Pure Non-Gestational Choriocarcinoma: A Case Report

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Abstract- Choriocarcinoma usually occurs in the uterine body. Non-gestational choriocarcinoma is an extremely rare malignant tumor with a poor prognosis and is difficult to distinguish from gestational choriocarcinoma. In this case report, we describe a case of pure non-gestational choriocarcinoma. A 35-year-old woman was referred to our academic hospital with a pathology report of non-gestational choriocarcinoma of right ovarian cystectomy. Since the diagnosis did not coordinate with the patient's symptoms, PCR amplifying, and genomic DNA were performed. Finally, the diagnosis of pure non-gestational choriocarcinoma was confirmed. In follow-up, lung and brain metastasis was determined. Brain radiotherapy and BEP regimen chemotherapy were prescribed. However, the response was not appropriate, so she is currently undergoing palliative chemotherapy. Stage IV primary pure ovarian choriocarcinoma is a very aggressive tumor. Regardless of the nature of the tumor, the response to the treatment may not be good. Indeed the treatment of each case should be individualized.

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Keywords: Choriocarcinoma; Non-gestational choriocarcinoma; Chemotherapy

Introduction

Choriocarcinoma usually occurs in the uterine body. Choriocarcinoma is divided into gestational and non-gestational. Non-gestational choriocarcinoma that arises in the ovaries is accountable for less than 1% of all germ cell tumors and is frequently associated with other germ cell tumors. There are less than one hundred cases of non-gestational choriocarcinoma in the literature and most of them have been reported in adolescent women (1,2). Pure non-gestational choriocarcinoma is much rarer than the mixed type (3). Most cases were seen in the pre-pubescent and occasionally in postmenopausal women (4). It is important to distinguish pure non-gestational choriocarcinoma from gestational choriocarcinoma of the ovary and other carcinomas because of its high-grade malignancy and poor prognosis (Kojima, 2008). For patients of childbearing age, this distinction is more difficult.

Clinical manifestation of this malignancy is non-specific and includes abdominal pain, vaginal bleeding, pelvic masses, and high β-hCG levels. Few cases may exhibit endocrine abnormalities and precocious puberty. Non-gestational choriocarcinoma of the ovary is usually misdiagnosed with ectopic pregnancy and ovarian mass (5,6). The diagnostic criteria of non-gestational choriocarcinoma were first described by Saito and colleagues as follows: absence of disease in the uterine cavity, pathologic confirmation of the disease, exclusion of molar pregnancy, and exclusion of coexistence of intrauterine pregnancy (7). However, it is difficult to distinguish between gestational and non-gestational choriocarcinoma due to the same clinical symptoms and histologic presentation (8). DNA fragment analysis using PCR can be utilized in distinguishing between these two malignancies.

This study aimed to describe a case of pure non-gestational choriocarcinoma.

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Case Report

A 35-year-old multigravid woman was admitted with a history of abdominal pain without other gastrointestinal or urinary symptoms. Based on pelvic ultrasound, a right ovarian mass of 61×46 mm with a thick septum was diagnosed; a cystectomy was performed. Due to the presence of trophoblastic cells without villi in the pathology report, the diagnosis was primary gestational choriocarcinoma without evidence of other germ cell tumors. She was referred to our academic hospital in June 2018. Endometrial curettage reported secretory endometrium. Furthermore, a DNA test was performed to the distinction of non-gestational choriocarcinoma from gestational choriocarcinoma. Polymorphism evaluation and PCR amplifying short tandem repeats of the patient and her husband, and genomic DNA from the tumor was analyzed by electrophoresis and showed the absence of paternal DNA.

Finally, the definitive diagnosis was non-gestational choriocarcinoma of the ovary (Figure 1,2). The tumor markers of LDH and α-FP were at normal levels, but β-HCG titer was 275000 IU/L. No metastases in abdominopelvic ultrasonography were detected. However, Chest X-ray showed multiple nodular lesions consistent with metastasis (Figure 3). Moreover, brain MRI showed multiple small foci in frontal and occipital lobes with enhancement and peripheral edema without hemorrhage suggestive of metastases (Figure 4). Finally, stage IV primary pure non-gestational ovarian choriocarcinoma was diagnosed. The patient received 20 sessions of brain radiotherapy and 4 courses of BEP (Bleomycin, Etoposied, and Cisplatien) chemotherapy. At the end of the treatment, due to the unfavorable level of β-HCG titer, metastases work-up was again performed. The spiral CT scan showed multiple small nodular lesions, so the chemotherapy regimen was changed to VEIP (Vincristine, Etoposide Ifosfamied, and Cisplatien) (Figure 5). The response to this treatment was inadequate; therefore, a multidisciplinary team was formed. TC (Carboplatin and Taxol) was decided to be administered as a palliative chemotherapy regimen.

Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

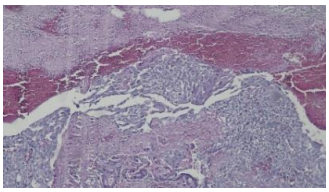

Figure 1. The histologic finding showed the proliferation of cytotrophoblasts mixed with synsytiotrophoblasts in a hemorrhagic background HE stain x100

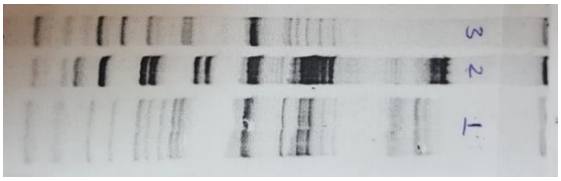

Figure 2. Fragment analysis of Maternal (1), Paternal (2), and Tissue (3) DNA showing the absence of paternal DNA in the choriocarcinoma tissue

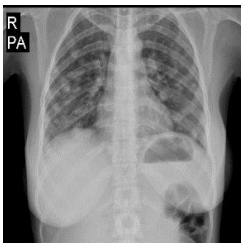

Figure 3. Chest X-Ray showing bilateral multiple variable size soft tissue nodules in the lungs

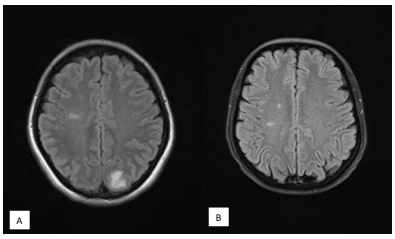

Figure 4. Brain MRI axial FLAIR images showed Abnormal high signal intensity in the left high parietal lobe (A) due to a metastatic lesion which disappeared after treatment (B)

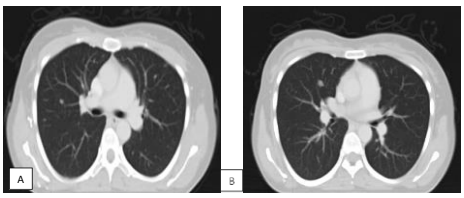

Figure 5. Axial Chest CT scan showed a small round nodule in the right upper lobe due to metastases (A, B)

Discussion

Gestational and non-gestational choriocarcinoma are difficult to distinguish due to the same clinical symptoms and histologic presentation. However; they are just diagnosed after surgery. A definitive diagnosis is based on DNA polymorphism analysis similar to the current case.

Because of non-specific clinical manifestations of this malignancy, it is usually misdiagnosed with ovarian tumors and cysts or ectopic pregnancy. Most cases are diagnosed by post-surgical pathological analysis (5). In our case also, it was surgically diagnosed as an ovarian mass.

Non-gestational choriocarcinoma is more malignant with a higher tendency to metastasis. Since the treatment is different, it is necessary to determine the gestational and non-gestational choriocarcinoma (9).

Fisher et al. first described a solution by DNA polymorphism analysis (10). Similar to our case, they compared the DNA of both parents with that of tumor tissue and if the tumor tissue did not contain paternal DNA, then non-gestational choriocarcinoma was diagnosed (10). In the current case, polymorphism evaluation and PCR amplifying Short Tandem Repeats the patient and her husband and genomic DNA from the tumor analyzed by electrophoresis showed the absence of paternal DNA; so the diagnosis of pure non-gestational choriocarcinoma was confirmed. Treatment of choriocarcinoma is surgery and combination chemotherapy is suggested while surgery alone does not have a favorable prognosis (around 25%) (11).

Unlike gestational choriocarcinoma, which is usually treated with Methotrexate, Actinomycin or EMA/CO (Etoposide, Methotrexate, Actinomycin Cyclophosphamide, Oncovine) regimen, non-gestational choriocarcinoma requires combination therapy with regimens such as BEP (Bleomycin, Etoposide, Cisplatinum), VAC (Vincristine, Actinomycin D, Clophosphamide) (12,13).

However; response to treatment in the non-gestational group is not as good as gestational choriocarcinoma. Non-gestational choriocarcinoma usually invades the adjacent tissues and occasionally metastasizes to the lung and brain. However, the prognosis is good (around 80%) (14). Although in the present case, despite the appropriate treatment and consultation with an experienced team and no possibility of surgery due to several areas of the tumor's involvement, a palliative treatment was prescribed for the patient.

Stage IV primary pure ovarian choriocarcinoma is a very aggressive tumor. Regardless of the nature of the tumor, the response to treatment may not be good. Indeed the treatment of each case should be individualized.

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