G112 Undiagnosed, Untreated Acute Promyelocytic Leukemia Presenting as Suspicious Sudden Death

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Leukemia as a cause of sudden death is rare, because symptoms are usually present and treatment is initiated prior to death. After attending this presentation, attendees can expect to learn about a rare differential diagnosis of criminal death.

This presentation will impact the forensic science community by presenting a differential diagnosis of criminal death and reveals an aspect of the French medicolegal system which can be unknown to the American audience and in competence as it enlightens the importance of bone marrow removal during the autopsy.

Introduction: An autopsy case with acute promyelocytic leukemia is reported in which foul play had been initially suspected.

Case Report: A 40-year-old male who was found dead in his bedroom will be presented. He was working for the Brazilian Army and was in France for a training period. He had a two-month history of lower back pain. A complete blood count was normal one month before his death. At scene, the police noticed multiple bruises of markedly different colors on the body. A forensic autopsy was requested by the Chief Prosecutor because foul play was suspected. The external examination revealed multiple subcutaneous hemorrhages of different ages covering the whole body. The autopsy showed subarachnoid hemorrhage without any skull fracture. There was no other significant finding. Toxicology was negative. Histology revealed right-sided subarachnoid hemorrhage and a cerebellar hematoma. As foul play was initially suspected, the hyoid bone was removed. Histologic examination of the bone marrow showed no normal hematopoietic cells. Myeloperoxidase staining revealed the diagnosis of acute promyelocytic leukemia (APL). Death was attributed to acute intracranial hemorrhage due to APL. The manner of death was ruled natural.

Discussion: According to the literature, the most common tumors causing sudden unexpected death in adults include bronchogenic carcinoma, acute leukemia, gastric adenocarcinoma and adenocarcinoma of the urinary bladder. Death is usually attributed to a variety of mechanisms, including hemorrhage, thromboembolism and widespread dissemination. APL is characterized by the proliferation of abnormal promyelocytes and is classified as type M3 in the French-American- British (FAB) leukemia system. APL comprises approximately ten percent of the acute myeloblastic leukemias in adults. Because of the complicating disseminated intravascular coagulation and the likehood of threatening hemorrhage, APL is usually regarded as a medical emergency. This disease leads to a high rate of mortality, primarily from intracranial hemorrhage. There could be a tendency to overlook the diagnosis of this disease when a deceased presents multiple bruises that seem consistent with injuries. However, the French medicolegal system is different from the American system. In France, the decision to perform toxicology or histology after the autopsy is made the office of the prosecutor and not by the pathologist. Due to financial considerations, it is quite frequent that no complimentary analyzes are made, even if the pathologist thinks it is necessary to determine the cause of death. In our case, the circumstances of death and external examination at the autopsy did not raise the diagnosis of a malignant neoplasm in the hemopoeitic system. This type of case points out the importance of a thorough autopsy, including microscopic examination to protect innocent people from unwarranted prosecution. It is also important to retain bone marrow to enable the testing to be done and to confirm the diagnosis if required.

Forensic Pathology, Sudden Death, Acute Promyelocytic Leukemia

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