G11 Sudden Unexpected Death Due to Acute Myeloid Leukemia: A Case Report

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After attending this presentation, attendees will have learned about a case of unexpected sudden death due to undiagnosed acute myeloid leukemia.

This presentation will impact the forensic science community by stressing the importance of performing an accurate necropsy examination completed by a thorough histopathological study in all cases of unclear sudden death.

Acute myeloid leukemia (AML) is characterized by an increase in the number of myeloid cells in the marrow and an arrest in their maturation, frequently resulting in hematopoietic insufficiency (granulocytopenia, thrombocytopenia or anemia), with or without leukocytosis.

The clinical signs and symptoms of AML are diverse and nonspecific, but they are usually directly attributable to the leukemic infiltration of the bone marrow, with resultant cytopenia.

Typically, patients present with signs and symptoms of fatigue, hemorrhage, or infections and fever due to decreases in red cells, platelets, or white cells, respectively. Pallor, fatigue, and dyspnea on exertion are common. Leukemic infiltration of various tissues, including the liver (hepatomegaly), spleen (splenomegaly), skin (leukemiacutis), lymph nodes (lymphadenopathy), bone (bone pain), gingiva, and central nervous system, can produce a variety of other symptoms.

The primary diagnosis of AML rests on the morphologic identification of leukemic myeloblasts in preparations of peripheral blood and bone marrow stained with Wright–Giemsa. The presence of more than 30 percent leukemic blasts in a bone marrow aspirate is required for a definitive diagnosis of acute leukemia.

AML has typically been categorised with the FAB system, which is based on cytomorphology and cytochemistry. The current WHO classification system incorporates cytogenetic data and defines four major categories of AML. At least 20% of the blasts must have surface antigens associated with myeloid differentiation.

A case is presented of a woman of 67-years-old died in Hospital of Genoa's emergency room for unknown clinical causes. The day before his death, she had been visited at home by doctor for symptoms of diarrhea and vomiting which had persisted for several days. The doctor gave antiemetic and antidiarrhoeal therapy and rehydration.

The body's autopsy was performed by Institute of Forensic Medicine of Genoa. External examination highlights numerous small purplish ecchymosis on the whole body surface. Small and diffuse hepatic nodules were also found at autopsy.

Histopathologic examination performed on the tissue samples, confirmed the presence of neoplastic cells in cerebral, heart, lungs, pancreas, kidney, and spleen blood vessels. Neoplastic elements at immunohistochemical examination showed weak expression of myeloperoxidase and molecule CD 34, absent expression of molecule CD 20 and CD 3. This immunohistochemical profile identified a neoplastic proliferation of immature granulocytic elements. The multiorgan neoplastic involvement was due to acute myeloid leukemia (FAB M1/M2).

The data obtained at autopsy and histopathology attributed the death due to multiple organ failure secondary to acute myeloid leukemia.

In the literature are other examples of unexpected death secondary due to complications of undiagnosed acute myeloid leukemia, but in these cases, the cause of death was hemorrhage secondary to disseminated intravascular coagulation.

In conclusion, the present case is interesting especially because unexpected death, came after non-specific symptoms, caused by a multiple organ failure (MOF) secondary to acute myeloid leukemia, stresses the importance of postmortem examination complemented by histopathological investigations, to define cause of death.

Acute Myeloid Leukemia, Sudden Unexpected Death, Multiple Organ Failure

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