Spontaneous Splenic Rupture Leading to the Diagnosis of CML

Nikita Dahake, MD1, Rachel Thomas, MD1, Brittany Corso, MD1
1Department of Medicine, Temple University Hospital, Philadelphia, PA

Background
- Chronic myeloid leukemia (CML) is one of the myeloproliferative neoplasms, occurring due to a reciprocal translocation of chromosome 9 and 22, producing the BCR-ABL1 protein
- Spontaneous splenic rupture (SSR) is a known complication of splenomegaly secondary to acute hematologic malignancies
- We present a unique case of atraumatic SSR preceding CML diagnosis

Case Presentation
- A 42-year-old male with a history of tobacco and marijuana use presented with sharp persistent left upper quadrant abdominal pain, acutely worsening over three days
  - Additional symptoms: night sweats, unintentional weight loss, nausea, vomiting, heartburn, dark tarry stools, and fatigue
- Computed tomography of the abdomen and pelvis (CTAP) was concerning for hemoperitoneum and splenic rupture (Figure 1)
- Given the patient was hemodynamically stable, General Surgery, Surgical Oncology, and Interventional Radiology collectively stated no surgical intervention
- Labs on admission were significant for a leukocytosis (Figure 2) with blast presents
  - Peripheral smear was obtained (Figure 3)
  - Bone marrow biopsy was significant for a very cellular marrow, but no acute process
- Hydroxyurea was initiated for cytoreduction pending CML confirmation
- The patient was found to have the BCR-ABL1 translocation
  - Dasatinib was initiated and Hydroxyurea was discontinued

Discussion
- BCR-ABL1, or the Philadelphia chromosome, results in constitutively active tyrosine kinase
  - It drives uncontrolled proliferation of immature and maturing granulocytes, progressing between a chronic, accelerated, and blast phase without treatment
  - These granulocytes in various states of maturation then collect in the peripheral blood, bone marrow, spleen, and liver
- Thus, splenomegaly may precede the initial diagnosis of CML due to ongoing infiltration of the spleen by malignant cells
- SSR has been shown to be present in patients with lymphomas and acute myelocytic leukemia, as they have a high rate of cell turnover
- However, it is an unlikely and uncommon presenting symptom of CML

Conclusion
- We present a case of SSR as the inciting factor for a work-up revealing hematologic abnormalities and ultimately CML
- We urge providers to keep SSR in the differential of acutely worsening abdominal pain, especially when patients have hematological abnormalities on initial laboratory studies
- Prompt diagnosis of SSR and CML led to initiation of treatment leading to favorable outcomes for the patient, who is now receiving treatment for CML in the outpatient setting

Images

Figure 1: CTAP showing massive splenomegaly with subcapsular rounded lesion measuring 2.4 x 1.6 cm in the anterior upper pole of the spleen concerning for intraparenchymal hemorrhage.

Figure 2: White blood cell trend throughout the admission.

Figure 3: Peripheral smear under microscopy showing leukocytosis with left shift that included myelocytes, promyelocytes and less than 5% myeloblasts consistent with CML in chronic phase.

References