A Case Of Metastatic Breast Carcinoma Presenting With Thrombotic Thrombocytopenic Purpura

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Introduction

• Thrombotic Thrombocytopenic purpura (TTP), also known as thrombotic microangiopathy (TMA)

• A multisystem disorder characterized by thrombocytopenia, microangiopathic hemolytic anemia (MAHA), and ischemia resulting in neurologic and renal impairment.

• BUT patients with disseminated malignancy who presented with MAHA may be misdiagnosed as acquired idiopathic TTP.

• Typically, these patients do not respond to plasma exchange.

• Definitive treatment is to treat the underlying malignancy.
Case Report

48-year-old lady
- History of left breast carcinoma (stage T2N0M0)
- Undergone left mastectomy with axillary clearance followed by 4 cycles of chemotherapy in 2014.
- Presented in January 2016 with a one-week history of fever, anaemia and tinge of jaundice.
Laboratory Findings

- Hemoglobin of 6.3g/dL, platelet of 35K/uL, total white blood cells of 10.5 K/uL
- Lactate dehydrogenase of 3651 IU/L
- Total bilirubin 44 umol/l, alkaline phosphates of 58 IU/L
- Normal DIC screen
- Negative Coomb’s test.
Blood firm showing microangiopathic haemolytic anaemia (schistocytes and polychromasia) with thrombocytopenia.
• Preliminary diagnosis of TTP was made, plasma exchange and pulse corticosteroids were started.
• However ADAMTS13 activity result traced showed 23%.
• And she failed to respond to plasma exchange.
• A bone marrow aspiration and trephine biopsy was done.
ADAMTS-13 Inhibitors : 2U/ML

Negative : <12 U/ML
Borderline : 12-15 U/ML
Positive : >15 U/ML
BM aspirate, showing neoplastic cells in clusters.
BM trephine biopsy section, showing a group of tumor cells with hyperchromatic nuclei and vacuolated cytoplasm.

BM trephine biopsy, showing expression of cytokeratin by tumour cells.
Bone metastasis to L2 vertebra.
Conclusion

• Occult disseminated malignancy may masquerade as acquired idiopathic TTP.

• In acquired idiopathic TTP which the pathogenesis is due to severe deficiency of ADAMTS13, the level of ADAMTS13 activity will be less than 5% of normal.

• Patients with acquired idiopathic TTP usually respond well to plasma exchange and immunosuppressive therapy.
• There is little evidence for ADAMTS13 deficiency in the pathogenesis of malignancy associated-thrombotic microangiopathy (MA-TMA).
• Instead, mechanisms such as endothelial injury by tumour emboli or direct invasion are postulated.
• A high clinical suspicion and thorough investigation for underlying malignancy is recommended for TTP patients with atypical clinical features or who fail to respond to plasma exchange.
Key learning point

• Bone marrow involvement by metastatic carcinoma is uncommon and typically is a late manifestation.
• Marrow infiltration can lead to intramedullary hemolysis with significant cytopenias and schistocytes on peripheral smear, mimicking TTP.
• In this case, the patient’s manifestations were the presenting features of her metastasis, creating a diagnostic dilemma.
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