



■ Case Report

Gestational Choriocarcinoma with Metastasis to an Ectopic Kidney in a Patient Presenting with Hemiplegia

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ABSTRACT

A case of gestational choriocarcinoma with widespread metastasis in a 29-year old woman, with right ectopic kidney is presented here. The clinical features, pathology and investigations with emphasis on radiological findings were discussed. The unusual metastasis to an ectopic kidney that led to haemorrhage that eventually resulted in her death was also highlighted.

Keywords: Choriocarcinoma, ectopic kidney, metastasis

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Introduction

Choriocarcinoma is a germ cell tumour containing malignant trophoblastic cells secreting beta human chorionic gonadotropin (HCG).^{1,2} Choriocarcinoma could be gestational and non gestational in origin. Most choriocarcinoma are however of gestational origin.² Fifty percent of gestational choriocarcinoma arise from complete hydatiform mole, additional 25% can arise after normal pregnancy and 25% follow spontaneous abortion or ectopic pregnancy.^{2,3} Gestational choriocarcinoma invades and metastasizes early and is often widespread at the time of diagnosis.³

Radiological evaluation is often helpful in diagnosing gestational choriocarcinoma and in assessing patients for metastasis.³ Women in

their twenties and thirties are mostly affected. It is one of the rare human malignancies that is curable even with widespread metastasis.⁴

A case of gestational choriocarcinoma with widespread metastasis in a patient with right ectopic (pelvic) kidney is presented here, to highlight the unusual presentation and uncommon metastasis to the ectopic kidney which resulted in haemorrhage that eventually led to her death.

Case Report

A.O was a 29-year-old Para 0+2 married woman who presented at Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC) with 5 days history of left hemiplegia. About 4 months prior to presentation in our hospital, she presented

in a private hospital with history of bleeding per vaginum, fainting attack and abdominal pain of one day duration following 3 months amenorrhoea.

She then had emergency laparotomy done for a suspected ruptured ectopic pregnancy. However, the laparotomy revealed intact fallopian tubes and a necrotic spot on the fundus of a bulky uterus with about 3 litres of altered blood evacuated from the peritoneal cavity. The impression was that of Gestational Trophoblastic Disease.

She had uterine curettage done and histology confirmed the diagnosis of choriocarcinoma. She was scheduled for chemotherapy but due to financial reasons same could not be commenced, she was subsequently lost to follow up. She had been having recurrent vaginal bleeding since then. She presented with complaints of inability to move both left upper and lower limbs. She was initially being managed for tuberculous meningitis before further review and questions revealed the diagnosis of choriocarcinoma made in the private hospital. There was positive history of headache and cough but no history of haemoptysis or head injury.

General examination revealed a young woman, pale and dehydrated.

Chest examination findings were decreased air entry on the left upper zone and the right lower zone anteriorly. Neurological examination revealed a conscious and alert woman with positive Kernig's sign, neck stiffness and left hemiplegia. Abdominal examination findings included a ballotable right lumbar mass, palpable uterus per abdomen, which was about 16-18 weeks size. No other abnormality was seen. Digital vaginal examination showed bulky uterus 16 weeks size with other findings being normal. Cardiovascular examination was essentially normal. An impression of metastatic choriocarcinoma with central nervous system (CNS) involvement was made.

The initial laboratory investigations done showed packed cell volume (PCV) of 25%, raised erythrocyte sedimentation rate (ESR) of 96 mm/hr (westergreen), and a positive hepatitis B surface

antigen. Other haematological and biochemical parameters were within normal limits. Pregnancy test was positive in neat and dilution (1:160). Abdominopelvic ultrasound scan examination showed a bulky uterus that measured 13.4 x 9.7 cm (L x AP). The endometrial cavity contained multiple cystic areas interspersed with echogenic foci giving the typical snowstorm appearance (Figure 1). There was a multi-septated cyst in the right adnexa, it measured 9.4 x 5.0 cm (Figure 2). The left adnexium was within normal limits. The right kidney was located in the right iliac region, it contained a mass of mixed echogenicity in its supero-posterior part.

It measured 10.3 x 6.3 x 4.8 cm (Figure 3). The left kidney was sonographically normal.

The liver showed a focal lesion of mixed echogenicity measuring 4.5 x 2.8 cm in its right lobe. The intra hepatic ducts and vascular channels were within normal limits. No other abnormality was seen. An impression of choriocarcinoma and right ectopic kidney with metastatic deposits was made.

The chest x-ray showed both lung fields riddled with metastatic coin lesions of varying sizes (Figure 4). Cranial computerised tomography was requested but was not done due to financial constraints.

She was commenced on combination chemotherapy (methotrexate, actinomycin D and cyclophosphamide) after being transfused with blood. Patient however developed hypovolaemic shock with anaemic heart failure while on second dose of chemotherapy. The PCV dropped from 30% to 20%. Patient's condition continued to deteriorate and she developed abdominal distension with an abdominal mass.

The repeat ultrasound done after this revealed the abdominal mass to be a complex pelvic mass measuring 27 x 10 cm, due to the enlarged ectopic kidney. The mass was seen separate from the uterus. Other findings were as previously documented.

She then had exploratory laparotomy done for acute abdomen, this revealed bloody peritoneal fluid, haemorrhagic uterus about 12

x12cm with metastatic nodules on its surfaces. Other findings included haemorrhagic and enlarged right ectopic kidney of about 20 x 20cm, which ruptured in an attempt to separate it from adherent bowel and uterus. This was immediately removed. Both ovaries were cystic and haemorrhagic, worse on the right. She however died on the first post-operative day from haemorrhagic shock.

Autopsy findings showed uterine mass with widespread metastatic nodules seen in different organs of the body. Other findings include haemoperitoneum and retroperitoneal clot, bilateral multicystic ovaries. Histopathological section of endometrial cavity content confirmed a diagnosis of choriocarcinoma. The cause of death was haemorrhagic shock.

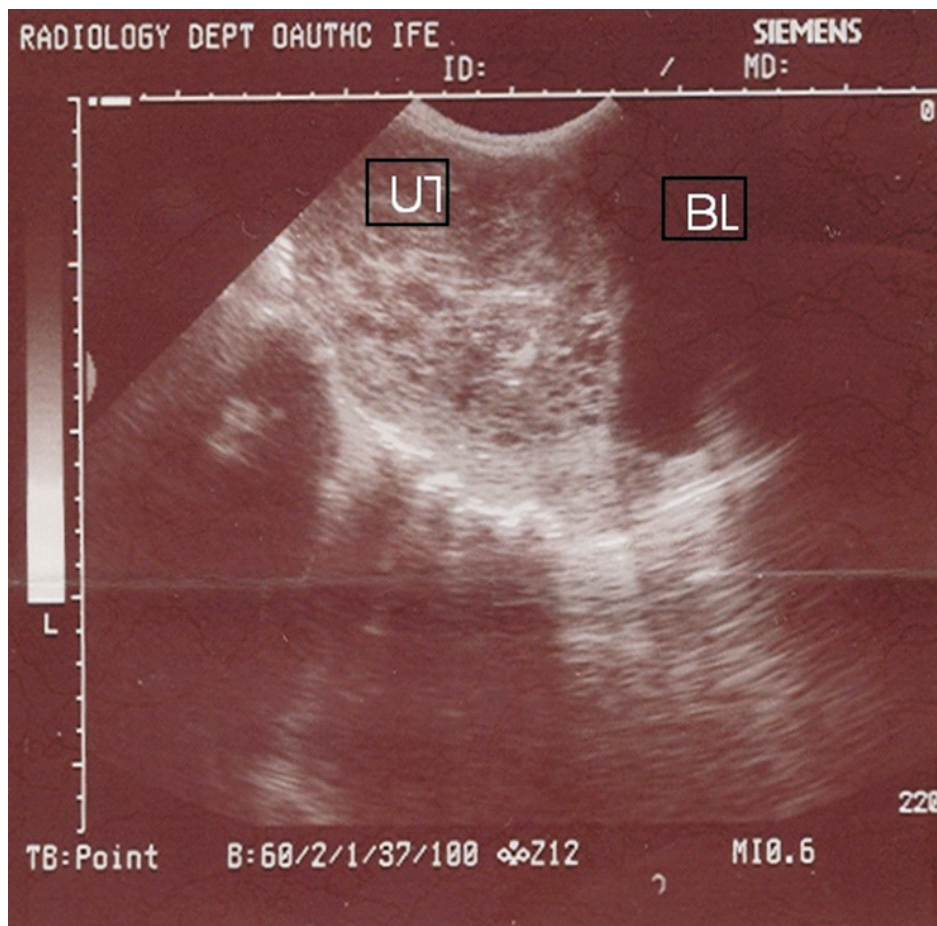


Figure 1: Longitudinal ultrasound scan showing typical snowstorm appearance in the uterus. UT = Uterus BL = Urinary bladder

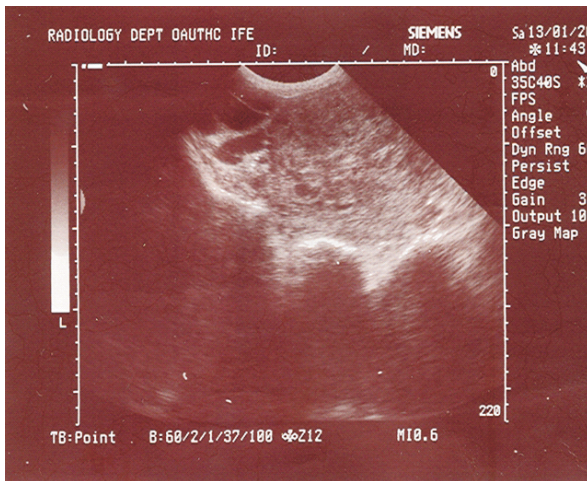


Figure 2: Transverse ultrasound scan showing multi-septated cyst in the right ovary
OV = Ovary UT = Uterus

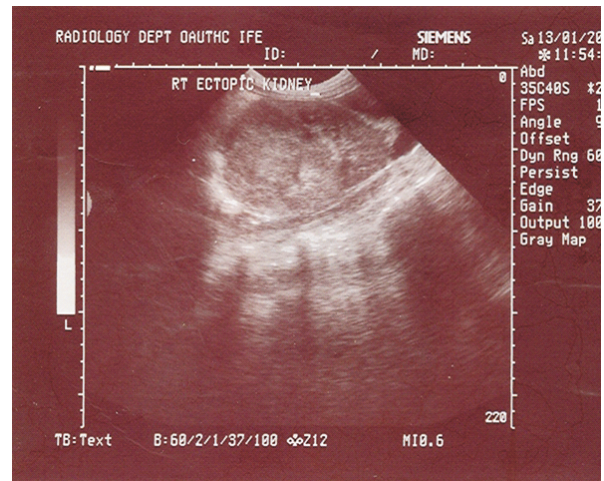


Figure 3: Longitudinal ultrasound scan of the ectopic kidney showing metastatic deposit in the ectopic kidney
D = Metastatic Deposit RT = Right

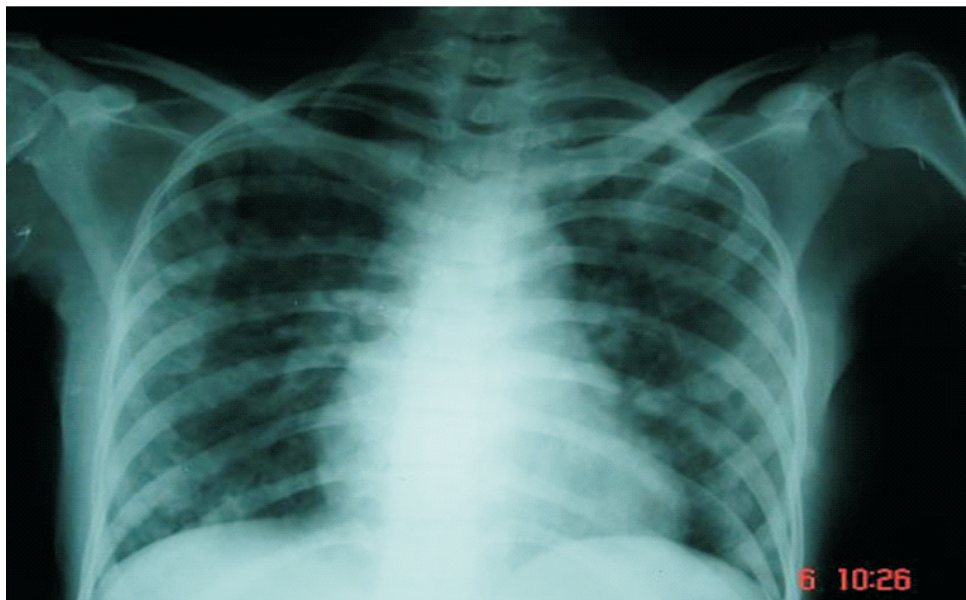


Figure 4: Posterior-anterior Chest x-ray showing multiple rounded radio opacities in the lung fields

Discussion

Gestational choriocarcinoma is a malignancy which arises from trophoblastic tissue of term pregnancies, ectopic gestations, spontaneous/induced abortions or molar elements.³ The

patient being discussed had history of molar elements during the course of her illness.

Choriocarcinoma is rare in the western world and fairly common in the far east and Nigeria.⁵ Choriocarcinoma occurs in approximately

2.2 per 100,000 pregnancies in the USA, 1:186 to 1:1035 pregnancies in Indonesia, while in Nigeria is 1:300 to 1:1000 pregnancies.^{3,5} Risk of developing choriocarcinoma is increased 1000-2000 times for women with hydatiform mole.³ This is exemplified in this patient who had history of molar element.

It is well established that an increased incidence of choriocarcinoma occurs at upper (>35years) and lower (<20years) extremes of the reproductive years.³ However because of overall childbirth patterns, women in their 20s and 30s still account for most cases of the disease.⁴ The index patient was in her late 20s which is in the group that account for majority of cases.

Clinical features of choriocarcinoma in all its manifestations range from common symptoms such as vaginal bleeding to more unusual presentations such as sudden death from haemorrhagic involvement of vital organs,³ which was elicited in our patient. Vaginal bleeding is the most common presenting symptom. It is experienced by 89-97% of patients and may result in symptomatic anaemia.³ The patient being discussed presented with vaginal bleeding with associated anaemia as seen in most cases.

Majority of patients present prior to 20weeks gestation. Approximately 40-50% of women with gestational trophoblastic tumours experience uterine enlargement in excess of 4weeks greater than that expected based on last menstrual period.³ The index patient fell into this category of people as the uterus was bigger than expected for gestational age.

Hyperemesis gravidarum complicates about 15-25% of cases and is usually associated with uterine enlargement and markedly elevated human chorionic gonadotrophin (hCG) levels. Hyperemesis gravidarum was confirmed in this patient.

Symptoms and signs associated with metastatic site of choriocarcinoma are often present. Metastasis to the lung are present in over 80% of women with gestational choriocarcinoma. Pulmonary involvement may

cause cough, dyspnoea, haemoptysis and/or pleuritic chest pain due to pulmonary infarction or pleural space invasion.³ There was positive history of cough in this patient and metastasis to the lung was confirmed in her radiographically. Neurological manifestation may include headache, seizures, loss of consciousness and paralysis.³ The patient being discussed presented with headache and hemiplegia during the course of her illness and was initially being managed for Tuberculous meningitis. Hence the possibility of choriocarcinoma in a woman of reproductive age, with bizarre CNS symptoms, post partum cerebrovascular accident or radiographic evidence of metastatic tumor of unknown primary origin to the brain should be given a thought.³

Metastases have been reported in almost all conceivable sites. Organs most commonly involved are lung, vagina, central nervous system, liver, kidneys and the gastrointestinal tract.³ Metastatic deposits were found in all the organs listed above including the ectopic kidney in this patient. Literature search did not reveal metastasis to an ectopic kidney in a patient with choriocarcinoma; this may be the first time such a case is being reported to the best of our knowledge.

The most common extra genital site of involvement of choriocarcinoma is the lung.³ Pulmonary involvement rarely causes symptoms. This is supported by one series which revealed that of the ninety seven women with pulmonary involvement, (88%) had multiple lung nodules, but only four patients had symptoms.³ These symptoms comprised of haemoptysis and/or chronic cough. None of the women had breathlessness. The patient being presented had cough with chest signs, but no haemoptysis or breathlessness until she had anaemic heart failure.

The basic pathology of trophoblastic tumour is from trophoblastic hyperplasia with expansion and haemorrhage in the organ of the body where it is located.³ The increased uterine size

resulted from trophoblastic hyperplasia with expansion and haemorrhage into the uterine cavity and the vagina bleeding occurs as a result of liquefaction of intrauterine clot that may lead to leakage of fluid with colour and consistency of prune juice.³

Several laboratory and radiological tools are available to secure diagnosis of choriocarcinoma and determine the extent of the disease. Accurate, dependable assays of hCG are essential for reliable diagnosis and are the foundation upon which individualised and therapeutic decisions are built. In general, hCG levels correspond to tumour burden.³ Radioimmunoassay, fluoroimmunoassay and enzyme immunoassays are sensitive to below 5U/L and provide reproducible results.³ HCG level was markedly elevated in the index patient. Radiological evaluation is often helpful for diagnosis of choriocarcinoma and in assessing patient for metastasis. The imaging tools that have been used includes Plain chest radiography, Ultrasonography, Angiography, Computerised tomography (CT), Magnetic resonance imaging (MRI) and Mammography. Chest x-ray is useful in evaluating women experiencing respiratory distress with suspected pulmonary edema, adult respiratory distress syndrome or extensive lung metastasis.³ Early findings include generalised increased lung markings often associated with small sacculations or dilated regions resembling a 'string of beads'. As lesions progress, patchy infiltrates and small nodules or miliary shadows are seen; more advanced disease results in medium (3-5cm) to large (>5cm), round, low density shadows with hazy or well defined margins. Atelectasis, pneumothorax and effusion(usually haemothorax) are seen in many patients.³ The index patient presented in an advanced stage hence medium, round, low density shadows with hazy margins were seen on the chest x-ray (Figure 4), this is in keeping with findings in other case reports.

Ultrasound is a useful non invasive imaging method especially when combined

with hCG data, in evaluating patients with choriocarcinoma.³ Transabdominal, trans vaginal and colour Doppler ultrasonography have been used in evaluating these patients. Trans-abdominal ultrasound was done in the index patient. Choriocarcinoma has the appearance of vesicular hyperechoic mass filled with innumerable cysts in association with uterine enlargement and focal areas of haemorrhage on ultrasound.⁶ These were seen in this patient. Theca lutein cysts may also be demonstrated. Almost 50% of patients in one series had ovarian cysts greater than 6cm in diameter.³ Another study found that 26% of women with this condition had some adnexal enlargement; mean cyst size was 7cm, with a range of 3-20cm.³ This finding was present in the index patient, who had a multiseptated cyst measuring 9.4x5.0cm in the right adnexium on ultrasound (figure 2). This was confirmed to be bilateral at surgery.

Transvaginal colour Doppler sonography has been used in evaluating a patient with isolated intra mural uterine choriocarcinoma.⁷ It is also useful during chemotherapy, when the vascularity of the tumor is evaluated. Colour flow Doppler can define regions of increased vascularity representative of invasive disease and enhance uterine perfusion distinct from that seen in conditions related to pregnancy or abortion.³ Ultrasound and colour Doppler imaging of extra uterine disease may demonstrate tumour vascularity and blood flow pattern. It can also be employed to target lesions for percutaneous sampling.³

Computerised tomography scan is an effective means of screening CNS and abdominopelvic metastasis.³ Chest CT is more sensitive than chest x-ray for detecting pulmonary metastasis; about 40% of patients with presumed non-metastatic trophoblastic tumour on chest x-ray are detected when screened with CT scan.³ In the abdomen, liver and splenic metastasis are seen as multiple, heterogeneously enhancing masses of variable sizes. CT of the skull and abdomen was

requested in this case but could not be done due to financial constraints. MRI may be useful particularly for evaluating the cerebellum and brain stem, which are sites of occult metastasis. MRI may demonstrate infarction, haemorrhage of various ages, dilated blood vessels and aneurysm.⁶

Angiography was used heavily for identifying metastatic lesions in the liver, spleen and the brain until the advent of CT scan and continue to be useful in selected cases for detecting small lesions or for determining the extent of vascular compromise by the tumour.³ Angiographic findings include; hypervascularity, arteriovenous shunt, oncocytic or fusiform aneurysm and thrombosis in the CNS, and renal metastasis.⁶ On angiography, liver metastasis are seen as hypervascular masses with aneurysmal dilatation of the peripheral end of the hepatic arteries (grape like appearance) at arterial phase, and persistent vascular lakes at the venous phase.⁸

The most common mammographic appearance of breast metastasis is one or more well circumscribed masses that are located in the upper outer quadrant without spiculation, calcification or architectural distortion, which characterises most primary cancer and is performed in patients with clinical suspicion of breast metastasis.⁹ However, benign lesion such as fibroadenoma can have similar appearances on mammography.⁹ In this case colour Doppler sonography is useful in differentiating the two in which both the peripheral and central vascular channels show high impedance flow on Doppler interrogation of the metastatic lesion.⁹ There was no metastasis to the breast in our patient.

Choriocarcinoma is said to be sensitive to chemotherapy (80% cure rate) provided appropriate therapy is given early enough in the course of the disease.¹⁰ The chemotherapy

combination is Methotrexate, Actinomycin D, Cyclophosphamide and Etoposide. Remission rate for patients with metastatic disease is 70%.¹⁰ Surgery is associated with a high incidence of haemorrhagic complication and should only be performed if the haemorrhage itself is life threatening.¹¹ Catastrophic haemorrhagic events account for most of the complications that are associated with choriocarcinoma. A number of reports exist describing women suffering from massive haemoperitoneum secondary to rupture of hepatic, splenic or pelvic foci of choriocarcinoma.³ Kidney involvement may cause massive retroperitoneal haemorrhage,³ this was the case in the index patient. Gastrointestinal bleeding, intra thoracic haemorrhage and acute intra cranial haemorrhage leading to sudden collapse and loss of consciousness are among the many other complications that can arise from choriocarcinoma. Intussusceptions, intestinal obstruction and colonic pseudo obstruction has been reported in patients with choriocarcinoma.³ In a study at Brewer Trophoblastic Disease Centre, haemorrhage from metastatic foci was the most common cause of death (42%). Sites involved (in descending order) were the liver, gastrointestinal tract and peritoneal cavity.³

The cause of death in the patient presented was haemorrhagic shock from ruptured ectopic (pelvic) kidney in the peritoneal cavity. This is keeping with the study from Brewer Trophoblastic Disease Centre. Pulmonary insufficiency secondary to alveolar destruction, tumour burden and haemorrhage causes the demise in 31% of non survivor. Death was attributed to chemotherapy toxicity in 10% of cases.³ Less common cause of death (about 2%), included sepsis, uraemia secondary to obstructive uropathy, acute tubular necrosis and pulmonary embolism.³

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