H17 A Postmortem Diagnosed Case of Malaria in a Non-Endemic Country

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After attending this presentation, attendees will understand the importance of anamnesis in forensic pathology. In the presented case, that knowledge led to the selection of ancillary exams not commonly used in a forensic pathologist's everyday practice.

This presentation will impact the forensic science community by raising awareness of the growing incidence of sudden death cases related to diseases that are non-endemic in developed countries, probably related to the increased migration of populations.[1]

A 48-year-old man was found dead at home sitting on the toilet with his body surface partially covered in feces. The man was previously healthy without known hospital admissions. No information on his vaccination status, including anti-malaria prophylaxis, was available. He had been in Angola for some time and arrived at Portugal two weeks before his death. His sister reported that in the last days, he had complained of fatigue, anorexia, and dry cough.

The main goal of the investigation was to discover the cause and manner of death. Since the victim had recently returned from a malaria-endemic country, this disease was taken into consideration as a differential diagnosis and in choosing appropriate ancillary exams.

The external examination remarks were the yellowing of the sclera and the presence of feces covering the lower limbs, genital and abdominal areas. The internal examination revealed marked visceral congestion as well as hepatomegaly and splenomegaly.

Blood was collected to perform toxicological analysis (quantification of alcohol, prescription drugs, and illegal drugs). Blood, urine, stool, and cerebrospinal fluid specimens were taken and sent to the microbiology laboratory to perform microscopic observation and aerobic and anaerobic cultures. Tissue samples from the brain, heart, coronary artery, liver, kidney, lung, and spleen were collected in order to perform histological examination.

The Giemsa-stained thin blood smears revealed hyperparasitemia and numerous remnants of intraerythrocytic malaria parasites. *Plasmodium falciparum* was identified by the presence of the characteristic crescent-shaped gametocytes. Other different stages of its reproductive cycle were observed, namely ring forms, trophozoites, and schizonts, some arranged in rosettes.

The histological study revealed malarial pigment (haemozoin pigment) in erythrocytes that filled the vascular lumen of congested vessels in the gray and white matter of the brain, without hemorrhagic lesions; extensive malarial pigment was also seen in the red blood cells of the other studied organs and in liver Kupffer cells. The spleen revealed hemorrhagic necrosis lesions; signs of multiorganic failure were present. Toxicological analysis results are not yet available.

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Malaria, being a cause of great morbidity and mortality, represents a significant cost in health care services. It's a prevalent disease in underdeveloped countries and is re-emerging in developed ones. This is due to increased migration to and from endemic regions.[1] *Plasmodium falciparum* is the most common pathogen from genus *Plasmodium*, being the one associated with cerebral malaria, the most fatal presentation of this disease. Along with the migration routes, the non-use of chemoprophylaxis and the increasing antibiotic resistance also contribute to malaria re-emerging around the globe.[2]

This is a report of a disseminated malaria case diagnosed in postmortem studies. This case led to a forensic investigation with a contribution of forensic fields not commonly involved in the work of the study's pathology unit. Due to the awareness of a higher prevalence of this tropical disease in travelers from endemic areas, a microbiologic analysis was performed. Malaria is a rare disease in Portugal and this case provided new technical and scientific knowledge to the forensic pathology unit.

Reference(s):

1. Menezes R.G., Pant S., Kharoshah M.A. Autopsy discoveries of death from malaria. 2012. *Legal Medicine*, Volume 14, lssue 3, pages 111-115.
2. Palmiere C., Jaton K., Lobrinus A., Schrag B., Greub G. Postmortem diagnosis of malaria. 2014. *New Microbes New lnfect*, pages 154-155.

Malaria, Microbiology, Postmortem

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