Metastatic choriocarcinoma of the breast: report of a rare case and review of literature

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Abstract

Choriocarcinoma (CC) is a malignant tumor of trophoblastic tissue composed of cytotrophoblastic, intermediate and syncytiotrophoblast cells. Choriocarcinoma predominantly has a gestational origin. The non-gestational type is said to arise from the gonads and pluripotent germ cells. It is a rapidly invasive tumor and metastasizes widely, but it has a good response to chemotherapy once identified. Metastatic choriocarcinoma are extremely rare in the breast. Choriocarcinomatous differentiation has also been described in neoplasm arising from many organs including colon, stomach, rectum, urinary bladder and lung. In this case report, the history, physical examination, laboratory findings and pathological findings of metastatic choriocarcinoma of the breast in a 24-year-old female are described and previous literature about metastatic choriocarcinoma is reviewed.

Introduction

Choriocarcinoma (CC) constitutes less than 10% of all gynecological malignancies. It is preceded by several conditions, 50% arise in hydatidiform mole, 25% in previous abortions, about 22% in normal pregnancies and the remaining occur in ectopic pregnancies. Metastases are found in the lung (80%), vagina (30%), pelvis (20%), brain (10%), and liver (10%). Metastasis to the kidneys, gastrointestinal tract and spleen are not common. The breast is also an uncommon site of extra-gestational choriocarcinoma.[1,2]

Documented case reports of metastatic choriocarcinoma to the breast are few.[3-5] In imaging studies, choriocarcinoma of the breast is usually a well-circumscribed mass with no architectural distortion and calcifications. The mass is mostly solid but can have cystic areas. It is a high-grade disease with a poor prognosis.

In this case report, the history, physical examination, laboratory findings and pathological findings of breast choriocarcinoma in a 24-year-old female are described and previous literatures about choriocarcinoma in the breast are reviewed.

Case Report

A 24-year-old female para 2 with 2 living children, who was referred from a peripheral hospital with a six-month history of irregular menstrual vaginal bleeding following the last delivery and weight loss, two months history of a progressive rapidly growing palpable mobile non-tender mass in the upper outer quadrant of the right breast. She had two full-term pregnancies with the last child birth six months prior to presentation. There was no previous history of hydatidiform moles or choriocarcinoma. Routine blood tests including urea, electrolytes and full blood counts revealed elevated urea and creatinine with severe anemia. The serum βhCG level was markedly elevated. The abdomino-pelvic ultrasound and X-ray were negative for metastases. Breast palpation revealed firm, non-tender mass with no nipple retraction. On imaging, high-resolution ultrasonography showed an ill-defined hypoechoic mass on the right breast with suspicion for malignancy. The patient underwent core needle breast biopsy which demonstrated fragmented greyish-white friable tissue. Microscopic examination revealed infiltrating large-sized trophoblastic cells with hyperchromatic markedly pleomorphic nuclei and increased nuclear chromatin with moderate eosinophilic cytoplasm. Areas of necrosis, multinucleated giant cells and hemorrhage were also seen (Figures 1 and 2). This finding was similar to choriocarcinoma originating from the genital tract.

One week after admission, before the commencement of combination chemotherapy, the patient died, most likely due to multiple metastases.

Discussion

Choriocarcinoma is a malignant gestational trophoblastic disease arising from anaplastic trophoblastic tissue.[6] The tumor consists of cytotrophoblastic, intermediate and syncytiotrophoblastic cells and usually has a gestational origin. The non-gestational type of CC is said to originate from the pluripotent germ cells and the gonads.[7] Choriocarcinoma mostly metastasizes through the hematogenous route and are found in the lungs (80%), vagina (30%), pelvis (20%), liver and brain (10%). Other rare sites are the gastrointestinal tract, spleen and kidney, and no organ is immune from choriocarcinoma metastases.[1,2]

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Choriocarcinoma was reported two weeks after a full-term normal delivery in a 24 years old female who presented with severe vaginal bleeding 10 days after delivery and elevated hCG titre.[8] Some other studies have also documented early onset metastatic choriocarcinoma of 3 weeks, 11 weeks and 6 months after delivery.[9,10] Few cases of choriocarcinoma have been reported after a long period from antecedent pregnancy.[11,12]

Patients with choriocarcinoma can present with different clinical manifestations depending on the site affected. They may present with gastrointestinal bleeding (18.43%), cardiopulmonary symptoms (20.66%) or central nervous system complaints (17.67%).[6] Abnormal uterine bleeding is said to be the commonest gynecological presentation in women with choriocar-

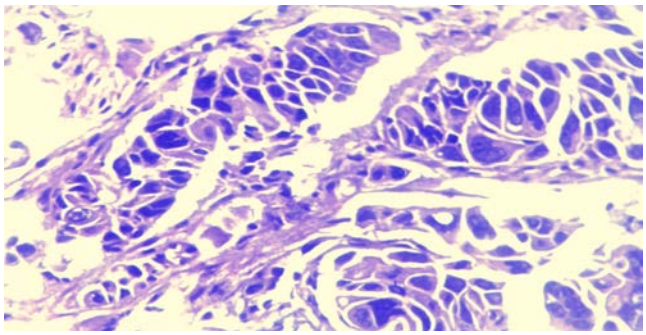

Figure 1. (H&EX40) Metastatic choriocarcinoma showing infiltrating sheets of malignant trophoblastic cells, multinucleated giant cells, areas of necrosis and haemorrhage.

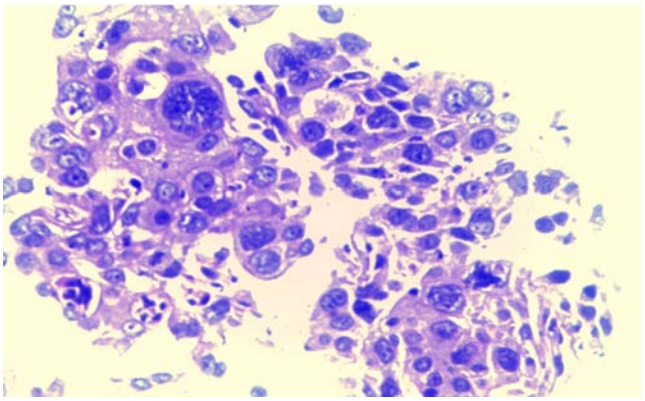

Figure 2. (H&EX100) Metastatic choriocarcinoma showing infiltrating sheets of malignant trophoblastic cells, multinucleated giant cells, areas of necrosis and haemorrhage.

cinoma, in which the bleeding tends to be irregular and persist for days or months after delivery.[13] In this study, the patient also presented with irregular vaginal bleeding for 6 months (since after delivery), which is common in cases with choriocarcinoma.

Based on the available literature, the most common sources of breast metastases are lymphomas, melanomas, rhabdomyosarcomas, lung tumors and ovarian tumors.[14] Metastatic choriocarcinoma to the breast is not common, with an incidence ranging from 0.5% to 6.6%.[15] Patients with metastatic breast choriocarcinoma usually present with a history of previous choriocarcinoma or a hydatidiform mole. Those patients mostly present with a palpable breast lump, axillary lymphadenopathy and raised beta-hCG level.[15]

Metastatic breast choriocarcinoma is said to demonstrate similar features with most malignant breast tumors radiologically. It shows a high-density mass with obscured margins on mammography devoid of spiculations and calcifications, which was not requested when this patient presented. Mixed solid and cystic hypoechoic mass with lobulated margins is usually seen on ultrasonography.

Even though, chemotherapy is considered the mainstay of treatment of gestational choriocarcinoma with a good prognosis, most cases of metastatic choriocarcinoma of the breast have an aggressive clinical course with poor outcomes. Therefore, early diagnosis and prompt management are necessary.

Conclusions

Choriocarcinoma is a highly aggressive tumor which should be diagnosed and treated as soon as possible because of its tendency to grow and metastasize rapidly. Prompt diagnosis and early treatment of metastatic choriocarcinoma using chemotherapy and/or radiotherapy produce long-term survival rates of as high as 80%.

References

1. Erhan Y, Ozdemir N, Zekioglu O, et al. Breast carcinoma with Choriocarcinomatous features: case report and review of the literature. Breast J 2002;8:244-8.
2. Shukla R, Pooja B, Radhika S, et al. Fine-needle aspiration cytology of extramammary neoplasms metastatic to the breast. Diagn Cytopathol 2005;32:193-7.
3. Kalra N, Ojili V, Gulati M, et al. Metastatic choriocarcinoma to the breast: appearance on mammography and Doppler sonography. AJR Am J Roentgenol 2005;184:S53-5.
4. Hemati S, Esnaashari O, Mohajeri M, Sarvizadeh M. Choriocarcinoma of the breast; a case report and review of literatures. J Res Med Sci 2011;16:707-11.
5. Murata T, Ihara S, Nakayama T, et al. Breast cancer with Choriocarcinomatous features: a case report with cytopathologic details. Pathol Int 1999;49:816-9.
6. Mangla M, Singla D, Kaur H, Sharma S. Unusual clinical presentations of choriocarcinoma: A systemic review of case reports. Taiwan J Obstet Gynecol 2017;56:1-8.
7. Cole LA. Chapter 4.5 - hCG and gestational trophoblastic disease: Hydatidiform mole and choriocarcinoma. 100 years of Human Chorionic Gonadotropin. 2020:283-91.
8. Ghaemmaghami F, Karimi Zarchi M. Early onset of metastatic gestational trophoblastic disease after full-term pregnancy. Int J Biomed Sci 2008;4:74-7.
9. Flam F. Choriocarcinoma in the term placenta: a difficult diagnosis. Eur J Gynaecol Oncol 1996;17:510-1.
10. Feltmate CM, Genest DR, Wise I, et al. Placental site trophoblastic tumor: a 17-year experience at the New England Trophoblastic Disease Center. Gynecol Oncol 2001;82:415-9.
11. Mukherjee U, Thakur V, Katiya D, et al. Uterine choriocarcinoma in a postmenopausal woman. Medical Oncology 2006;23:301-4.
12. O'Neill CJ, Houghton F, Clarke J, McCluggage WG. Uterine gestational choriocarcinoma developing after a long latent period in a postmenopausal woman: the value of DNA polymorphism studies. Int J Surg Pathol 2008;16:226-9.
13. Yousefi Z, Mottaghi M, Rezaei A, Ghasemian S. Abnormal presentation of choriocarcinoma and literature review. Int J Cancer Manag 2016;9:e4389.
14. Bartella L, Kaye J, Perry NM, et al. Metastases to the breast revisited: radiological-histopathological correlation. Clin Radiol 2003;58:524-31.
15. Jaiswal A, Gupta P, Lal N, Parveen N. Breast carcinoma with Choriocarcinomatous features. Int J Med Sci Clin Invent 2018;5:4082-5.