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CASE OF GESTATIONAL TROPHOBLASTIC NEOPLASIA WITH METASTASIS TO THE LUNGS, LIVER AND BRAIN

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SUMMARY

Gestational Trophoblastic Neoplasia is a rare pregnancy complication caused by abnormal growth of placental tissue. Unlike other complications, it can follow any type of gestation and presents with unusual symptoms that often mimic common conditions. We report a case in a 27-year-old woman with lung, liver, and brain metastases, presenting with classic signs post-molar evacuation, successfully managed by a multidisciplinary team in a Kenyan tertiary hospital.

Key Words: Gestational trophoblastic disease, Gestational trophoblastic neoplasia, Human chorionic gonadotropin (β-HCG), Metastasis

INTRODUCTION

Over the last 30 years, the incidence of gestational trophoblastic diseases has been declining. The majority of gestational trophoblastic disease cases are benign, with only about 20% of molar pregnancies progressing to Gestational Trophoblastic Disease[1]. While GTN frequently affects women under 30 years (80%), it is often possible to preserve fertility after treatment[2]. GTN tumours are highly chemo-sensitive, and with early diagnosis and treatment, prognosis is good. However, approximately 25% of GTN tumours relapse or develop resistance to initial chemotherapy, requiring salvage treatment[3]. This report highlights trends and challenges in managing GTN, emphasizing early diagnosis, effective treatment, and close follow-up to improve outcomes and preserve fertility.

Patient and Observation

Patient Information: A 27-year-old female presented at Kenyatta National Hospital with a one-year history of intermittent vaginal bleeding and discharge. She also had a two-week history of abdominal pain, dizziness, headache, cough,

chest pain, and breathing difficulty. She is married and delivered her only child six years prior, with an unremarkable puerperium. On examination, she was pale, had a uterine mass corresponding to 16 weeks' gestation, and a WHO prognostic score of nine. A year earlier, she had been diagnosed with hydatidiform mole; suction evacuation was done, and due to persistent vaginal bleeding, repeat evacuation was done four times. Follow-up Beta-Human Chorionic Gonadotropin had not been satisfactory. Initial normalization of β-hCG was followed by a steep rise (to 1.3 million mIU/ml by week 5), and then a drop to 200,000 mIU/ml by week 6. These fluctuations suggest persistent trophoblastic activity and possible malignant transformation, indicating ineffective or delayed β-hCG monitoring and possible delayed GTN diagnosis.

Clinical Findings: Laboratory investigations showed haemoglobin of 6g/dl and β-HCG of 91,423 mIU/ml. Thyroid function test showed Free Triiodothyronine: 3.55 pmol/l (3.1–6.8), Free Thyroxine: 21.16 pmol/l (9–20), and Thyroid-Stimulating Hormone: 0.005 UiU/ML (0.270–4.20). Abdominal pelvic ultrasound showed a bulky uterus (17.3 x 6.5 x 11.2 cm), echogenic fluid, placenta-like and fetal components measuring 353 ml, normal cervix, and no adnexal masses.

Timeline of the episode: Before evacuation, β-HCG levels were markedly elevated. Following the procedure, the hormone levels initially dropped close to zero. However, during weeks 2–3, they rose again to about 300,000 mIU/ml, peaking at approximately 1.3 million mIU/ml in week 5. By week 6, the levels declined to around 200,000 mIU/ml, and from weeks 10 to 26 they continued to decrease steadily until returning to near zero.

Diagnostic Assessment: Chest X-ray showed cannon balls (Figure 1). Brain Magnetic Resonance Imaging showed haemorrhagic metastatic lesions, the largest 4.6 x 3.9 cm (Figure 2). Head Computed Tomography showed left parieto-occipital hypodense lesions with perilesional oedema. Abdominopelvic MRI showed multiple hepatic mass lesions, the largest 1.6 x 1.1 cm, multiple bilateral lung basal lesions (largest 3.4 x 2.9 cm), suggestive of metastasis, and an endometrial mass with hematometra (Figure 3). Abdominal CT showed a non-enhancing pancreatic mass in the uncinated process (36.6 x 19.4 x 27.7 mm).

Figure 1: Chest X-ray

The chest X-ray shows multiple irregular opacities and lesions, representing metastatic spread from GTN to both lungs. These nodular, patchy lesions are consistent with pulmonary metastasis, common in high-risk GTN, indicating need for systemic chemotherapy.

Figure 2: Brain MRI

The brain MRI shows multiple space-occupying lesions consistent with metastatic GTN in the frontal, parietal, and occipital lobes. The lesions are bilateral, indicating widespread brain involvement. MRI was part of the workup after discovering pulmonary metastases.

Figure 3: Abdominal and Pelvic MRI

The MRI shows hyperintense metastatic lesions in the liver, indicating advanced GTN. Multiple liver lesions reflects extensive disease. Liver involvement confirms need for aggressive chemotherapy targeting both primary and metastatic disease.

Therapeutic Intervention: Management included antibiotics, analgesics, haematinics, antacids, and transfusion of 4 units of whole blood. After stabilization, the patient began EMA-CO chemotherapy: Etoposide, Methotrexate, Actinomycin D, Cyclophosphamide, and Vincristine.

Follow-up and Outcomes: Gradual clinical improvement was observed. Haemoglobin rose from 6g/dl to 11.2g/dl. β-HCG levels dropped significantly. She received 10 cycles of chemotherapy and was discharged for outpatient follow-up.

DISCUSSION

GTN is histologically classified as choriocarcinoma, invasive mole, placental site trophoblastic tumour, and epithelioid trophoblastic tumour. These malignancies may arise weeks or years after pregnancy, commonly

after a molar pregnancy [4]. Around 95% of patients present with abnormal uterine bleeding and anaemia. Uterine enlargement beyond gestational age occurs in over 25% of cases [5]. Approximately 33% of choriocarcinoma cases develop distant metastases, most often in the lungs, increasing the risk of recurrence and Methotrexate resistance, thus requiring multi-agent chemotherapy. Central Nervous System metastasis occurs in 20% of non-molar choriocarcinoma, while liver metastases are reported in 1.8%–7.7% [6].

Serum β-hCG, produced by syncytiotrophoblastic cells, is the primary tumour marker for assessing tumour burden and monitoring treatment response or recurrence [7]. Other investigations include pelvic-transvaginal Doppler ultrasound and chest X-ray; pulmonary metastases >1 cm require chest CT and brain MRI. FIGO staging and WHO scoring guide therapy. Non-metastatic and low-risk metastatic GTN respond to Methotrexate or Actinomycin D. High-risk GTN is treated with Etoposide, Methotrexate, and Actinomycin-D, followed by Cyclophosphamide and Vincristine [Oncovin]. About 25% of high-risk cases need salvage therapy or surgery. Etoposide, Methotrexate, and Actinomycin-D followed by Etoposide and Cisplatin is effective after EMA-CO failure [3].

CONCLUSION

This case shows how severe and widespread high-risk GTN can be. It highlights the need for early diagnosis, regular β-hCG checks, and timely treatment. With proper care, even advanced cases can respond well.

Conflict of Interest

The authors declare no conflict of interest.

Authors' Contributions

JOA: study concept, methodology, project management and writing (original draft, editing and review). RJK, CWB, OO: study concept, methodology and writing (draft review). RBM: data curation, methodology, writing (editing and review). All authors have read and approved the final case report.

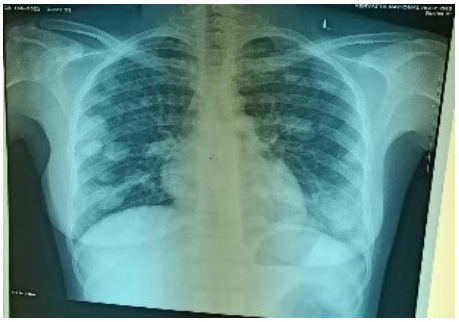

Figure 1: *Chest x-ray with bilateral lung fields lungs exhibiting metastases*

Figure 2: *A multi-slice Brain MRI with multiple space-occupying lesions of the brain, including the frontal, parietal, and occipital lobes.*

Figure 3: *Abdominal and Pelvic MRI with multiple metastatic lesions in the liver and in other abdominal structures.*

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