

A Case Of Metastatic Breast Carcinoma Presenting With Thrombotic Thrombocytopenic Purpura



Kementerian Kesihatan Malaysia

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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.

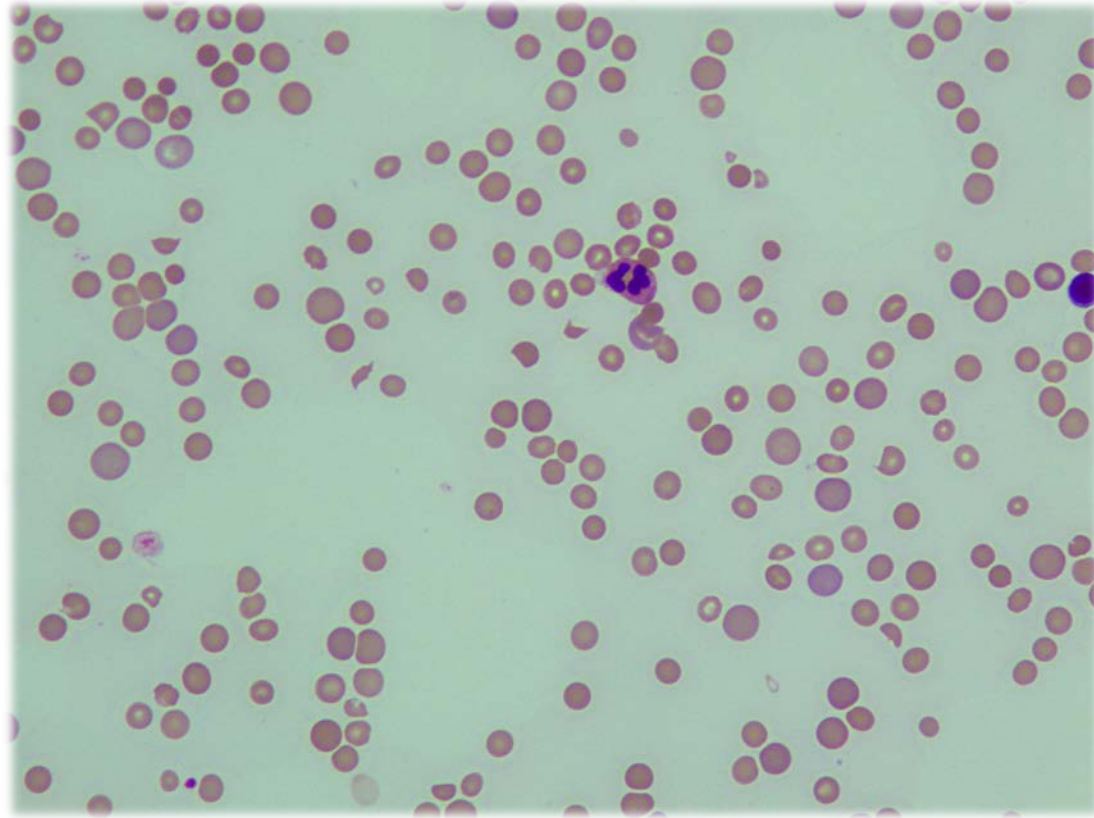
Case Report

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

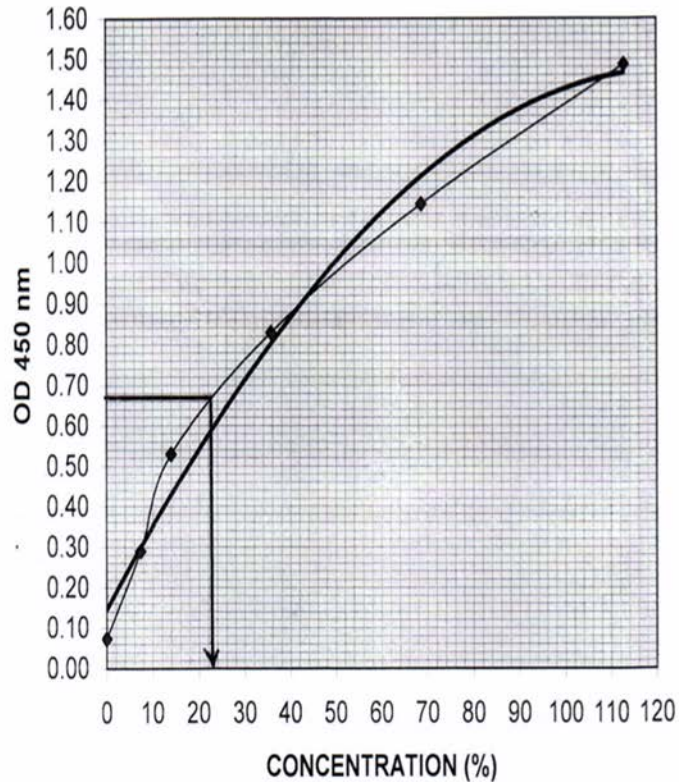
- Hemoglobin of 6.3g/dL, platelet of 35K/uL, total white blood cells of 10.5 K/uL
- Lactate dehydrogenase of 3651 IU/L
- Total bilirubin 44 umol/l, alkaline phosphates of 58 IU/L
- Normal DIC screen
- Negative Coomb's test.



Blood film 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 Activity FEBRUARY 2016



◆ ADAMTS-13 ACTIVITY
FEB'16
— Poly. (ADAMTS-13 ACTIVITY
FEB'16)

ADAMTS-13 Inhibitors : 2U/ML

Negative : <12 U/ML

Borderline : 12-15 U/ML

Positive : >15 U/ML

Results :

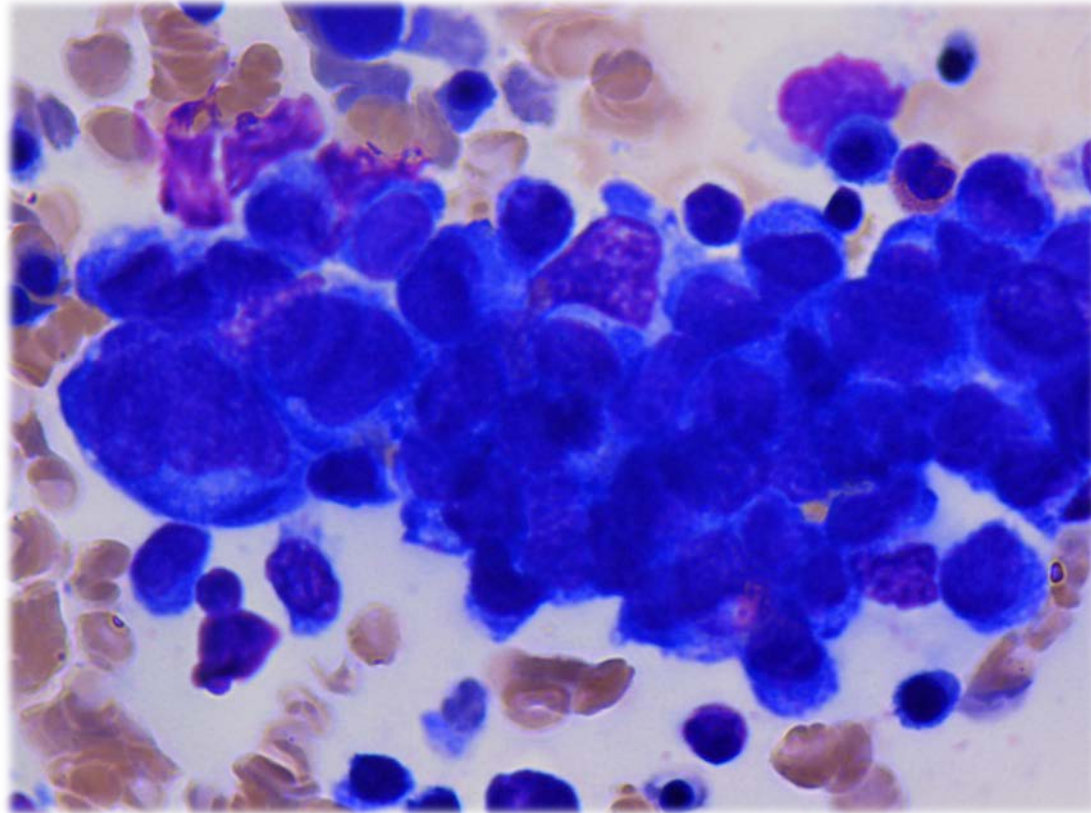
OD 450 nm	RESULT
0.67	23

Reference Range

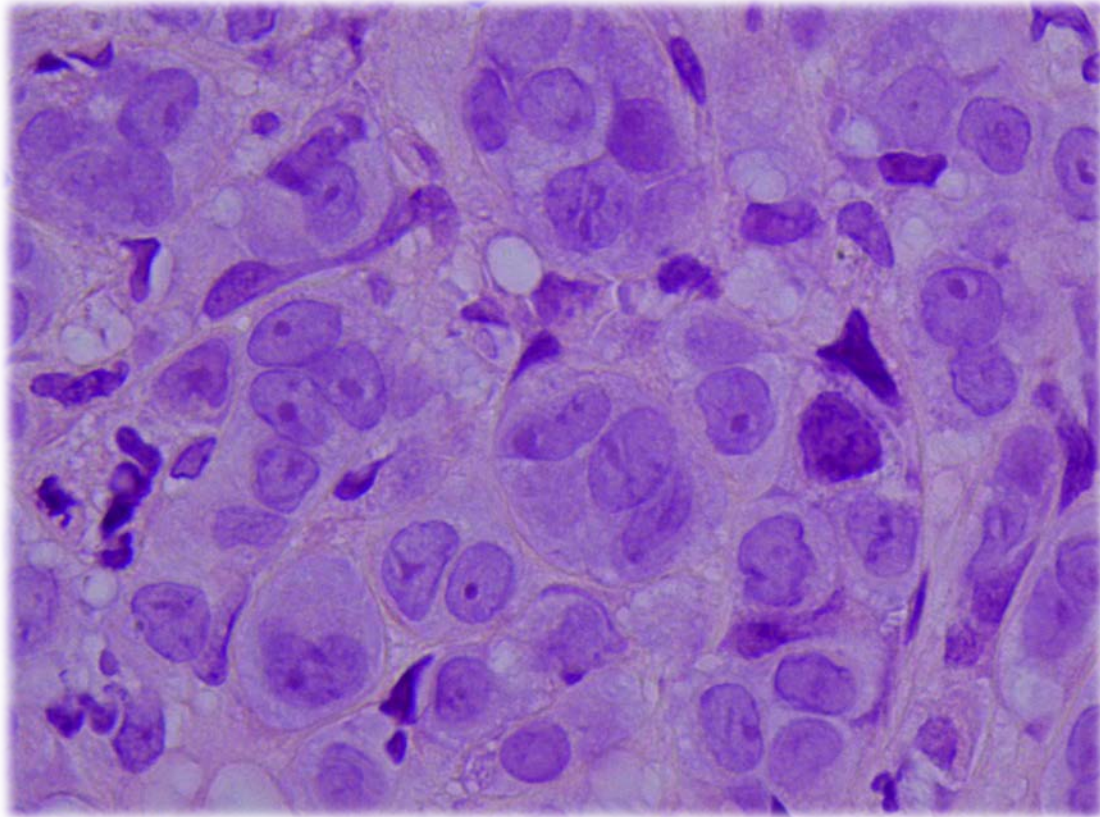
Normal Range for ADAMTS-13 Activity : 40-130 %

HIGH CONTROL (84.25 %) : 63.20 - 105.31 %

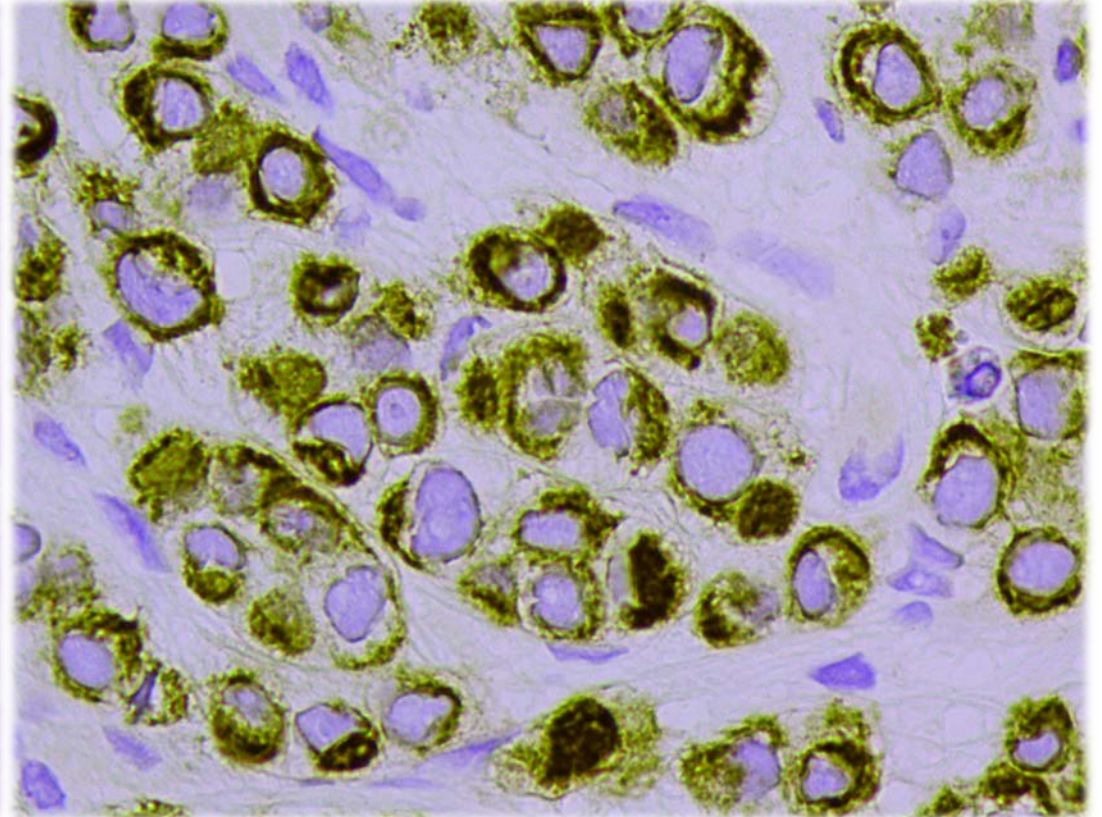
LOW CONTROL (23.01 %) : 13.80 - 32.21 %



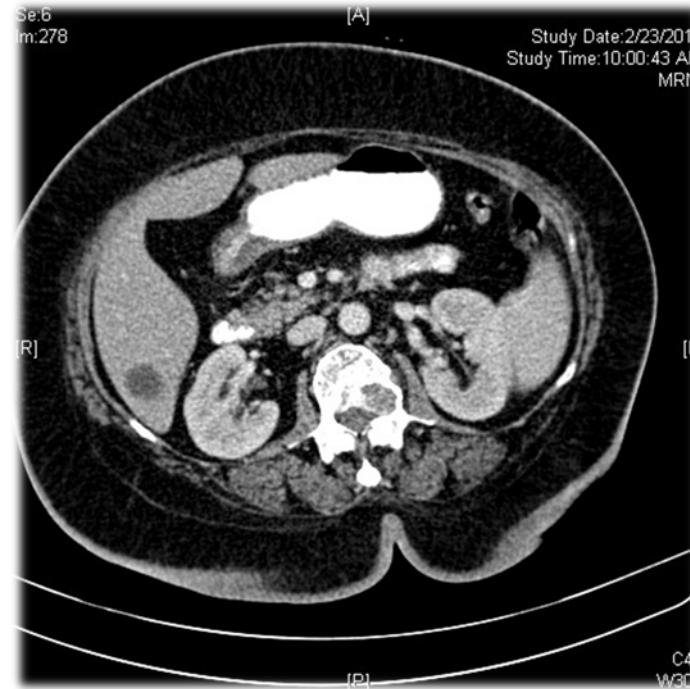
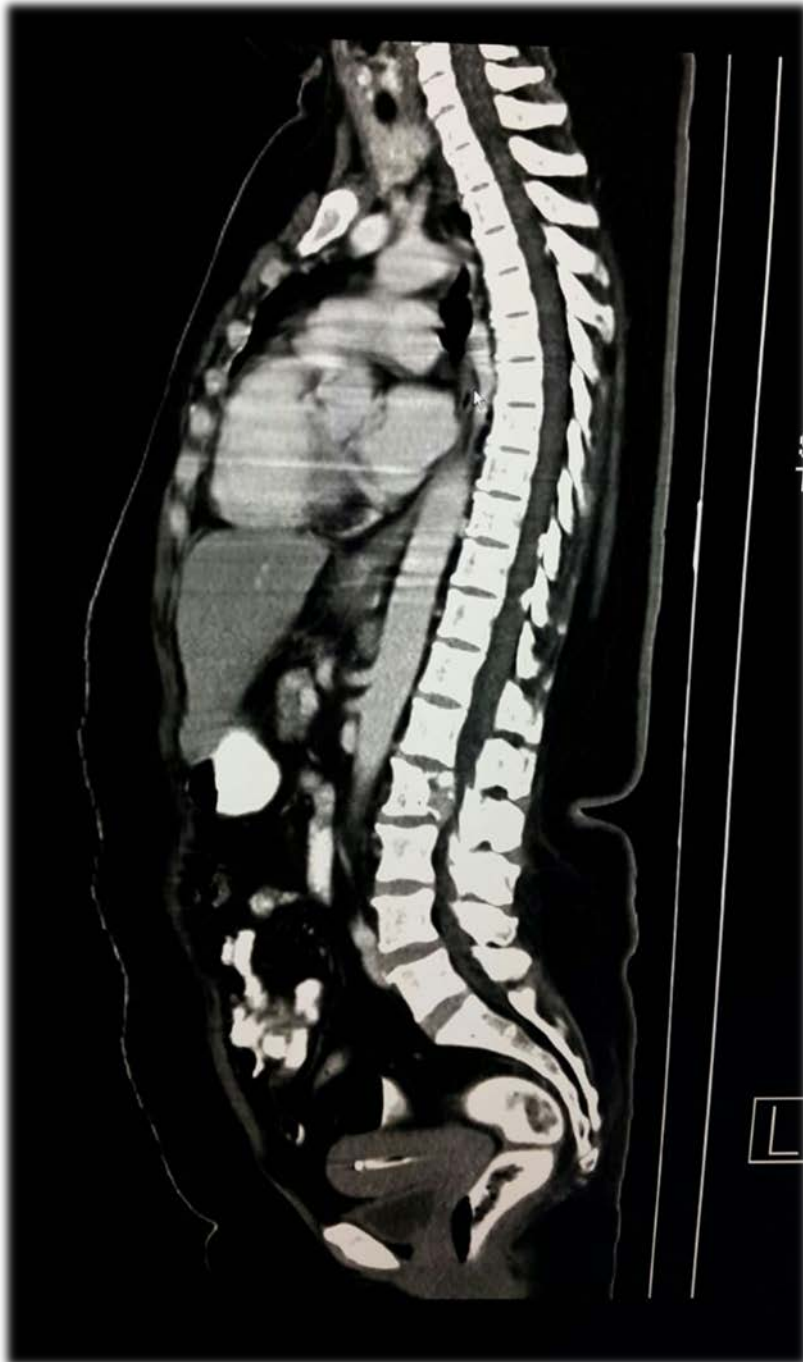
BM aspirate, showing neoplastic cells in clusters.



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.

Acknowledgement

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Thank you



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