Introduction

Myeloproliferative Disorders (MPDs) is a term for describing a group of related disorders with the ability to transform to one another. This concept assumes that these disorders are an expression of excessive proliferation of any one of the cell lines, all of which are derived from a common haemopoietic cell. Primary Proliferative Polycythaemia (PPP) is an MPD with clinical stages which include the spent phase and postpolycythemic myeloid metaplasia; it could also terminate in acute leukemia or Chronic Myeloid Leukemia (CML). Hyperreactive Malarial Splenomegaly (HMS) is associated with massive splenomegaly as a result of exaggerated immune response to persistent exposure to malaria parasites. Though HMS is mostly a diagnosis of exclusion, it is thought to be a pre-malignant state with propensity to lymphoid malignancies [1,2]. It is therefore believed that HMS and lymphoproliferative disorders are indistinguishable [3]. There is also a genetic predisposition to HMS because of its association with HLA-DR2 haplotype and HLA heterozygosity [4,5]. Also, relatives of patients tend to have splenomegaly than is expected in the general population [6]. Beta thalassaemia is a genetic disorder of hemoglobin synthesis which has ineffective erythropoiesis and marrow stress as an underlying pathology. Though HMS is mostly a diagnosis of exclusion, it is thought to be a pre-malignant state with propensity to lymphoid malignancies [1,2]. It is therefore believed that HMS and lymphoproliferative disorders are indistinguishable [3]. There is also a genetic predisposition to HMS because of its association with HLA-DR2 haplotype and HLA heterozygosity [4,5]. Also, relatives of patients tend to have splenomegaly than is expected in the general population [6].

Case Summary

A 72-year-old woman was referred to Hematology for persistently high haematocrit (48% to 55%) and massive splenomegaly (22 cm below the coastal margin). Full blood count at presentation showed high haematocrit with low red cell indices (Table 1), a diagnosis of primary polycythemia (PPP) was made. The diagnosis of BTT was based on the low red cell indices and increased red cell distribution width in the presence of normal iron store. The possibility of BTT should therefore be considered in cases with HMS, it could also be possible that a cohort of patients with BTT have the Janus Kinase 2 mutations which predispose them to developing MDS.
mainly lymphocytes and reactive mesothelial cells, she was treated empirically for tuberculosis for six months with little improvement, after which a diagnosis of HMS was entertained. The splenic size continued to increase in size despite the use of malaria prophylaxis (Proguanil). Whilst receiving care in Hematology, she had several sessions of phlebotomy, and later had splenectomy on account of hypersplenism. The histology of the spleen was reported as ‘spent phase of polycythemia’. A bone marrow biopsy was done at the same time; this showed a normocellular marrow with focal areas of fibrosis. Post splenectomy, though the haematocrit was well controlled, the white cell and platelet counts continued to rise (Table 1). Seven months after splenectomy, she was diagnosed with type 2 diabetes mellitus and seven months after the diagnosis of diabetes, a provincial diagnosis of chronic myeloid leukemia was made based on hemogram but BCR-ABL was not detected. At the same time, a bone marrow biopsy showed myelofibrosis and JAK2V617F mutation was positive. She was commenced on hydroxyurea five months after splenectomy because of a rising platelet count. Two years after commencing hydroxyurea, her hemoglobin analysis by HPLC showed HbA 81.5%, HbA2 2.4% and HbF 16.1%.

**Discussion**

The likely diagnosis in this patient is an underlying beta thalassaemia trait with superimposed primary proliferative polycythemia with gradual progression to post-polycythemia myeloid metaplasia. The presence of JAK2 V617F mutation and the absence of BCR-ABL gene support the diagnosis of polycythemia. The development of type 2 diabetes mellitus in the course of the disease also makes the diagnosis of BTT more likely. Mild elevation of HbF is the norm in BTT, the moderate elevation of HbF seen in this patient could possibly be as a result of hydroxyurea therapy. The development of type 2 diabetes mellitus in the course of the disease also makes the diagnosis of BTT more likely. A draw back in the investigation of this patient is the inability to confirm the BTT at the molecular level and failure to document the premorbid hematological parameters of the patients.

**Conclusion**

This case report has brought up the need to include BTT in disorders to be considered before a diagnosis of HMS is made. There is also the need to consider the likelihood of MPDs arising from a bone marrow that is already distressed by BTT. Furthermore, it could be possible that a cohort of patients with BTT have the Janus Kinase 2 mutations which predispose them to developing MDS.

**References**


2. Lowenthal MN, O’Riordan EC, Hutt MS. Tropical splenomegaly syndrome in Zambia: further observations and effects of cycguanil and proguanil.


