Importance of Suspecting a Hemorrhagic Intracranial Lesion as Metastatic Choriocarcinoma

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Abstract

Though the brain metastasis from gestational trophoblastic neoplasia is rare, incidence is 3-21.4%. In this article, we report the rare case of a young female, presented with the features of raised Intracranial Pressure (ICP) with intracranial space occupying lesion, who was treated for tubercular abscess because she was clinically diagnosed as case of pulmonary TB from core biopsy of lung mass and was under Anti tubercular treatment at other center and the differential diagnosis of cavernoma bleed made from imaging modalities. However, to our surprise the histopathology came out as metastatic choriocarcinoma.

There was history of incomplete abortion 1 year back which could have developed from any gestational trophoblastic tissue resulting from a hydatidiform mole, miscarriage, or ectopic pregnancy. She gave this history after the histopathology came out as metastatic choriocarcinoma. The social tabu and going through traumatic experience, would be the region for her not to disclose the history before surgery. Although miscarriages are common and women continue to suffer in silence.

The rarity of brain metastasis from gestational trophoblastic neoplasia, there are still no guidelines on treatment strategies for these patients yet.

Key words: Beta-human chorionic gonadotropin (β-HCG), brain metastasis, chemotherapy, choriocarcinoma, intracerebral hemorrhage.

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Introduction

The most malignant type of gestational trophoblastic neoplasia (GTN) is choriocarcinoma.[1] When patient present with tumor bleed, intracranial hematoma, subarachnoid hemorrhage or invasion of surrounding brain tissue, can be a life threatening and is a main cause of death and disability.[2] Although there is 5% overall death rate in GTN but patient with brain metastasis, death rate is of 30%, which is much higher.[3] Intracerebral hemorrhage (ICH) as an initial manifestation in an apparently healthy female is a rare presentation and hence, can be misdiagnosed.[2]

Hemorrhage is common because of the innate capacity of trophoblastic cells to invade and erode vessel walls.[4] Contrast Enhanced Computed Tomography (CECT), Magnetic Resonance Spectroscopy (MRS), and Distal Subtraction Angiography (DSA) will rule out aneurysm, arteriovenous malformation (AVM), and cortical venous thrombosis, which are possible common causes in a

young woman, but even these diagnostic modalities fail to suggest choriocarcinoma bleed.[5] Accurate diagnosis can only be made after resection of blood clots and subsequent submission of specimen (blood clots) for histopathological examination.[6] In cases of spontaneous ICH, the routine use of serum β-HCG is not recommended, however in a young woman of reproductive age group, preceding history of abortion or pregnancy presenting with neurological symptoms or signs should always alert one to the possibility of GTD and β-HCG estimation may be beneficial.[5]

Case presentation

A 30 years old lady presented to emergency with a complaint of headache and multiple episodes of vomiting with one episode of loss of consciousness for one month duration. During that period, she had developed progressive headache with multiple episodes of vomiting. For these symptoms she was being previously evaluated at another center. But there was no h/o fever, seizure like activity or trauma.

For the last three months, she had been diagnosed as a case of pulmonary tuberculosis (PTB) (core biopsy of right lower lung mass) and has been taking Anti-tubercular drugs.

During examination she was dehydrated, anxious, agitated. Glasgow Coma Scale (GCS) 15/15 without any neurological deficit. On chest auscultation there was decreased air entry on lower zone of right lung.

Routine blood investigations and urine examination were within normal limits.

Plain chest X-ray revealed Right lower zone consolidation, most likely due to PTB. (Figure1)

CECT scan showed hemorrhage in left parietal lobe (+72 HU) measuring 5.2 x 3.5 x 3.21 cm size with surrounding edema and mass effect (7 mm midline shift) without enhancement in post contrast images. (Figure 2)

The provisional diagnosis of tuberculoma bleed was made. To rule out the possibility of other differential diagnosis as cavernous malformation with bleed, other vascular cause or neoplastic pathology CT cerebral angiography was done. But cerebral angiography was normal and no arteriovenous malformation seen. (Figure 3)

Then contrast enhanced Magnetic Resonance Imaging (MRI) brain with Magnetic Resonance Spectroscopy (MRS) and Magnetic Resonance (MR) Perfusion scan done to rule out neoplastic pathology and to further confirm tuberculoma bleed but the findings were consistent with sub-acute hematoma (figure4).

Findings in MRS sequence there was no choline, lipid or lactate peak and MR Perfusion shows perfusion defect, thus scan studies was not suggestive of neoplastic lesion (figure 5).

She underwent craniotomy and excision of lesion on second day of admission. Gross total excision was achieved. Intraoperatively 6x7 cm size brownish black lesion soft to firm, vascular with surrounding yellowish tissue (hemosiderin) over left parietal region. Post-operative period was uneventful. However, to our surprise, the histopathology reported as compatible with metastatic malignant tumor suggestive of choriocarcinoma.

To further confirm the diagnosis serum beta HCG sent which was found to be very high [39409.2 mIU/ml] and urine pregnancy test was also positive. Then, gynecology and oncology consultation done. The case was discussed in the institute's tumor board meeting regarding further management and CT chest done to add on diagnostic information and revealed large lung mass in right lower lung (figure 6). She was then started on chemotherapy and total 9 cycle received. In six months, follow-up, there was no residual or recurrence of intracranial lesion in CECT brain scan (Figure 7) and beta HCG has come down to 3.29 mIU/ml. Her chest symptoms had resolved too with reduction in size of lung mass in six-month CECT chest and she had resumed her regular menstrual cycle. (Figure 6)

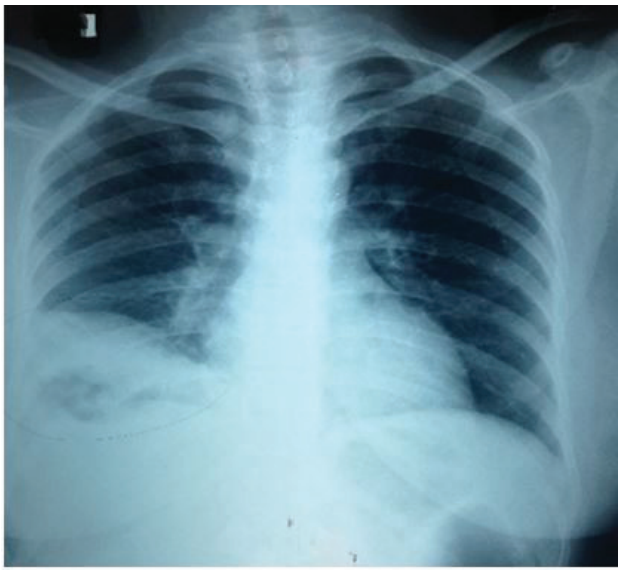

Figure 1: Chest X-ray

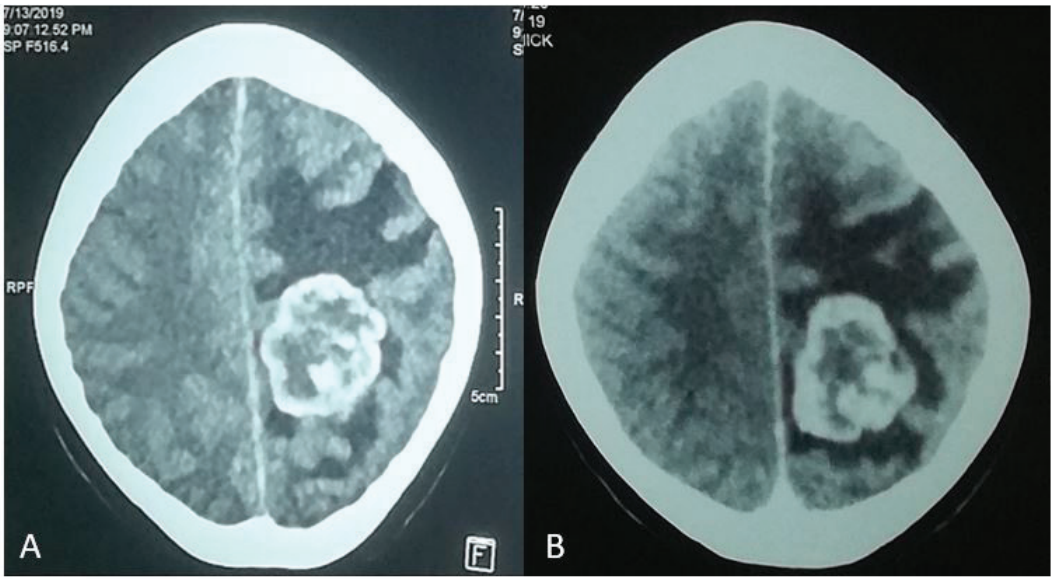

Figure 2: CT head (A: plain; B: Contrast Enhanced) showing likely tumor bleed or cavernous bleed

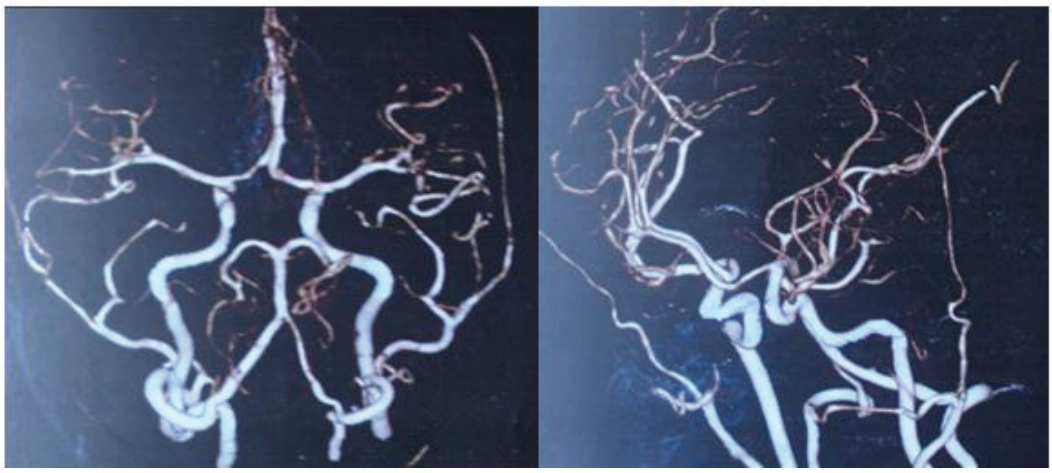

Figure 3: Normal CT angiogram

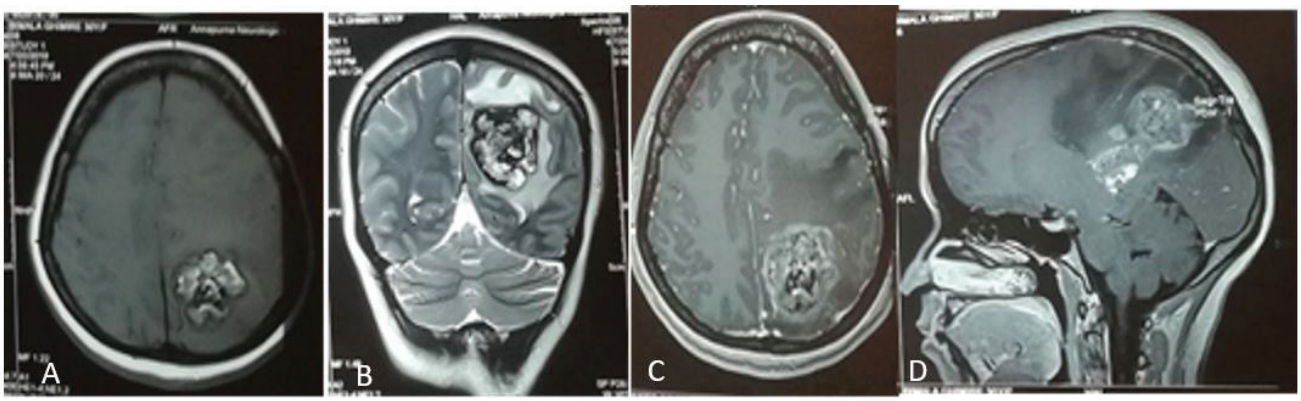

Figure 4: MRI (A: Plain T1 axial; B: Plain T2 coronal; C: contrast axial; D: contrast Sagittal)

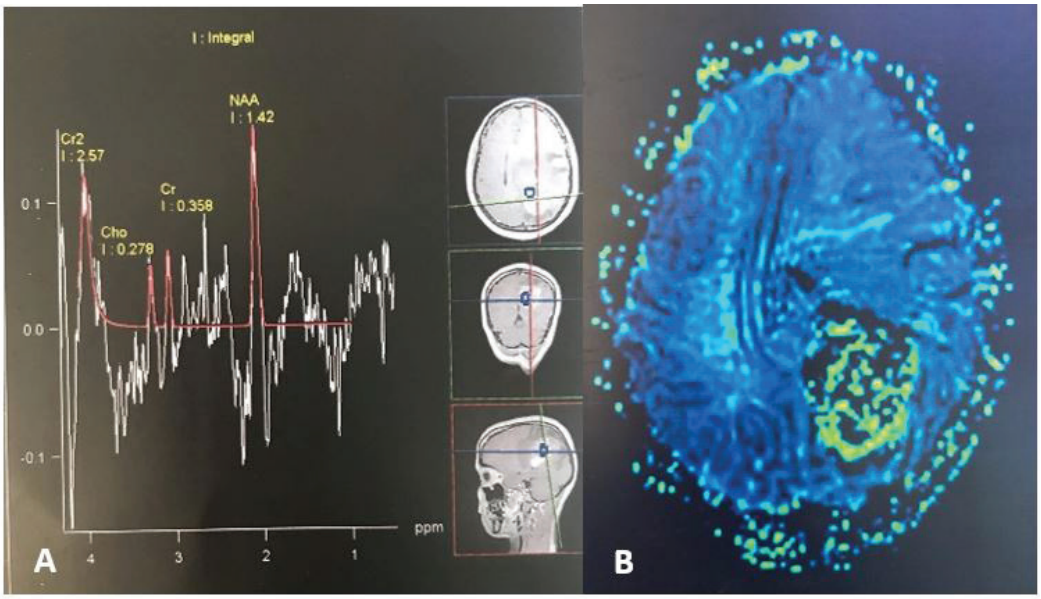

Figure 5: A: MRS; B: MR perfusion suggestive of non-neoplastic lesion.

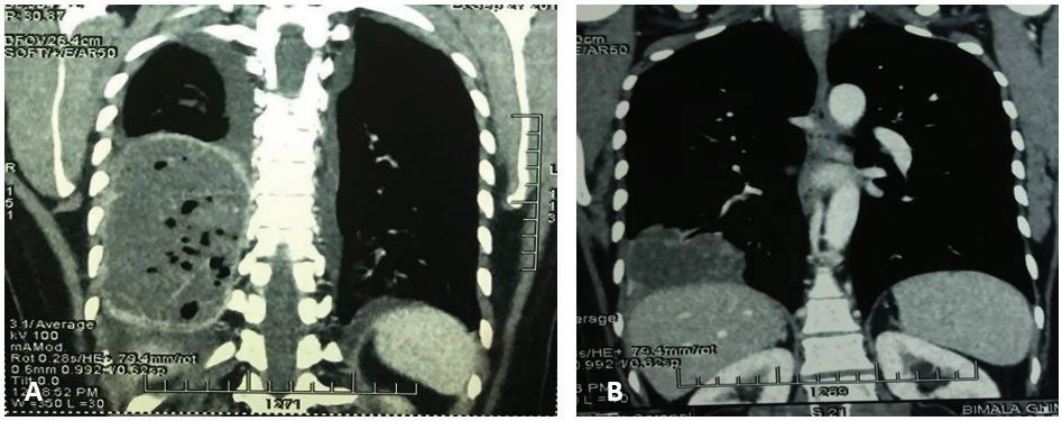

Figure 6: CECT Chest showing (A: large mass in right lung lower zone; B: after 6 months of chemotherapy)

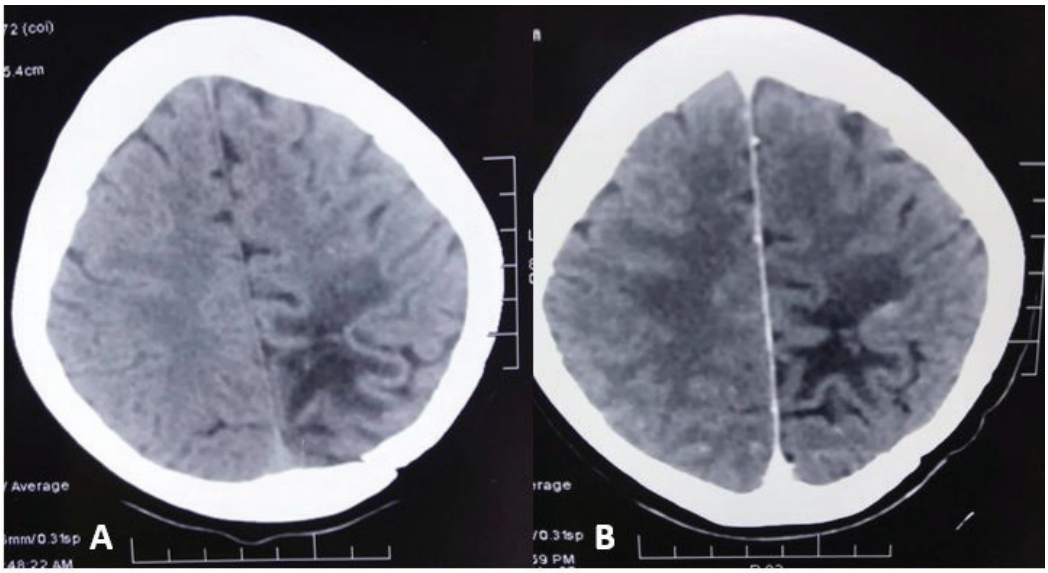

Figure 7: Postoperative CT head after 6 months (A: plain; B: Enhanced) showing gliotic changes without recurrence.

Discussion

Choriocarcinoma is a rare and aggressive neoplasm. Approximately 30 % cases have metastatic disease at the time of diagnosis.[7] There are two forms of choriocarcinoma, gestational and non-gestational. Gestational arises from either normal pregnancy 25%, Molar pregnancy 45%, ectopic pregnancy 5% or after abortion 25% like our case.[8] While the non-gestational arises from pluripotent germ cells. The diagnosis is based on its histopathological appearance and high level of serum beta-human chorionic gonadotropin (β-HCG).[1]

In the case presented here, she had previous history of abnormal uterine bleeding one year back for which evacuated with suspected diagnosis of molar pregnancy was done at another center. Later when she presented to us as solitary brain mass with intra-lesion bleed, we thought the possible diagnosis would be tuberculoma as patient has been diagnosed as a case of pulmonary TB three months back under anti-tubercular drugs. But that time no detailed workup done regarding the abortion history and patient denied as significant past history. Patient had lost follow-up with gynecology team even though she was advised to follow with biopsy report following evacuation of products of conception at that time. Also, the diagnosis suggestive of right lower lobe lung mass taken as core biopsy was misdiagnosed at local hospital and may be this could have been the lung metastatic choriocarcinoma.

Although, the treatment modality for this patient despite the unknown diagnosis is craniotomy and excision with evacuation of hematoma and the consequences was not fatal. But any patient in the reproductive age group with history of previous abortion, presenting with sudden neurological symptoms should be suspected of having metastatic choriocarcinoma.[9] In such situation simple pregnancy test will confirm and guide to think about the rare possibilities like choriocarcinoma metastasis and we can approach these patients differently.

The clinical presentation depends on the stage of disease but the diagnosis of choriocarcinoma in a patient presenting with symptoms from distant metastasis is challenging.[10] Like in our case when she was admitted multiple times for pneumonia and chest pain discomfort and pulmonary tuberculosis diagnosis made and was on wrong treatment due to misdiagnosis.

In contrast to other malignancies, related to cerebral metastasis, choriocarcinoma had good prognosis. Around 75% of choriocarcinoma even at stage FIGO IV will achieve complete or prolonged remission.[11] In this case if accurate and early prompt diagnosis could have been made then the number of chemotherapy doses have been less and anti-tubercular drugs would be avoided.

Conclusion

Many choriocarcinoma cases are often misdiagnosed due to the atypical symptoms of the disease and lack clear radio graphical evidence. Although the patient achieved complete remission following combined treatment with gross total resection of the brain lesion and systematic chemotherapy but demonstrates the importance of rapidly initiating chemo- and radiotherapy gestational choriocarcinoma. Early and intensive treatment can help achieve a better prognosis and avoid a fatal outcome.

Through this case report we would like to highlight that choriocarcinoma should be thought as one of the differentials in reproductive age with history of abortion and when the presentation is doubt even the simple pregnancy test wound give clue to the diagnosis.

Abbreviation

ICP: Intra Cranial Pressure
TB: Tuberculosis
B-HCG: beta- Human Chorionic Gonadotropin
GTN: Gestational Trophoblastic Neoplasia
ICH: Intra Cranial Hemorrhage
CECT: Contrast Enhanced Computed Tomography
MRS: Magnetic resonance spectroscopy
DSA: Digital Subtraction Angiography
AVM: Arterial-Venous Malformation
GTD: Gestational Trophoblastic Disease
PTB: Pulmonary Tuberculosis
GCS: Glasgow Coma Scale
HU: Hounsfield Unit
CT: Computed Tomography
MRI: Magnetic Resonance Imaging
MR: Magnetic Resonance
mIU/ml: Milli-International Unit per milliliter

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