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# Stage IV choriocarcinoma in a 47-year-old-woman 12 years after her last known pregnancy: A case report

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ABSTRACT

*Introduction:* Choriocarcinoma is a rare, invasive, gestational trophoblastic disease that secretes high levels of beta human chorionic gonadotropin (BhCG) and is thought to affect 1 in 40,000 pregnancies. We present a rare case of metastatic choriocarcinoma.
*Case presentation:* A 47-year-old woman presented with shortness of breath, anemia and an elevated serum BhCG level. Her most recent known pregnancy was 12 years previously. Following investigation, she was found to have FIGO stage IV choriocarcinoma with brain metastasis, despite having not experienced any abnormal vaginal bleeding. She was treated with chemotherapy; her treatment was complicated by neutropenic sepsis and a visceral perforation. The patient went into remission and received long-term follow-up.
*Discussion:* It is unclear in this case whether the disease occurred following a pregnancy 12 years previously and was never detected or whether it was due to a recent unknown pregnancy or a non-gestational cause. Increased awareness of this condition will allow timely diagnosis, prompt management and improved prognosis. Following diagnosis, determination of BhCG levels is essential for monitoring and guiding treatment and a multidisciplinary approach should be taken towards care.


## 1. Introduction

Choriocarcinoma is a highly vascular, anaplastic, malignant neoplasm. It is part of a group of conditions in which abnormal trophoblastic cell proliferation occurs, known collectively as gestational trophoblastic neoplasias (GTN). Other types of GTN include invasive mole, placental site trophoblastic tumor and epithelioid trophoblastic tumor [1].

Choriocarcinoma is the most aggressive type of GTN. It consists of cytotrophoblasts and syncytiotrophoblasts without villi. Its pathogenesis is unknown; however, it is considered that cytotrophoblastic stem cells undergo malignant transformation to function as trophoblasts and syncytiotrophoblasts and therefore invade tissue [2]. There is a lack of data on the prevalence of choriocarcinoma but it is estimated at around 1 in 20,000–40,000 pregnancies [3,4].

Patients with choriocarcinoma typically present with symptoms of abnormal vaginal bleeding, pelvic pain and pressure. However, additional symptoms may be present such as hemoptysis, dyspnea, chest pain or melena if metastatic disease has occurred [5,6]. Metastases are most commonly found in the vagina and lungs but can also be found in the central nervous system, liver, kidneys and gastrointestinal tract. The rapid spread of this disease and its propensity to cause hemorrhage makes this diagnosis a medical emergency [7].

Primary investigation consists of determination of the serum level of human chorionic gonadotropin (BhCG), which is normally significantly elevated. The initial imaging modality is ultrasound, which commonly shows a heterogenous mass enlarging the uterus with areas of necrosis and hemorrhage. All patients should also be screened for metastatic disease with a chest radiograph [8]. Tissue biopsies are rarely completed for histological diagnosis as tissue is extremely vascular and hemorrhage may occur. However, if there is question about the diagnosis of choriocarcinoma it should always be considered and care taken as risks of bleeding are high [9].

Fortunately, most women who are found to have choriocarcinoma can be cured; treatment with a combination of chemotherapy agents such as etoposide, methotrexate, actinomycin D, cyclophosphamide and vincristine (EMA-CO) is found to be very effective at achieving remission. In patients found to have brain metastasis, radiotherapy may be utilised. Those with choriocarcinoma resistant to chemotherapy will be considered for surgical management. Prognosis depends on the extent of disease at the time of diagnosis and treatment; timely diagnosis and management are essential in obtaining a good prognosis [5,10].

In this case report, a patient presented with metastatic choriocarcinoma 12 years after her last known pregnancy. We reiterate the importance of early diagnosis resulting in improved prognosis and outcome for patients.

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## 2. Case Presentation

In this report we describe an unusual case of FIGO stage IV choriocarcinoma with brain metastasis. A 47-year-old woman presented to the hospital with anemia, shortness of breath, right upper quadrant pain and feeling generally unwell. This case was unusual as the patient did not demonstrate any symptoms of abnormal vaginal bleeding, irregular periods, lower abdominal pain and, most significantly, her last known pregnancy was 12 years previously. Her obstetric history consisted of two normal vaginal deliveries with no complications and no known history of GTN; however, placental histopathology was not obtained at the time as the deliveries were normal and there was no indication. At the time of her pregnancy 12 years previously, she had completed her family and she had been using barrier contraception since. During this time she had not knowingly become pregnant. Gynecological history was unremarkable, consisting of regular periods, with her last menstrual period occurring 3 weeks prior to admission. The patient claimed to have no significant past medical history or family history.

Initial investigations identified an elevated BhCG level of 15,700mIU/ml, hemoglobin of 77 g/L and abnormal liver function tests. Further investigation with an ultrasound of the abdomen identified a hyperechoic liver and multiple enlarged lymph nodes throughout the abdomen, providing a diagnosis of metastatic disease with an unknown primary and no intrauterine or ectopic pregnancy. CT imaging of the abdomen, chest and pelvis, carried out in an attempt to identify the unknown primary, revealed further metastatic disease in the lungs but no primary disease was identified (see Fig. 1).

As a diagnosis was challenging and the oncology team were uncertain whether the patient had small cell lung cancer, lymphoma or choriocarcinoma, a biopsy of the liver was taken, which diagnosed high-grade choriocarcinoma. A subsequent MRI scan of the brain for screening purposes identified cerebral metastasis (see Fig. 2).

A multidisciplinary approach to treatment consisted of a modified multi-agent chemotherapy regimen of EMA-CO (etoposide, methotrexate, actinomycin D, cyclophosphamide and vincristine) with higher doses of methotrexate to ensure penetration of the cerebrospinal fluid and concurrent radiotherapy of the brain. Worsening abdominal pain during treatment warranted further investigations. A CT scan of the abdomen and pelvis identified perforation of the jejunum secondary to metastatic disease. The surgical team reviewed the case immediately and monitored progress with conservative management. Chemotherapy treatment was continued in a timely manner due to the excellent teamwork between departments, until the patient developed neutropenic sepsis, which resulted in a three-week delay in chemotherapy administration, to allow time for her to recover. This was challenging for the oncology team as delays in treatment can be associated with less optimal outcomes. BhCG was monitored weekly and remission was achieved. The patient was followed up and monitored.

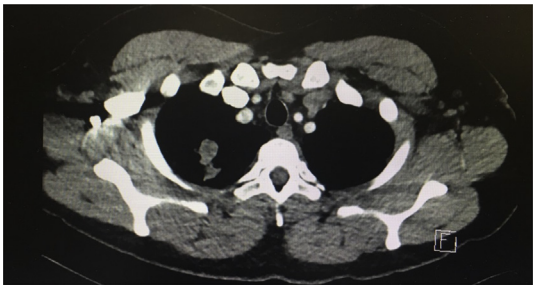

**Fig. 1.** CT scan of the abdomen and pelvis demonstrating a lobulated soft-tissue mass in the right lung apex, likely neoplastic.

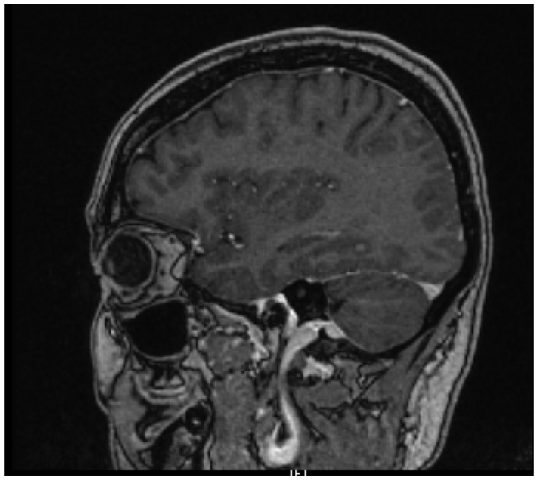

**Fig. 2.** Brain MRI. Three millimeter enhancing focus associated with internal microhemorrhages at the right temporal lobe suspicious for cerebral metastasis.

## 3. Discussion

Gestational trophoblastic neoplasm etiology consists of 50% GTN due to molar pregnancies, 25% miscarriages or ectopic pregnancies and 25% term or pre-term pregnancy [3]. Following miscarriage, ectopic or molar pregnancy, women are followed up by services such as early pregnancy assessment services (EPAS) or general practitioners (GPs) to monitor BhCG to a level of 0, enabling timely diagnosis of GTN [11]. Unfortunately, women with choriocarcinoma following a normal or preterm delivery potentially go undiagnosed as their BhCG level is not routinely monitored following delivery and thus the disease can progress unchecked. This report reviews an unusual case of choriocarcinoma occurring 12 years after the patient's last known pregnancy, and the patient had no vaginal bleeding. It is unclear whether the source of the choriocarcinoma was from the pregnancy 12 years previously, a new unknown unidentified pregnancy or another source entirely. The literature advises that early diagnosis and treatment can significantly improve the prognosis of this disease. In this case, the emergency department quickly involved the gynecology team, who worked together with the emergency physicians and the oncology team to provide the best care possible for this patient [3,7]. Unfortunately, in this case brain metastases were already present at time of diagnosis which worsened the long-term prognosis of the choriocarcinoma. This highlights the importance of increasing awareness of the disease on the part of GPs, midwives and emergency medicine staff, as they are most likely to receive the first presentations of patients with choriocarcinoma, to ensure timely diagnosis, which will improve prognosis and reduce morbidity [12]. Following recognition of the disease process, a multidisciplinary approach should be taken towards care, involving gynecology, gynecological oncology, oncology, interventional radiology, social work, specialist nurses and physiotherapists [13].

### Contributors

Both authors contributed to the conception, drafting, review and revision of the manuscript. Both authors saw and approved the final version of the paper and take full responsibility for the work.

### Conflict of Interest

The authors declare they have no conflict of interest regarding the publication of this case report.

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## Patient Consent

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## Provenance and Peer Review

This case report was peer reviewed.

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