ISSN 2822-2032 (Print) 2822-2040 (Online)

Medical Journal of Eastern Nepal

Volume 02, Number 01, Issue 03, January-June 2023, 44-46

Case Report

DIAGNOSTIC DILEMMA OF HEMOLYTIC ANEMIA: A REVEAL SECONDARY TO GASTRIC ADENOCARCINOMA.

Prerana Gautam[1], Ishwor Man Singh[2], Bimas Payangu Limbu[3], Monasha Vaidya[1], Ujwal Rai[1]

[1]Department of Pathology, [2]Department of Hematology, [3]Department of Surgery B & C Medical College Teaching Hospital and Research Center, Birtamode, Jhapa, Nepal

Submitted: 10th-March-2023, Revised: 2nd-May-2023, Accepted: 17th-June-2023

DOI: https://doi.org/10.3126/mjen.v2i01.56222

ABSTRACT

Here is a case report of a 62-year-old female who presented to our hospital with complaints of abdominal pain, unresolving severe anemia, bleeding per rectum with history of multiple blood transfusions at outside hospital. On initial investigations, the findings directed towards case of hemolytic anemia. The cause of hemolytic anemia was still unknown even after extensive clinical and laboratory investigations. Bone marrow biopsy was done, which revealed metastatic adenocarcinoma and diagnosis of cancer-related microangiopathic haemolytic anaemia (CR-MAHA) was established. Endoscopic biopsy was done from gastric lesion which revealed gastric adenocarcinoma and final diagnosis of microangiopathic hemolytic anemia secondary to gastric adenocarcinoma was made.

The patient's haematological parameters improved with chemotherapy directed against the gastric adenocarcinoma. Our case supports the findings of various literature which indicates that the gastric cancer-associated MAHA responds well to the treatment with chemotherapy for primary carcinoma.

Keywords: Chemotherapy, Coombs test, CR-MAHA-Cancer related MAHA, MAHA-microangiopathic hemolytic anemia, metastatic adenocarcinoma, signet ring cells

INTRODUCTION

Microangiopathic hemolytic anemia (MAHA) is used to describe anemia that results from physical damage to RBCs following occlusion of arterioles and capillaries as a result of fibrin deposition or platelet aggregation in the vascular lumen.[1] It has been associated with variable physiological (pregnancy induced) or pathological conditions (thrombotic thrombocytopenic purpura, hemolytic uremic syndrome, malignancy associated, hematological diseases[2]. The laboratory findings include: anemia (upto Hb less than 6 g/dl); severe thrombocytopenia; elevated reticulocyte count ; increased serum lactate dehydrogenase level; decreased serum haptoglobin level; peripheral blood film showing schistocytes; coagulation screening tests may be normal and Coomb's test is almost always negative[3,4]. Among malignant conditions, association with carcinoma stomach, lung, breast, unknown primary and lymphoma are common[5,6]. This patient presented with hemolytic anemia and was diagnosed as metastatic adenocarcinoma in the course of finding the cause of coombs negative hemolytic anemia.

CASE SUMMARY

A 62 year old female presented with complain of epigastric pain with burning sensation along with history of lower back pain, feverish feeling and generalized weakness.

***Corresponding Author:**
Prerana Gautam
Email: preranagautam21@yahoo.com
Orcid: https://orcid.org/0009-0002-8391-8484

Citation
Gautam P, Singh IM, Limbu BP, Vaidya M, Rai U, Diagnostic Dilemma of Hemolytic Anemia: A Reveal Secondary to Gastric Adenocarcinoma. MJEN. 2023 June; 2(1):44-46.

Initial complete blood count on fivepart analyser machine showed Hemoglobin-4.9 gm/dl, RBC-1.86 million. Other finding include, total WBC count-3500/mm3, Platelets count 27000/ cubic mm. Peripheral blood picture showed reduced RBC density; presence of microcytic hypochromic blood picture with schistiocytes (>3%), nucleated RBCs (7 nRBCs /100 WBCs) and many polychromatophils.

On further evaluation urine was positive for RBCs and pus cells. Serum haptoglobulin was reduced (<15 mg/dl). Coomb's test was negative. Coagulation profile was deranged (prothrombin time-49.40 sec,). Serum LDH (2356U/L) was raised. Serum total bilirubin (4.16mg/dl) and unconjugated bilirubin (2.9mg/dl) were raised. Renal function test showed serum urea -79.2mg/dl,serum creatinine-0.52mg/dl, anti-dsDNA antibody was negative. The patient also had one episode of fever and altered consciousness. The case was diagnosed as Microangiopathic hemolytic anemia.

For further evaluation of the non-resolving anemia bone marrow aspiration and biopsy was done. Bone marrow aspiration smears significant erythroid hyperplasia, which contributed to bone marrow hypercellularity. The trephine bone marrow biopsy showed presence of singly scattered atypical cells in the intertrabecular space and these cells formed gland like morphology. The tumor cells showed moderate atypia, irregular nuclear contour and moderate amount of foamy cytoplasm, some of which show vacuolation and eccentrically placed nuclei. Few intertrabecular spaces show infract type of necrosis and diagnosis of metastatic adenocarcinoma to the bone was made.

In view of addressing abdominal pain and anemia, UGI endoscopy was done which revealed giant contracted ulcer with irregularly elevated and indurated margin. Endoscopic biopsy was sent for histopathological examination. Histopathological examination was reported as gastric adenocarcinoma with signet ring cells.

The patient also underwent CECT (contrast enhanced CT) abdomen which showed mildly thickened mucosa at body and antrum and sclerotic foci at vertebrae and pelvic bones.PET-scan was performed in this case which showed collapsed stomach with low grade FDG avid asymmetrical thickening involving distal stomach. FDG avid sclerotic lesion are seen in sternum, right scapula, bilateral clavicle, cervico-dorso-lumbar vertebrae, sacrum and pelvic bones.

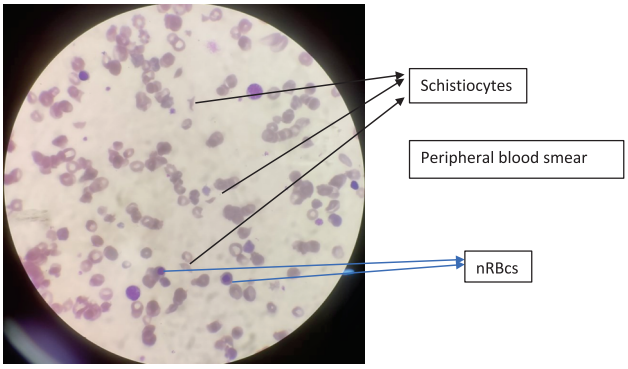

Figure1: Peripheral blood smear showing reduced RBC density, anisopoikilocytosis, microcytic hypochromic anemia, many schistiocytes and nucleated RBCs.

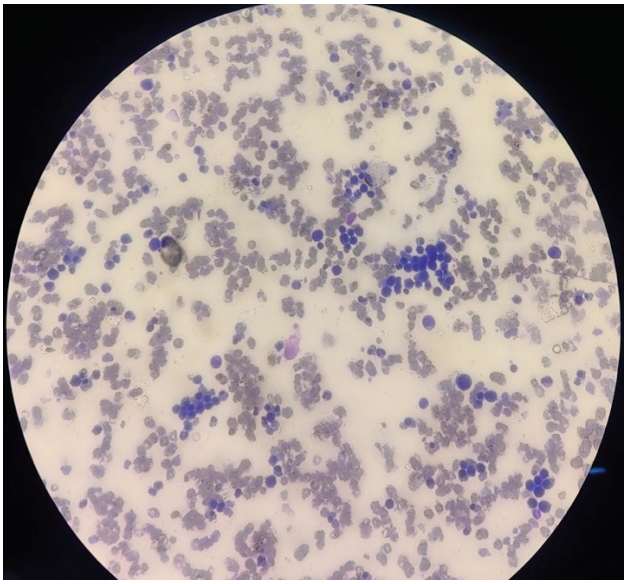

Figure 2: Bone marrow aspiration smear showing erythroid colonies.

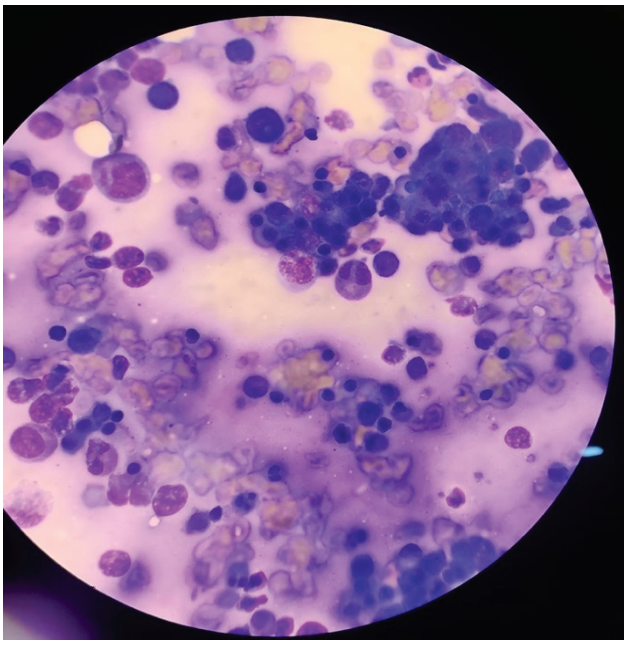

Figure 3: Bone marrow Trephine biopsy imprint showing erythroid colonies and few foamy intermingled suspicious cells.

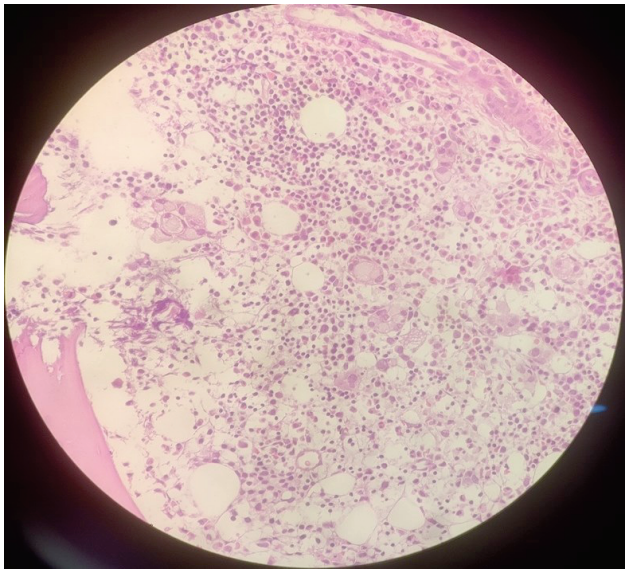

Figure 4: Bone marrow biopsy showing singly scattered and clusters of malignant cells with morphology similar to gastric adenocarcinoma.

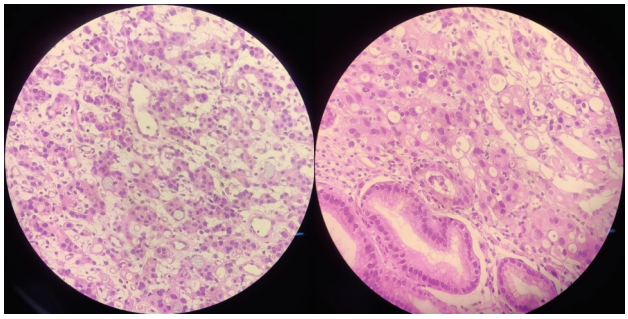

Figure- 5 and Figure 6: Biopsy from stomach showing gastric adenocarcinoma with signet ring cells.

DISCUSSION

The exact pathogenesis of cancer related MAHA is not known, however cancer related bone marrow necrosis, micro embolism and the production of procoagulants, tumor related factors as well as lysis by-products have been considered as the cause. Cancer related MAHA [CR-MAHA] is usually associated with aggressive course of disease. For even stage IV malignancy, occurrence of MAHA has been found to be predictor of worse prognosis.[5,6,7]. The case had multifocal bone marrow involvement and significant necrosis of the bone marrow was noticed. The CR-MAHA has been reported to show response to the treatment of primary malignancy[6,7]. The index case was treated with Epirubicin, Cisplatin and Capacetabin. The patient has completed three cycles of chemotherapy and the blood parameters have been improved and CR- Microangiopathic hemolytic anemia is under remission.

CONCLUSION

CR-MAHA is an uncommon presenting feature of many solid carcinomas. Its association as a paraneoplastic syndrome with any type of carcinoma including gastric adenocarcinoma with signet ring cells is associated with worse prognosis. So, any cases with laboratory and peripheral blood findings consistent with coombs negative hemolytic anemia, MAHA,search for primary carcinoma should be done as early as possible and treatment targeted to control primary tumor is also effective in treatment of CR-MAHA.

REFERENCES

1. Donald M. Arnold, Thrombotic microangiopathies: a general approach to diagnosis and management. CMAJ,2017 Jan30;189(4):E153-E159.[Pubmed]
2. 1. Tsai HM. Untying the knot of thrombotic thrombocytopenic purpura and atypical hemolytic uremic syndrome. Am J Med;2013; 126:200-9. [PubMed] [Google Scholar]
3. George JN, Nester CM. Syndromes of thrombotic microangiopathy. N Engl J Med. (2014) 371:654-66. [Google scholar]
4. Gina Zini and Raimondo De Cristofaro.Diagnostic Testing for Differential Diagnosis in Thrombotic Microangiopathies. Turk J Haematol 2019 Dec; 36(4): 222-229.
5. Yuce T, Bakkaloglu O, Kose M, Akpinar T, Tukek T. Microangiopathic hemolytic anemia in metastasized signet ring cell carcinoma: a report of three cases. International Journal of Hematology Research. 2016;2(2):136-138. doi: 10.17554/j.issn.2409-3548.2016.02.33. [CrossRef] [Google Scholar]
6. Lechner K, Obermeier HL. Cancer-related microangiopathic hemolytic anemia: clinical and laboratory features in 168 reported cases. Medicine (Baltimore). 2012 Jul;91(4): 195-205. doi: 10.1097/MD.0b013e3182603598. PMID: 22732949.
7. Morton JM, George JN. Microangiopathic Hemolytic Anemia and Thrombocytopenia in Patients With Cancer. J Oncol Pract. 2016; 12:523-530. [PubMed] [Google Scholar]