Aplastic anemia in a malignant Non-Hodgkin Lymphoma patient

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Abstract

Aplastic anemia is a devastating condition for the patient as the bone marrow either does not produce sufficient amounts of blood cells or it can stop their production. Non-Hodgkin lymphoma (NHL) is a malignant disease which affects a group of tissues in the body called the lymphatic system. The combination of aplastic anemia with NHL is rare but not impossible.

This is a case report involving a female patient aged 77 years showing up at the Durres Regional Hospital, Albania. The patient had no concomitant diseases except for complaints of weakness and fatigue. A series of examinations were performed in order to diagnose the case. The examination of peripheral blood suggested the presence of signs indicating pancytopenia (low values of the three cell lines: red bloods cell, leucocytes and thrombocytes). Myelogram showed a bone marrow failure, absence of erythroid, myeloid and megakaryocytic cell lines. Symptomatic therapy was initiated. The patient showed up again after three months with a single right axillary lymph node sized 2-3 cm. The patient underwent fine needle aspiration (FNA) procedure, resulting in CD20+ large cell NHL. The combined therapy was initiated but without positive results. The patient died after three months as a result of hematemesis, Mallory-Weiss syndrome.

This is the first case of the co-occurrence of aplastic anemia with NHL (Diffuse large B cell lymphoma [DLBCL]) in the same patient treated in the Durres Regional Hospital in Albania. A multidisciplinary approach, careful morphological interpretation, immunophenotyping, cytogenetic and molecular examinations are required to accurately diagnose the presence of aplastic anemia and NHL (DLBCL).

Keywords: aplastic anemia, case report, co-occurrence, malignant non-Hodgkin lymphoma.

Introduction

Aplastic anemia is characterized by pancytopenia in bone marrow aspiration and low cellularity, in the absence of non-normal infiltration and with no increase in the level of reticulin (1).

Patients with aplastic anemia in most cases present with symptoms of anemia (weakness and body fatigue), hemorrhagic phenomena in the skin and mucosa (ecchymosis or petechiae), including bleeding into the mouth cavity or visual disturbances due to eyes hemorrhage. Infections, dry throat or partial inability to treat minor infections can also be signs of the disease, but are less common. There can be no lymphadenopathy or hepatosplenomegaly in the absence of an infection. This applies to younger and older patients in whom it was later noticed that the characteristic features of the inherited syndrome of bone marrow failure may not be present, or may have other distinct features that are present in older patients (2).

Diffuse large B cell lymphoma (DLBCL) is a neoplasia of B lymphocytes with a diffuse growth pattern. These lymphomas are heterogenic and also have several morphological, phenotypes and molecular sub-types or variants and different entities (3). DLBCL is now very common and it comprises about 30%-40% of all NHL in adults (4).

Morphologically, DLCBL lymphomas which are not otherwise specified, could present with a centroblastic, immunoblastic and aplastic cytology (5). These variants are associated with the biological and genetic features of the tumor but they have too few reproduction opportunities and wide overlapping that prevents their use as important classifiers. Phenotypically, DLCBL not otherwise specified, states the maturation of B cell markers. CD5 is detected in the subgroup of those tumors that seem to have a more aggressive behavior, especially in eastern populations. The expression of CD10 and BCL-6 markers in embryonic centers is associates with the embryonal origin of the tumors. Genetically, around 20%-30% of DLBCL not otherwise specified, present with the translocation t(14;18) and BCL2 gene regulation. These cases are associated with the expression of CD10 and embryonal origin (5).

The aplastic variant of DLCBL is also reported in the literature. This is a rare form of the disease and it is characterized by the presence of cells with various forms and uncommon nuclei in the context of bone marrow failure, making them difficult to be properly diagnosed (6).

In the premises of Durres Regional Hospital in Albania, we had never had a chance to care for patients with the concurrent presence of aplastic anemia and DLCBL NHL. Here we present the first such case encountered in our hematology practice in Durres, which constitutes one of the major regions in Albania.

Case report

A female patient aged 77 years presented for the first time in our clinic after two months of continually feeling weak and tired (fatigue). Her medical history showed no signs of the presence of other earlier diseases (no concomitant diseases). Physical examination of the patient showed no signs of the presence of lymphadenopathy and hepatosplenomegaly. In the skin, there were noticed hemorrhagic elements, such as ecchymosis.

Laboratory examinations were as follows: (1 – peripheral blood analysis) – leucocytes: 3000 (35% neutrophils, 60% lymphocytes, 5% monocytes), platelets: 20 000, erythrocytes: 2 700 000, hemoglobin: 9.3 g/l; (2 – analysis of the hepatic function) – SGPT: 30 IU/l, SGOT: 20 IU/l, yGT: 40 IU/l, bilirubin at a normal level; (3 – increased CRP level; (4 – serology for hepatitis and HIV infection resulted negative).

The patient underwent myelogram (bone marrow aspiration), which revealed a failure of the bone marrow, lack of erythroid, myeloid and megakaryocytic cell lines.

Following these findings, the diagnosis was set as medullar aplasia and, subsequently, it was initiated the symptomatic therapy with blood transfusion and

antibiotics accompanied by a cytostatic drug (cyclosporine). Soon after therapy initiation, the general health condition of the patient improved markedly. Three months after, the same patient showed up again in our clinic with a single right axillary lymph node. The size of the lymph node varied between 2 and 3 centimeters. Laboratory examinations revealed an elevated level of lactate dehydrogenase (LDH). Immediately, the patient underwent fine needle aspiration (FNA) of the affected lymph node in order to retrieve the tissue for further in-depth examination. The result of the biopsy (Figure 1 and Figure 2) suggested the diagnosis: CD20+ large cell malignant non-Hodgkin lymphoma. Given the situation we started the combined therapy but there was no improvement of her general condition. The patient died as a result of hematemesis, Mallory-Weiss syndrome.

Figure 1. Cytology of the bone marrow through bone marrow aspiration

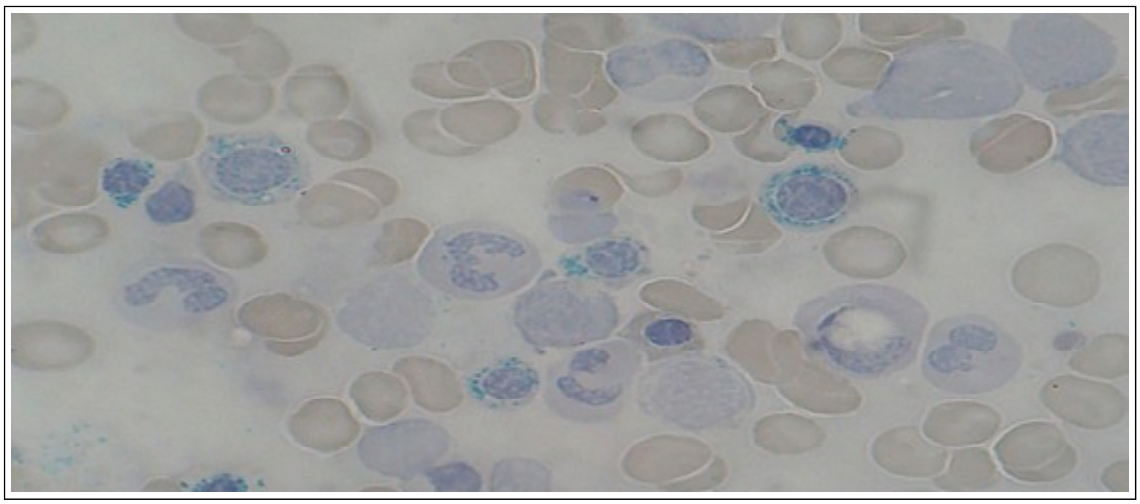
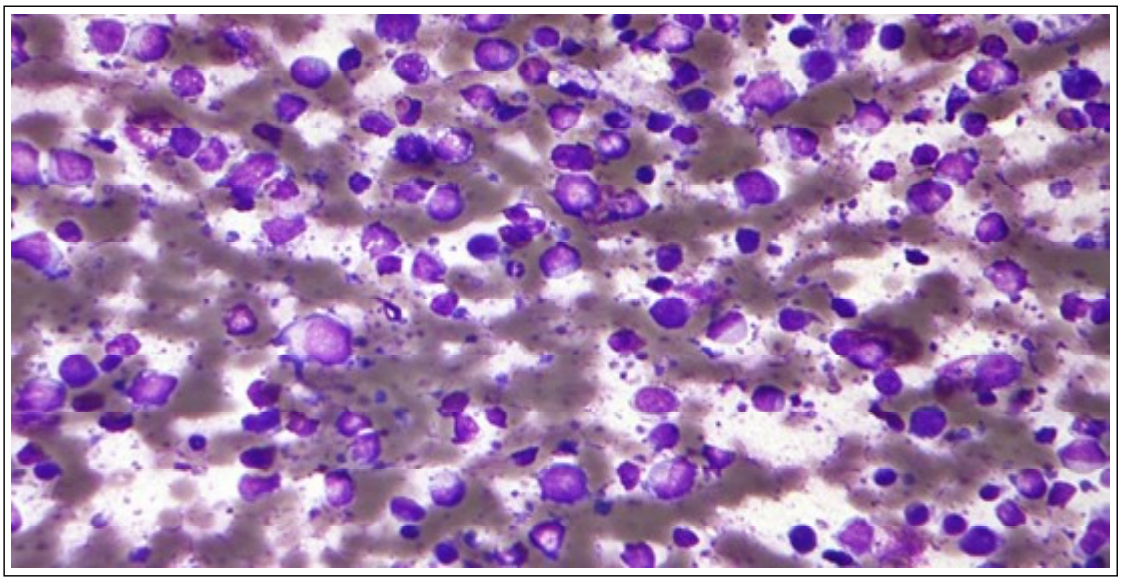


Figure 2. Cytology of the lymph node through FNA



Discussion

Medullar aplasia (aplastic anemia) is a condition associated with the insufficiency of the bone marrow to produce all three cell lines (erythroid, myeloid and platelets). Aplastic anemia usually occurs without any known cause or reason. However, known causes might include exposure to various chemicals (benzene, solvents in various glues, some insecticides) (7), drugs (drugs used for chemotherapy, particular antibiotics), viruses (HIV), radiation (8), immunodeficiency (lupus, rheumatoid arthritis), inherited bone marrow failure syndromes (9).

Medullar aplasia can appear at any age. It can occur suddenly or may occur as a slow process which deteriorates over time (10).

On the other hand, non-Hodgkin lymphoma (NHL) is a group of diseases similar to the types of neoplasia that start in the lymphatic system and lymph nodes that are part of the human immune system. Non-Hodgkin lymphoma is further classified into several subtypes, each requiring a particular treatment which is different across subtypes (2,4).

The combination of these two pathologies in the same patient could occur randomly but this could also be a hypothesis. The other hypothesis could be that the coexistence of the two could not be totally random. For example, it could be associated with an impairment of the immune system of the host. However, such hypothesis leaves room for further research.

Despite the inability to exactly pinpoint the factor leading to the concomitant occurrence of aplastic anemia and NHL in our patient, we can conclude that, for setting the right diagnosis of this rare condition, there is a need for a multidisciplinary approach, careful morphological interpretation, immunophenotyping, cytogenetic and molecular examinations.

Conclusion

This is the first case of a patient suffering simultaneously from aplastic anemia and malignant non-Hodgkin lymphoma (DLBCL) showing up and being treated at the Regional Hospital of Durres. Multidisciplinary approach, careful morphological interpretation, immunophenotyping, cytogenetic and molecular examinations are required to establish an accurate diagnosis of aplastic anemia and LMNH (DLBCL).

Conflicts of interest: None declared.

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