Spontaneous Splenic Rupture Leading to the Diagnosis of CML

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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

Images

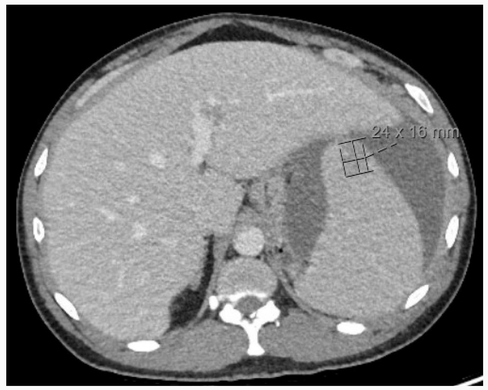

Figure 1: CTAP showing massive splenomegaly with subcapsular rounded lesion measuring 2.4 x 1.6 cm in the anterior upper pole of the spleen concerning for intraparenchymal hemorrhage.

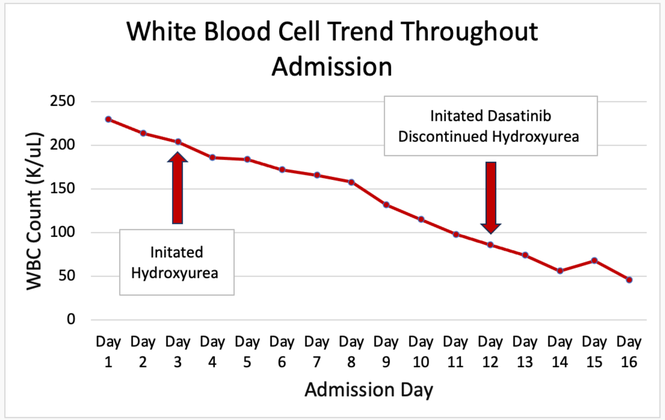

Figure 2: White blood cell trend throughout the admission.

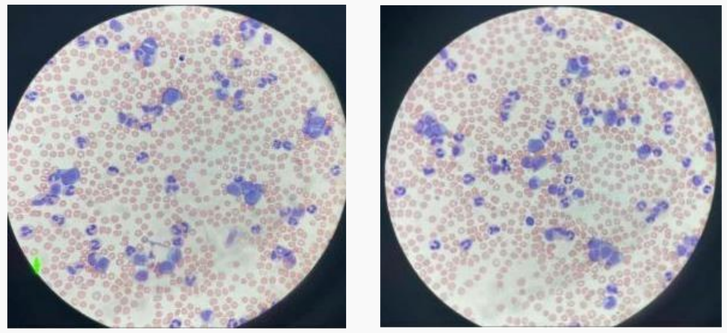

Figure 3: Peripheral smear under microscopy showing leukocytosis with left shift that included myelocytes, promyelocytes and less than 5% myeloblasts consistent with CML in chronic phase.

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

References

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