

Virchow's node metastasis: an unusual presentation of ovarian cancer

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Summary

Ovarian primaries of supraclavicular metastases are extremely rare. The present study reports the case of a 64-year-old female with a left supraclavicular mass without any other symptoms. After performing a fine needle aspiration biopsy for pathological examination and positron emission imaging, she was diagnosed with FIGO Stage IV high-grade serous epithelial ovarian carcinoma. After three cycles of chemotherapy with paclitaxel and carboplatin, complete response was achieved. There are only a few reports in literature that address patients with the initial symptom of left supraclavicular mass and final diagnosis of ovarian cancer. To the best of the authors' knowledge, this is the first report to describe the successful use of PET/CT to determine the primary site.

Key words: Supraclavicular lymph node metastasis; Ovarian cancer presentation; Positron emission tomography.

Introduction

Epithelial ovarian cancer (EOC) accounts for 3.6% of all cancers among women worldwide and is the leading cause of death from gynaecological cancer [1]. Approximately 75% of women present with advanced disease [2] and only 40% of the women diagnosed with EOC are expected to survive five years [3]. The most common pattern of spread includes peritoneal seeding, local invasion, and nodal metastasis especially in the pelvic and para-aortic nodal regions. Presentation with palpable extra-abdominal lymphadenopathy is distinctly uncommon. This case report addresses a patient with EOC presenting with left supraclavicular lymphadenopathy (Virchow's node) without any other symptoms.

Case Report

A 64-year old female presented to a general practitioner in December 2013 with a mass (approximately three cm in diameter) in the left supraclavicular fossa and was referred to an ear, nose, and throat specialist for diagnosis. There was no other palpable lymphadenopathy and no thyroid nodules. Fine needle aspiration biopsy of the supraclavicular lymph node was performed. Pathological examination showed metastatic adenocarcinoma including psammoma bodies, and ovarian, lung and gastrointestinal tumour were considered as the origin of the primary malignancy (Figures 1a, b). To determine the primary site, Fluorine-18 fluorodeoxyglucose positron emission (F-18 FDG PET/CT) imaging was applied. The Fluorine-18 FDG PET scan revealed hypermetabolic conglomerated supraclavicular lymph nodes (extending from cervical level III to supra / infra clavicular region), a hyper-

metabolic mass (48 x 37mm) located in the right adnexial region and para-aortic/paracaval hypermetabolic conglomerated lymph nodes suggestive of primary ovarian tumour and nodal metastases (Figures 2a, c, e, g).

The tumour marker CA 125 was raised (614 U/mL) (normal range: 0-35 U/mL) and the patient was referred to a gynaecological oncologist. Laparotomy was performed and a large mass, approximately five cm in diameter, was found in the right ovary. Total abdominal hysterectomy, bilateral salpingo-oophorectomy, omentectomy, and pelvic, para-aortic lymphadenectomy were applied. The pathology examination showed serous adenocarcinoma of the right ovary with positive para-aortic nodes. The final diagnosis was FIGO Stage IV high-grade serous epithelial ovarian carcinoma. Systemic chemotherapy with paclitaxel and carboplatin was initiated and after three cycles, no metabolically active residual tumour was detectable on FDG PET scan (Figures 2b, d, f) and reduction in the CA 125 level (11 U/mL) was achieved.

Discussion

Primary ovarian carcinoma presenting with metastatic supraclavicular lymphadenopathy is extremely rare; only a few cases have been reported in the literature [4, 5]. In 1999 Patel *et al.* reported five patients with supra-diaphragmatic metastatic disease due to serous EOC [6, 7]. In another study of 100 autopsies of ovarian carcinoma patients, extra-abdominal lymphadenopathy was seen to have occurred in the supraclavicular region in only 4% [8]. Subperitoneal lymph vessels and infradiaphragmatic nodes are connected with each other; peritoneal fluid is drained via diaphragmatic lymphatic vessels. This lymphatic route may explain supra-

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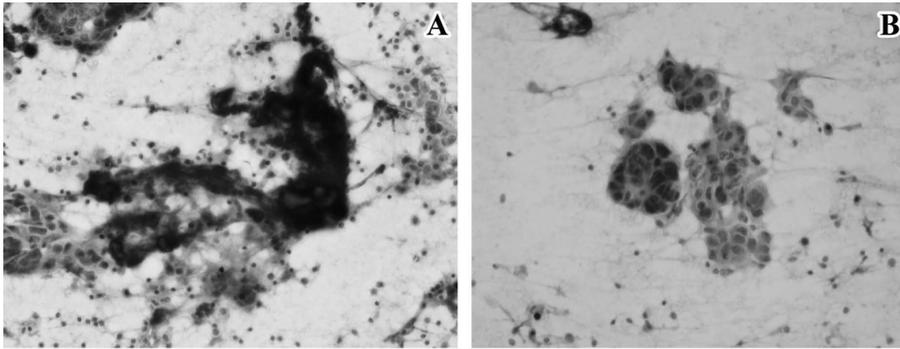


Figure 1. — A, B: atypical epithelial cells with papillary configuration and psammoma bodies in fine needle aspiration biopsy of supraclavicular lymph node (PAP, x200).

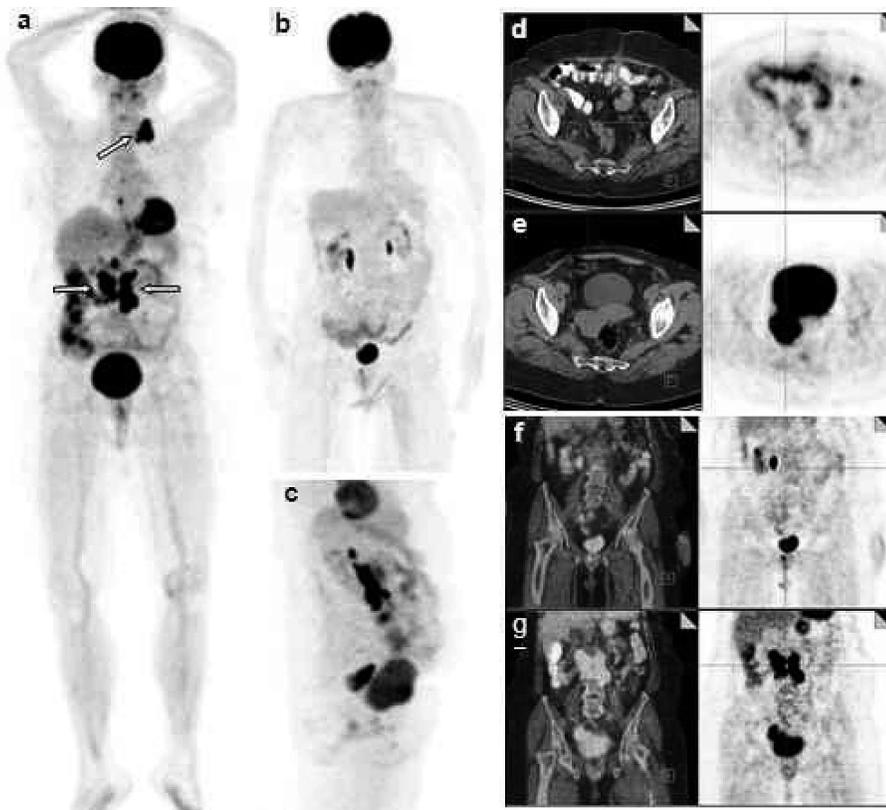


Figure 2. — Flourine-18 fluoro-deoxyglucose positron emission (F-18 FDG PET/CT) imaging before treatment, maximal intensity projection (MIP) images show hypermetabolic supraclavicular (SUV max = 23.08), paracaval, para-aortic (SUV max = 28.78) (a) and right adnexial mass (SUV max = 28.87); (c) (arrows), (e) axial images of pelvic computed tomography and PET (from left to right, respectively) showing adnexial hypermetabolic mass; (g) coronal images of abdominal fusion PET/CT and PET (from left to right, respectively) showing para-aortic, paracaval hypermetabolic conglomerated lymph nodes. After treatment, PET/CT images, showing no residual tumour; (b) MIP image; (d) axial pelvis; (e) coronal abdomen images.

diaphragmatic metastatic lymph nodes in ovarian cancer [7, 9]. In addition, the left supraclavicular lymph node (LSCLN), also known as Virchow's node, collects lymph through the thoracic duct which drains most areas of the body (especially the abdomen). Pelvic and para-aortic lymph nodes are involved in approximately 40-70% of EOC [10]. The malignant cells may spread through lymphatic vessels and finally the disease may reach the LSCLN.

This case report highlights an unexpected presentation of ovarian carcinoma with a supraclavicular mass, where there were no concomitant abdominal symptoms. It must not be forgotten that not only gastric cancer, head and neck cancer or lung cancer, but also ovarian cancer could present with supraclavicular lymphadenopathy without any other symp-

toms. This case also emphasises that F-18 FDG – PET CT as an established modality in oncological imaging, plays an important role in providing the diagnosis in cancer of unknown primary site.

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