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Euro Virology 2019: HIV Infection and its complications from pathologist's point of view- Vsevolod A Zinserling- Saint-Petersburg University

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HIV - infection remains one of the most important diseases, leading to a significant number of deaths. Despite the progress in its in vivo diagnosis and the study of pathogenesis, many questions require a comprehensive analysis, including pathological data.

Most literature data describing morphological diagnostics focuses on the detection of numerous secondary diseases, many of which are familiar to qualified pathologists. Less well-known are the changes that, in our view, are caused by the direct effect of HIV on the cells.

Our experience allows us to fully confirm the ideas of A.V. Zinserling about the diagnostic significance of HIV changes in nuclei (with their increase and some deformation) of mononuclear cells in various organs (fig1), although the mechanisms of such changes remain not entirely clear. Detection of p24 antigen during immunohistochemical studies can provide useful information, however, a negative result does not exclude HIV infection.

Brain-related lesions due to HIV are also quite informative and diagnostically valuable. Focal demyelination is very characteristic. The most characteristic are virus-induced cerebral vasculitis, including those detected in the membranes and vascular plexuses of the ventricles, sometimes by the presence of cells with nuclear deformation in an amount of up to 5 or more (fig2). The severity of vascular endothelial damage directly correlates with the degree of HIV encephalopathy. Part of the structural changes is likely to be caused by other pathogens (viruses, mycoplasmas, prions), the diagnosis of which is currently not adjusted.

The leading secondary infection in recent years has become tuberculosis. The significance of other infectious complications, for Russia primarily pneumocystosis, cryptococcosis, cytomegaly, toxoplasmosis, candidiasis varies in different periods of time and regions.

Morphological studies of the afterbirth in perinatal HIV infection are of fundamental importance. At the same time, it is necessary to take into account not only the possibility of ante - and intranatal transmission of HIV itself, which in a newborn child may be difficult to detect if the infection is in a latent form, but also the probability of a significant role of "concomitant" infectious processes, especially caused by chlamydia, mycoplasmas, viruses from the herpes and hepatitis groups. In addition, the ability of HIV to disrupt the maturation of chorionic villi should be taken into account, leading to the development of chronic placental insufficiency.

The main tasks in conducting morphological studies in HIV infection can be formulated as follows:

1. Life-long cytological and histological diagnosis of secondary infectious lesions and tumors in order to prescribe timely and adequate treatment
2. Participation in a comprehensive study of the pathogenesis of various variants of the course of HIV infection, including in the perinatal period
3. A detailed study of the structure of the direct causes of death in HIV infection
4. Evaluation of the effectiveness of therapy
5. Development of a system for predicting the condition of a child from a mother with HIV infection based on the results of a morphological study of the placenta.

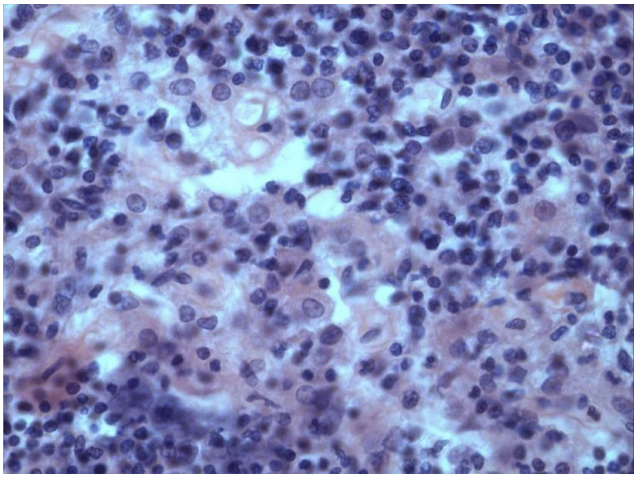

Fig1. Typical for HIV infection in a lymph node. Typical transformation of dendritic cells. H-E x400

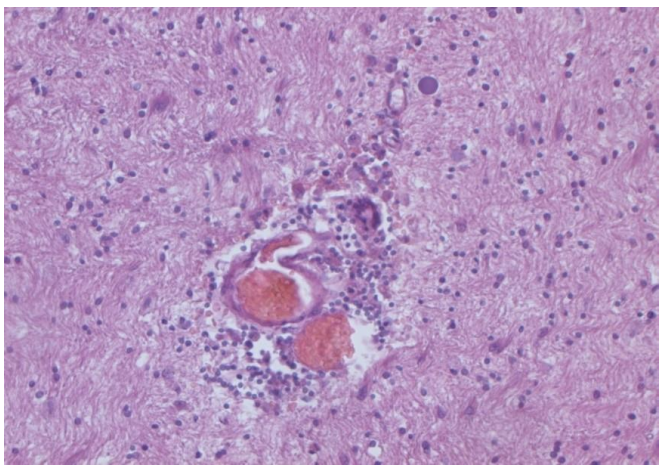

Fig.2. HIV-encephalitis with formation of giant cell. H.-E. x200

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