EJGO European Journal of Gynaecological Oncology

Primary mediastinal choriocarcinoma with brain metastasis in a female patient

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Summary

Nongestational choriocarcinoma is very rare and carries a poor prognosis in female patients. In this report, the authors present a case of nongestational choriocarcinoma with brain metastasis in a female. A 58-year-old female with intermittent back pain was referred to a private hospital. On examination, a mediastinal tumor and a pancreatic tumor were detected. Endoscopic ultrasound-guided fine needle aspiration biopsy of the tumor was performed for histological evaluation. Pathological diagnosis was difficult because only a small amount of tissue was collected. Head MRI showed multiple metastatic tumors in the brain. The patient was diagnosed with primary mediastinal choriocarcinoma with brain metastasis. She was treated with one course of an etoposide, methotrexate, dactinomycin, cyclophosphamide, and vincristine regimen, but her general condition gradually deteriorated, and she died on day 41. Nongestational choriocarcinoma is drug resistant, whereas gestational choriocarcinoma has better chemotherapeutic sensitivity.

Key words: Nongestational choriocarcinoma; Mediastinal tumor.

Introduction

Nongestational choriocarcinoma is a high-grade malignancy and is especially rare in a female. The standard treatment for gestational choriocarcinoma is combination chemotherapy, most commonly in the form of etoposide, methotrexate, dactinomycin, cyclophosphamide, and vincristine (EMA/CO). While gestational choriocarcinoma has better chemotherapeutic sensitivity and an overall five-year survival rate is over 80%, nongestational choriocarcinoma is drug resistant [1]. The authors report a case of primary mediastinal choriocarcinoma.

Case Report

A 58-year-old woman (gravida 3, para 1) with intermittent back pain, trachyphonia, and a dry cough was referred to a private hospital. She had a history of ectopic pregnancy and had undergone unilateral salpingectomy when she was 30-years-old; her last pregnancy had been more than twenty years earlier. She had smoked 20 cigarettes per day for 30 years.

Chest X-ray showed evidence of a large mass beside the aorta, so the patient was referred to the present hospital. Her serum human chorionic gonadotropin (hCG) level was 44,319 mIU/ml, and her serum levels of α-feto-protein and neuron-specific enolase, a gastrin discharge peptide precursor, were within normal limits. Thoracoabdominal CT showed a large mass in the pulmonary hilum, multiple round nodules in the lung fields, and small masses in the body and tail of the pancreas. The authors suspected pulmonary and pancreatic metastasis (Figure 1).

The authors performed endoscopic ultrasound-guided fine needle aspiration biopsy of the pancreatic and mediastinal tumors. Pathological examination of the mediastinal specimen revealed atypical cells and necrosis. Examination of the pancreatic tumor revealed sheets of atypical cells composed of syncytiotrophoblasts and cytotrophoblasts. There were no other malignant cells suggestive of a germ cell tumor or a malignant epithelial tumor. Immunohistochemically, positive staining for hCG, CAM5.2, and human placental lactogen (hPL) was observed (Figure 2).

Pelvic MRI showed no tumor in the uterus or bilateral ovaries. Head MRI showed multiple metastatic tumors with an edematous region in the brain. The patient was diagnosed with primary mediastinal choriocarcinoma.

The patient was treated with one course of the EMA/CO regimen. Immediately prior to chemotherapy, her serum hCG level was 21,9393.3 mIU/ml; after chemotherapy, the level was 20,5726.5 mIU/ml. Thoracoabdominal CT showed enlargement of the mediastinal mass, and head MRI showed a new metastatic lesion, representing progressive disease. Hepatic dysfunction and poor performance status made it impossible to administer a second course of chemotherapy. Palliative whole brain radiotherapy was performed (30 Gy/10 fractions), but the patient's general condition gradually deteriorated, and she died on day 41.

Discussion

Choriocarcinoma is divided into nongestational and gestational subtypes. It can be difficult to make this determination of origin, but the distinction is extremely important because the subtypes differ in their sensitivity to chemotherapy.

Nongestational choriocarcinoma can arise from germ cells in the gonads or in extragonadal midline locations; it is classified as a type of germ cell tumor. Rarely, choriocarcinoma may occur in parenchymal organs, such as the lung and gastrointestinal tract, in association with a poorly differentiated carcinoma [2].

Revised manuscript accepted for publication July 2, 2015

Eur. J. Gynaecol. Oncol. - ISSN: 0392-2936
XXXVII, n. 2, 2016
doi: 10.12892/ejgo2833.2016

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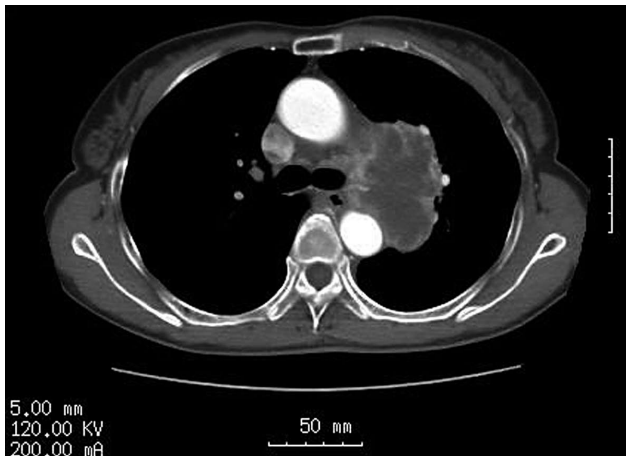

Figure 1. — Computed tomography shows a mass shadow in the middle mediastinum.

In this case, a diagnosis of nongestational choriocarcinoma was made because the patient was postmenopausal and had not been pregnant for more than 20 years. The main lesion was in the mediastinum, and there was no tumor in the pelvic cavity.

Adequate tissue collection is important in the diagnosis of choriocarcinoma but can be difficult in cases with poor performance status, such as in the present case. In this case, tissue was obtained from a needle aspiration biopsy, but pathological diagnosis was difficult because only a small amount of tissue was collected. Accordingly, the possibility of non-pure choriocarcinoma cannot be excluded.

The standard treatment for female mediastinal choriocarcinoma has not been established. The International Germ Cell Cancer Collaborative Group recommends four courses of bleomycin, etoposide, and cisplatin therapy as a treatment for extragonadal germ cell tumors, and this protocol has been used in some case reports [3]. In the present case, the patient's performance status had worsened prior to treatment, and treatment-related complications would likely have made it difficult to accomplish the bleomycin, etoposide, and cisplatin regimen. The patient's symptoms probably represented a severe infection related to febrile neutropenia and a pulmonary disorder (interstitial pneumonia) associated with bleomycin, which is why this regimen was avoided.

The EMA/CO regimen is often chosen as the first treatment for gestational choriocarcinoma. In a previous report, the complete remission rate was 78%, and even in the presence of brain metastasis, the complete remission rate was 50–70%. Because the present patient had brain metastasis, methotrexate was chosen for its good penetration into the central nervous system [4].

Mediastinal nongestational choriocarcinoma is extremely rare, and the ideal diagnostic and therapeutic regimens have not been established. Additional data from further cases are needed.

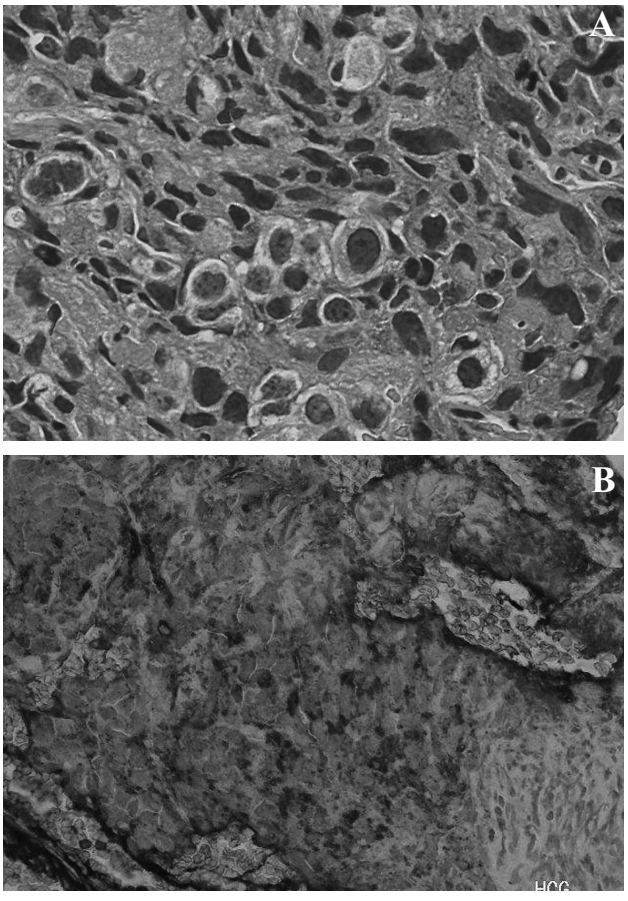

Figure 2. — A. Biopsy specimen from the pancreatic tumor demonstrating syncytiotrophoblasts and cytotrophoblasts (hematoxylin and eosin, ×400). B. Immunohistochemical staining for human chorionic gonadotropin (hCG) was performed on the pancreatic tumor specimen, revealing positively stained syncytiotrophoblasts (immunohistochemical staining for hCG, ×400).

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