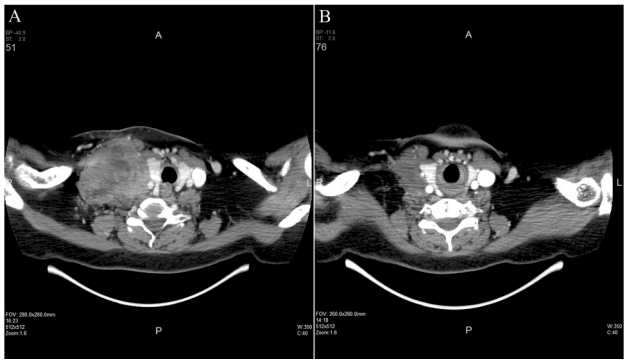

Figure 1. — Axial image of contrast enhanced CT scan of the neck showing. (A) Heterogeneously enhancing well defined right supraclavicular mass (6.5×5.5 cm), displacing the trachea to the left without airway obstruction. Displacement of the thyroid gland and right common carotid artery can be seen. (B) Substantial resolution of the bulk of the right supraclavicular mass and substantial resolution of the mass-effect on the trachea and neck structures.Residual ill-defined soft tissue mass (3.1×1.6 cm) can be seen.

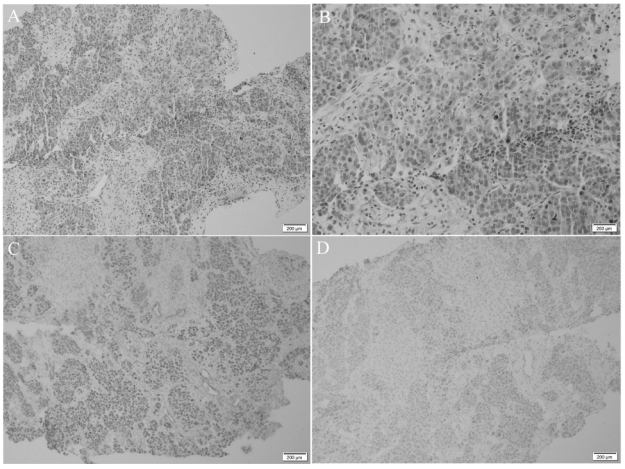

Figure 2. — Ultrasound guided core biopsy of neck tumor. (A) Low power view (×40) showing confluent nests and sheets of cohesive tumor cells in fibrotic background. (B) Medium power view (×100) showing tumor cells with amphophililc to eosinophilic cytoplasm, high nuclear to cytoplasmic ratio, moderate nuclear pleomorphism, and visible nucleoli. (C) WT-1 staining showing diffusely strong nuclear staining. (D) PAX 8 staining showing diffuse moderate nuclear staining.

subtypes may occur including malignant sex cord-stromal tumors, and malignant germ cell tumors [4]. Furthermore, epithelial ovarian cancers are subdivided into serous, endometrioid, clear cell, mucinous, and others [4]. The majority (80%) of patients with ovarian cancer are discovered at an advanced stage, with widely metastatic disease within the peritoneum.

Ovarian cancer mostly spread by local extension. Unlike most other cancers, hematogenous dissemination in ovarian cancer is very rare [1]. Lymphatic invasion to the pelvic and para-aortic lymph nodes is common in advanced disease. Three routes of lymphatic spread can occur in ovarian cancer. Primary ovarian lymphatic drainage occurs through the infundibulopelvic ligament to the para-aortic nodes. Another possibility is through the subovarian plexus in the broad ligament to the obturator and pelvic lymph nodes. The third route is through the round ligament to the external iliac and inguinal lymph nodes [3]. In advanced stages, lymph node involvement commonly occurs. According to a study by Ayhan *et al.*, lymphatic metastasis occurred in 71.3% of patients with Stage III-IV [5]. Supraclavicular lymph node metastasis can occur rarely by spread of cancerous cells through the retroperitoneal and diaphragmatic lymphatics. Isolated recurrence of ovarian cancer in the lymph nodes above the diaphragm is only reported in a few cases in the literature. Orris *et al.* [6] reported a case of a female patient who had recurrent ovarian cancer in the bilateral axillary lymph nodes. In another study, Patel *et al.* [7] reported three cases of ovarian cancer metastasis in neck, mediastinal, and axillary nodes many years after complete remission. Furthermore, Gontier *et al.* [8] reported an elderly woman with ovarian papillary serous adenocarcinoma who had been treated in the past by TAHBSO and omentectomy, followed by adjuvant chemotherapy. Surprisingly, after 16 years of follow-up, she presented with a metastatic lesion in the left inferior cervical area. Another case of left cervical area recurrence but with a shorter disease-free interval was reported by Mousawi *et al.* [3] The late recurrence with aggressive behavior of the tumor and the rapid response to treatment could be explained by acquired mutations in the cancer cells which become rapidly proliferative and then highly responsive to chemotherapy. To the present authors' knowledge, this patient represents a unique reported case of epithelial ovarian cancer with late isolated recurrence in the cervical lymph nodes, with aggressive tumor behavior, and excellent rapid response to treatment.

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