



### G133 A Single Case of Natural Death Due to Idiopathic Hypereosinophilic Syndrome Occurring in a Young Nigerian Prostitute

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After attending this presentation, attendees will be able to better understand the main pathological features of Hypereosinophilic Syndrome (HES) found at autopsy in a 21-year-old Nigerian prostitute.

This presentation will impact the forensic science community by discussing the possibilities of natural death caused by HES in a young prostitute. The place and circumstances in which she was found initially led to a supposition of a violent death.

In February 2012, early in the morning, a 21-year-old partially undressed Nigerian prostitute was found dead next to a rubbish bin, in a central square of Palermo, Italy.

After the external examination, rectal and vaginal swabs were taken for genetic analysis in order to find sperm. After a complete autopsy, organ samples were also taken for histopathological examination, using routine histological stainings, namely hematoxylin and eosin, Giemsa and PAS. Toxicological and serological investigations and hematological analysis were performed as well.

The external examination and autopsy didn't reveal any traumatic lesions or signs of sexual abuse as confirmed by the genetic investigation, which was negative in the research of spermatozoa. The serological analysis was also negative for viral and parasite infections and the toxicological investigation was negative for drugs and alcohol. The blood sample taken two hours after death showed that the white cell count was 9500/mm<sup>3</sup> with 2840 eosinophils/mm<sup>3</sup> (41%). The histopathological investigation showed: (1) lungs: marked eosinophils recruitment and degranulation with endovascular endothelial injury and formation of occluding platelet plugs; multi focal vasculitis with eosinophilic infiltrate and intimal myofibroblastic eccentric thickening; (2) heart: marked congestion and subendocardial myocytolysis and interstitial eosinophilic infiltration; (3) lymph nodes: normal structural organization with eosinophilic granulocyte infiltration of lymphatic sinuses; (4) liver: cloudy swelling of hepatocytes which show granular cytoplasm; focal eosinophilic infiltration of fibrotic and thickening portal spaces; (5) kidneys: diffuse and marked vascular congestion and cloudy swelling of cortical convoluted tubules; marked and diffuse eosinophilic infiltration of renal pelvis; and, (6) bone marrow: normal hematopoietic components with prevalence of eosinophilic granulocytes in the myeloid series.

HES is a rare disorder characterized by a sustained overproduction of eosinophils, peripheral eosinophilia, and tissue eosinophilic infiltration. It commonly affects the heart, lung, skin, and central and peripheral nervous systems, and often causes impaired organ function.

Until the late 1990s, this disease had a bad prognosis with a median survival of less than one year with less than 20% of patients surviving two years, and with death usually occurring because of organ dysfunction. Current treatment has fortunately improved the prognosis.

In this case, however, because of the fact that this young prostitute lived *underground*, no information on the clinical development of the pathology which led to exitus exists and also the absence of any medical treatment didn't allow the course of the illness to be slowed down. As the hematological examination is from a single sampling which ran for approximately two hours after death, it is not possible to document the duration of this marked hypereosinophilia, the histopathological examination showed a reactivation of chronic eosinophilic vasculitis responsible for acute respiratory failure, the cause of death. In this case, the absence of a specific etiologic has allowed us to define the HES as idiopathic.

**Hypereosinophilia, Histopath Findings, Autopsy**