CORRESPONDENCE

A Rare Case of Spontaneous Splenic Rupture in Refractory Mantle Cell Lymphoma

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Dear Editor,

Spleen is one of the essential organs performing various immune related functions in our body. It is one of the common organs to be involved in various myeloid, lymphoproliferative and immunological disorders. Spontaneous rupture is very rare phenomenon and could be fatal if not detected timely. Hereby, we discuss a case of refractory/relapsed mantle cell lymphoma (MCL) who presented as acute abdomen and detected to have splenic rupture.

A 57-year-old female came to the emergency for the complaints of acute left-sided abdominal pain. She denied any history of trauma, intense exercise, loose stools, and blood in the stool, fever or sore throat. She had a significant past medical history of refractory mantle cell lymphoma, stage IV for which she was on tablet Venetoclax 400 mg once daily.

For abdominal pain, she underwent a computed tomography of the abdomen which showed a marked splenic enlargement with heterogeneous low density concerning for splenic rupture, with adjacent fluid (Fig. 1a).

Her laboratory data showed drop in hemoglobin from 11.5 to 6.5 g/dL with thrombocytopenia of 50,000/ μ L and WBC count of $7.5 \times 10^3/\mu$ L. She received in total five units of packed red blood cells, and three units single donor platelets. Subsequently, she underwent emergent splenectomy that led to stabilisation of her clinical condition and hematological parameters. The pathological examination confirmed the B cell infiltration by MCL (Fig. 1b–d).

Retroperitoneum in general is a potential space for fluid collection including bleeding from abdominal and pelvic organs [1]. Rupture of spleen is a potential life-threatening condition and challenging to treat [2]. Usually, direct trauma is the most common cause of the splenic rupture followed by spontaneous event. Amongst the spontaneous causes, neoplasms are most common cause followed by infections [3, 4]. Amongst neoplasms, hematological malignancies are more commonly seen than solid malignancies. Usually, non-Hodgkin's lymphoma (NHL), chronic myeloid leukemia, acute lymphoblastic leukemia are the common hematological neoplasms associated with spontaneous splenic rupture (SSR). Very rarely, solid malignancies like lung cancer has been reported in association with SSR [3]. Internal bleeding is always challenging to diagnose and treat [2]. Due to potential retroperitoneal space, many a times active bleeding is missed till patient decompensates. As mentioned above, usually splenic rupture is secondary to trauma, however rarely it could be related to infectious, infiltrative or malignancy related [3]. We believe that in our case, the splenic infarction secondary to leukemic infiltration of blood vessels and massive splenic enlargement could have been the cause of splenic rupture. Giagounidis et al. reviewed 136 cases of pathological SSR [5]. They found a significant male preponderance to develop SSR in case of leukemias, while no sex predisposition was noted in case of

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Fig. 1 **a** Computed tomography abdomen, axial showing grade 3 splenic laceration with marked enlargement of the spleen, capsular rupture blood around the spleen, liver and free in the pelvis. **b–d**

Histopathological examination showed B cell infiltration in high-power magnification (**b**). Immunohistochemistry examination was positive for Cyclin D1 (**c**) and CD5 (**d**)

NHL. They also found advanced age (age 20 or more) and splenic enlargement as the predisposing factor to develop SSR. Another hypothesis postulated by Borgeat et al. is the release of the enzymatic content from dying cells soon after initiating chemotherapy [6].

While splenomegaly is seen in almost 40% cases of mantle cell lymphoma, SSR is an extremely rare event. We ruled out all the other potential causes like infections (example, infectious mononucleosis), drugs like Inj. GM-CSF (patient received 2 months back) and use of recent chemotherapeutic agents in our case. As patient was suffering from refractory disease with progression of disease, splenic infiltration and enlargement was the likely cause of rupture in our case.

In conclusion, spontaneous rupture of the spleen should be thought of in all cases presenting with acute abdominal pain and shock. Causes like anticoagulants, antiplatelets, infections, trauma and bleeding disorders should always be ruled out in every case of intraabdominal bleeding before labelling it as spontaneous bleed. Supportive care with blood products, vasopressor support and definitive treatment with either splenic artery embolization or splenectomy is the ideal approach.

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Compliance with Ethical Standards

Conflict of interest Authors have no conflicts of interest to declare.

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