

## **Splenic rupture in a patient undergoing chemotherapy for a relapse and aggressive multiple myeloma : about a case**

**INTRODUCTION :** Spontaneous splenic rupture is a well-described complication in several hematological disorders, but is rare in multiple myeloma patients. To our knowledge, only 5 cases of spontaneous splenic rupture due to multiple myeloma have been reported. All of which were in undiagnosed / not yet treated patients. We report the case of a 57-year-old female patient who presented a splenic rupture during chemotherapy treatment for a relapse and aggressive multiple myeloma.

**CASE REPORT:** A 57-year-old woman was diagnosed with multiple myeloma ISS Score III in July of 2019. She had circulating plasma cells, representing 14 % of peripheral blood cells.

She underwent induction treatment with a VTD regimen (Velcade – Thalidomide – Dexamethasone) and obtained a complete remission after 6 cycles. Unfortunately, at this exact time, she started to develop extramedullary disease, with multiple plasmocytomas. A second line treatment with a KRd regimen (Carfilzomib – Revlimid – Dexamethasone) was started. Before the second cycle, she progressed again with the reoccurrence of plasma cells on peripheral blood (up to 14%). A third line, with a DCEP regimen (Dexamethasone – Cyclophosphamide - Etoposide – Cisplatin) was initiated. On the third day of the cure, she developed a hemorrhagic shock due to splenic rupture and underwent splenectomy. She recovered in the ICU and was able to pursue the treatment. Massive infiltration of the spleen by plasma cells was noted on the histological examination.

**DISCUSSION :** To our knowledge, this is the first case of spontaneous splenic rupture due to a multiple myeloma happening during a chemotherapy treatment. Among the 5 cases already published, splenic rupture was the event leading to the diagnosis of multiple myeloma in 4 patients and the fifth patient had just been diagnosed but hadn't start a treatment yet.

Spontaneous splenic rupture associated with multiple myeloma is relatively more frequent in amyloidosis, after granulocyte-colony stimulating factor and in plasma cell leukemia. Mechanisms evoked are extramedullary hematopoiesis, tumoral pressure of plasmocytomas on the splenic tissue and amyloid deposition in the spleen. In our case, the aggressive presentation had some resemblance with plasma cell leukemia and the undergoing mechanism seems to be splenic infiltration by the plasma cells, with added chemotherapy induced cell necrosis. Other raised hypothesis for splenic rupture in leukemia are splenic infarcts and coagulation disorders, but we did not encounter them in our case.

**CONCLUSION :** Multiple myeloma is a common hematological disease. A very rare and sometimes fatal complication is spontaneous splenic rupture. It seems to occur more frequently in an aggressive subgroup of myeloma, imitating plasma cell leukemia.