

RENAL DISEASE IN HIV INFECTION ACCORDING TO AUTOPSY DATA

G. Volgina ¹, M. Gadzhikulieva ², N. Uyshuk ²; Stolyarevich ¹

1 Department of Nephrology, 2 Department of Infectious Diseases and Epidemiology, Moscow State University of Medicine and Dentistry A.I.Evdokimov, Moscow, RUSSIAN FEDERATION

Objectives:

High mortality in patients with human immunodeficiency virus (HIV) infection is needed to explore the nature of pathological changes in organs with various HIV-associated, secondary, opportunistic and comorbidities diseases which cause the death. Renal disease is relatively common complication in patients with HIV infection. The objectives of the study was to evaluate the frequency, spectrum of renal lesions in HIV infection, its structural and morphological changes according to autopsy data.

Methods:

The retrospective analysis of autopsy data were made among 400 HIV-infected Caucasian adults cases. The macroscopic, microscopic and immunohistochemical studies were performed using a wide range of histological stains, bacteriological and virological methods In all autopsy cases.

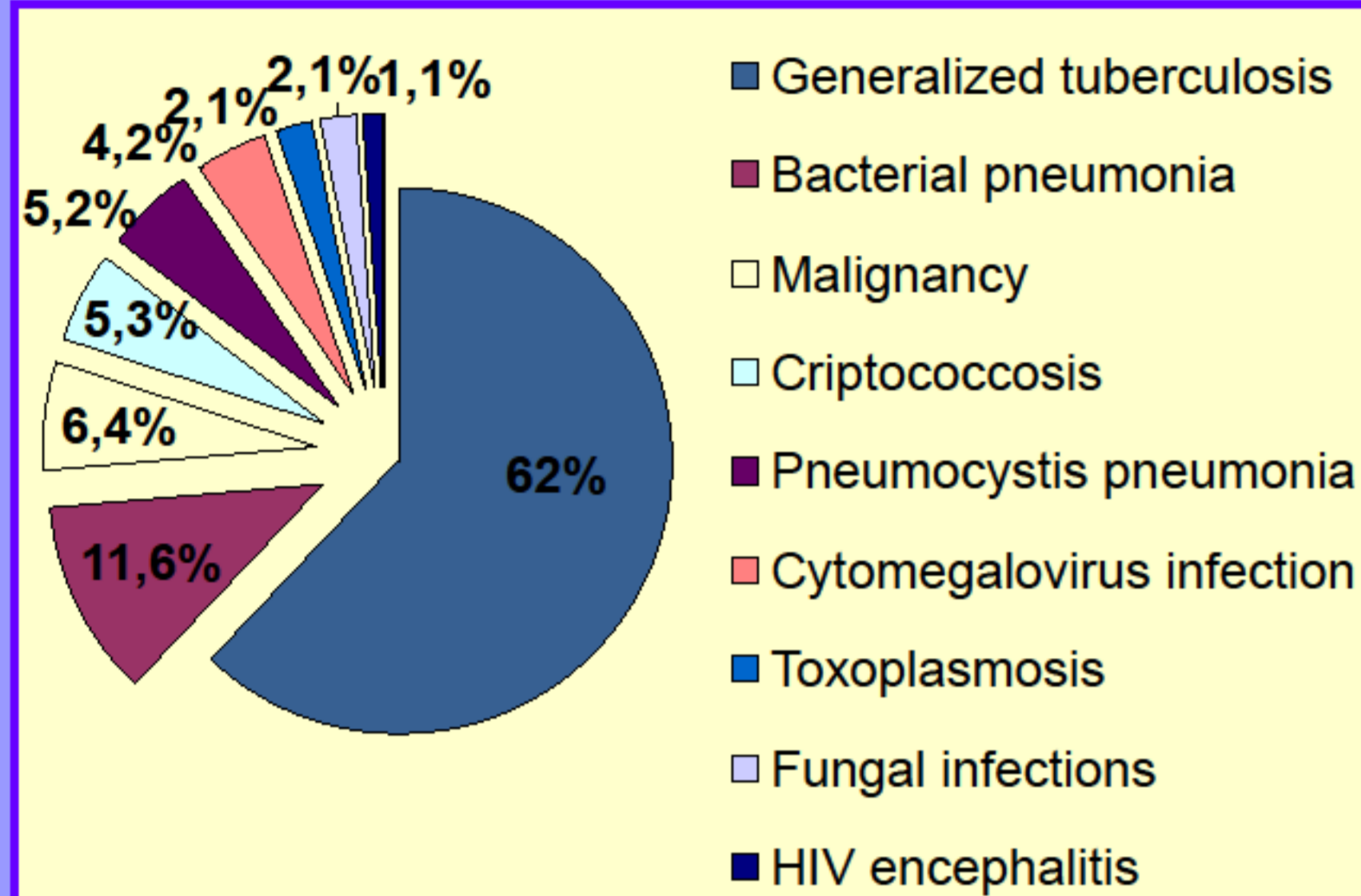


Figure 1. The frequency of kidney lesions in HIV-infection patients with opportunistic and secondary diseases (group I).



Fig. 2. The kidney tuberculosis with large areas of caseous necrosis (a); acute caverns (b).



Fig. 3. Kidney lesion in non-Hodgkin's B-cell lymphomas.

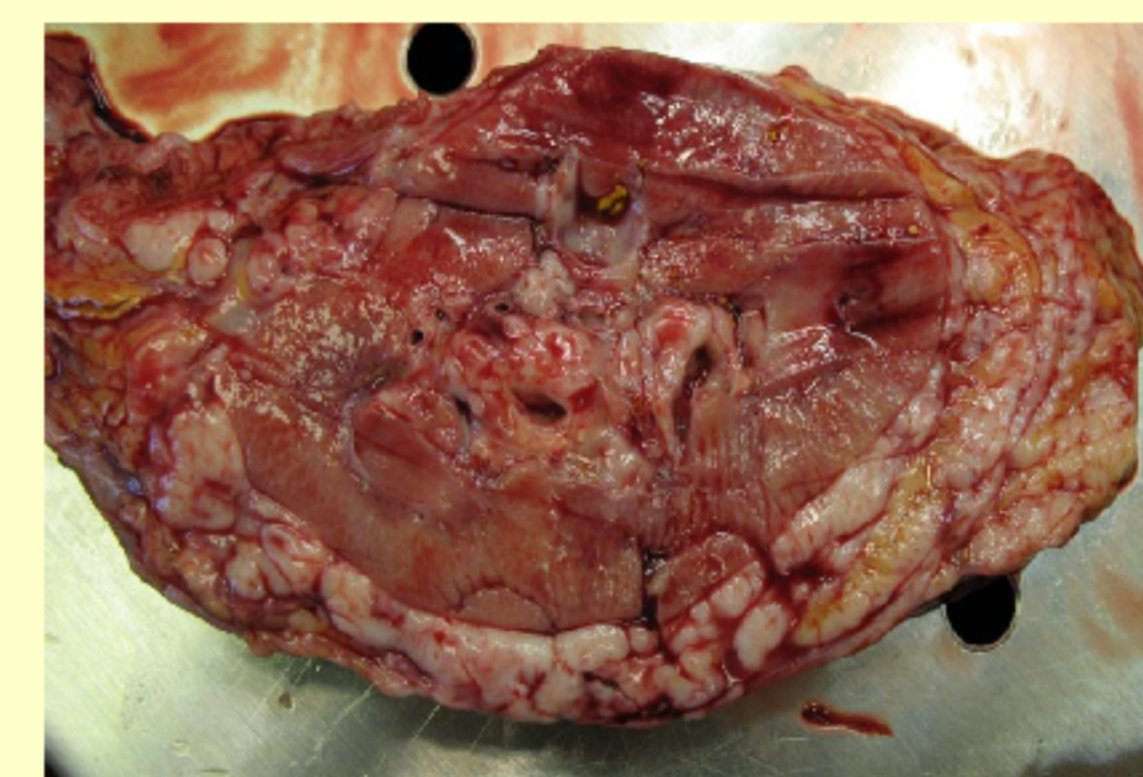


Fig. 4. Renal AIDS-related Kaposi sarcoma.

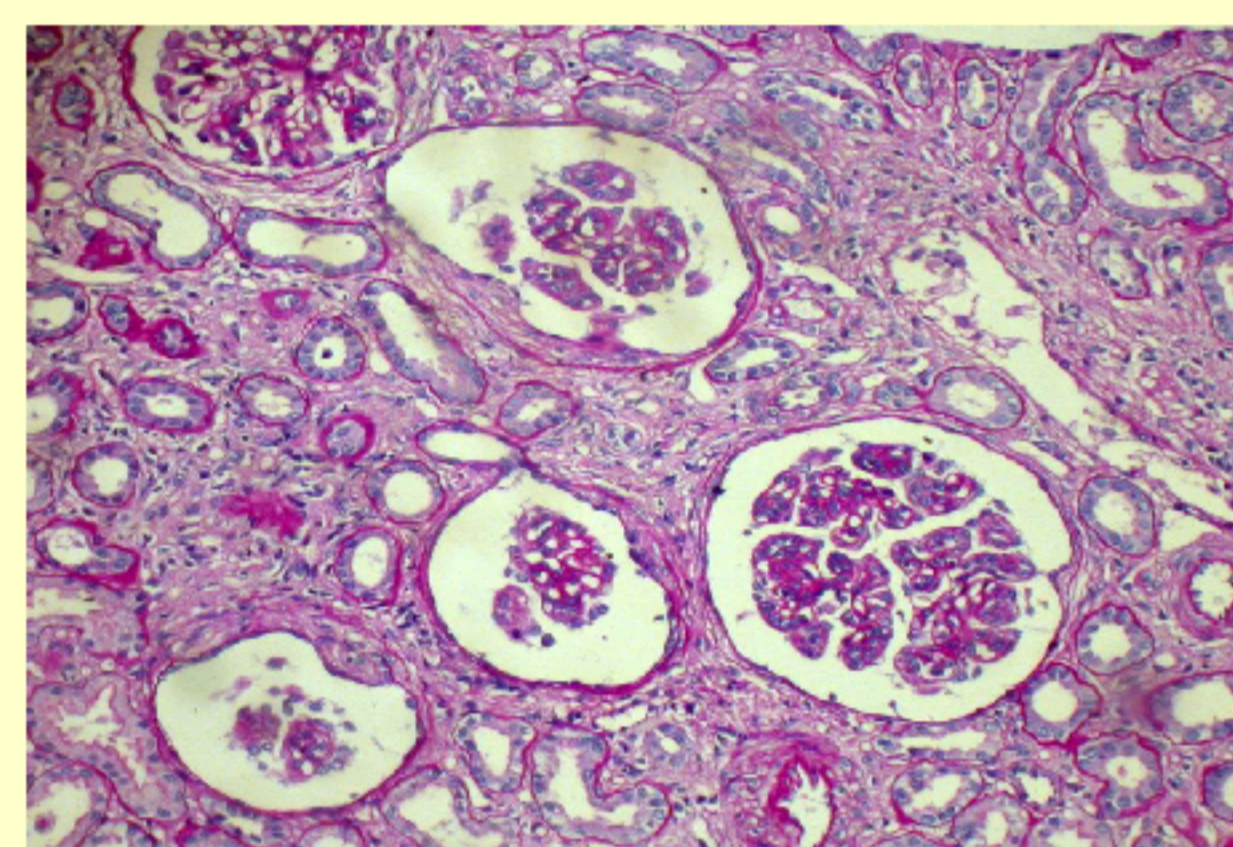


Fig. 5. Membranoproliferative glomerulonephritis pattern with capillary wall thickening and reduplication, increased cellularity and lobular accentuation of glomeruli. PAS *100

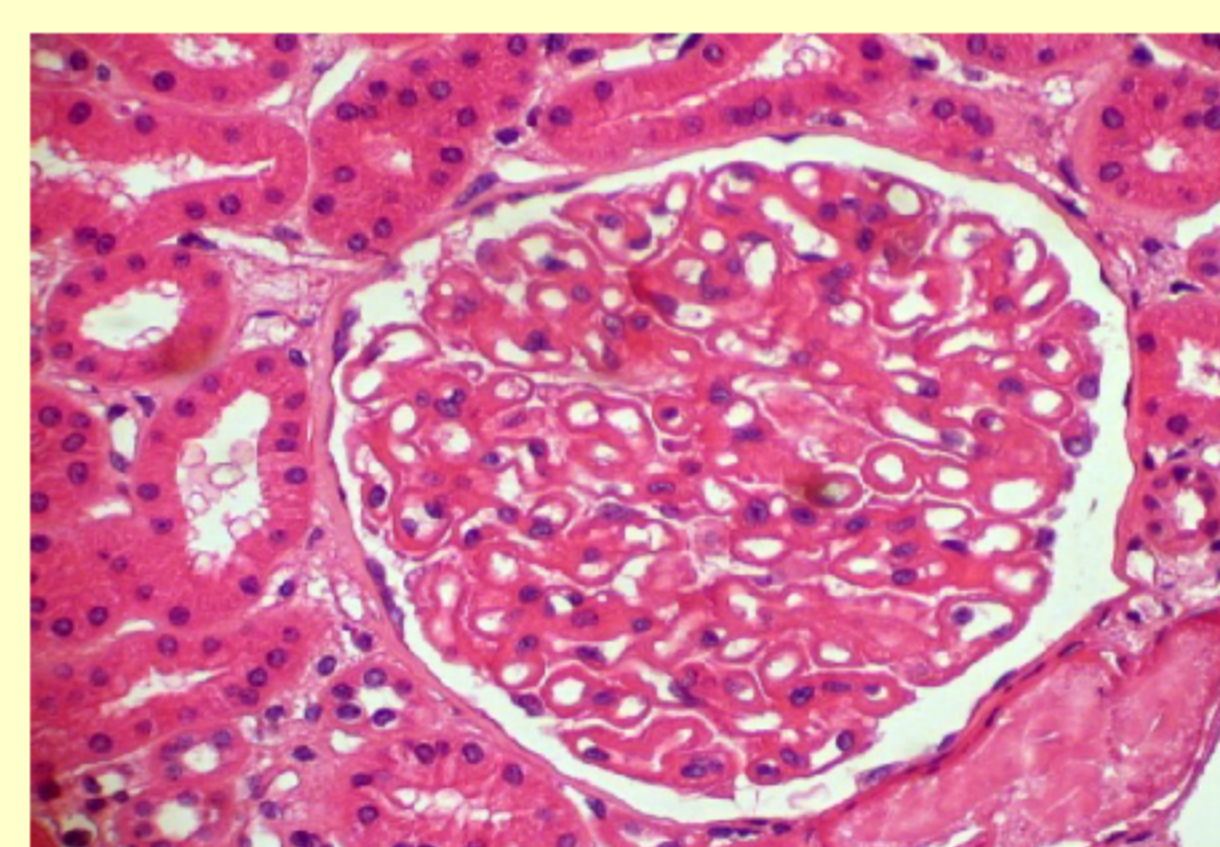


Fig. 6. Membranous nephropathy: thickening and rigidity of the glomerular capillary walls. H&E * 250

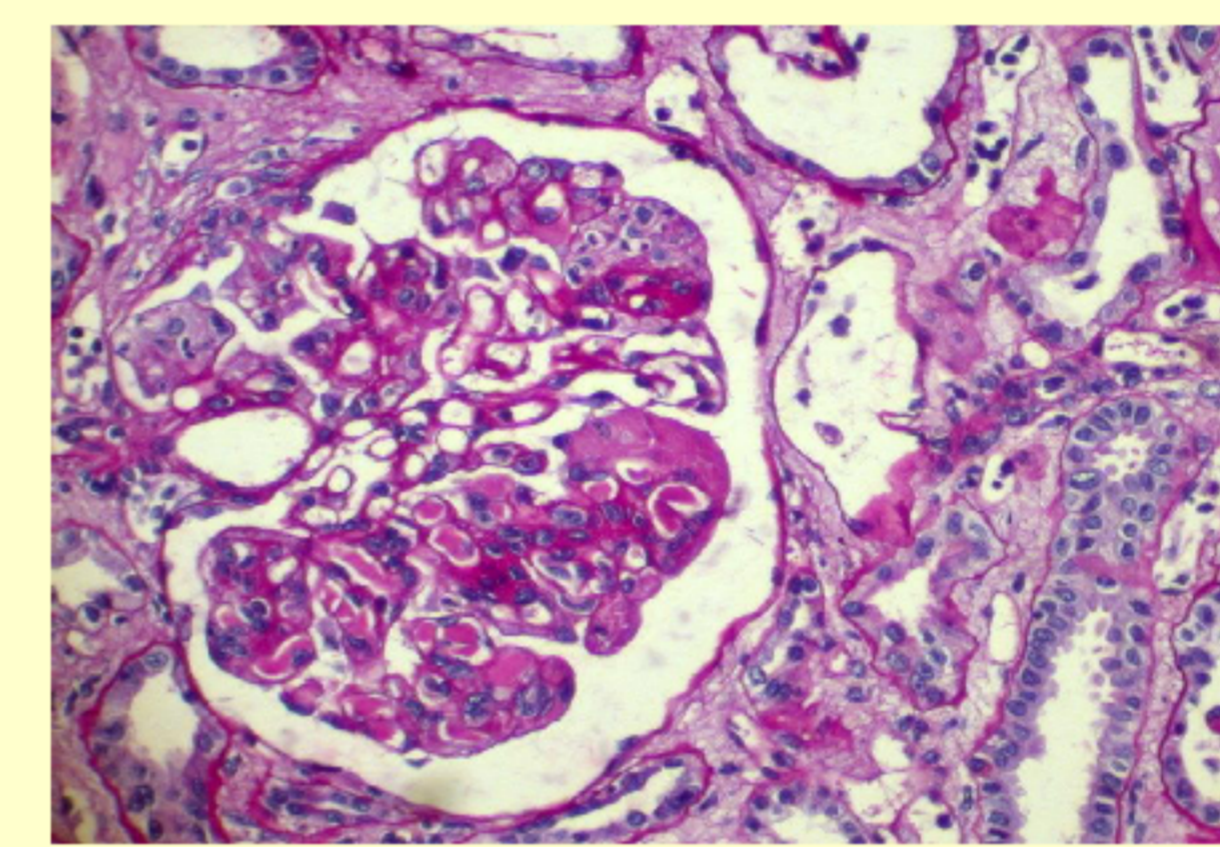


Fig. 7. Cryoglobulinemic nephritis with endocapillary proliferation. Extensive subendothelial and intraluminal deposits form «hyaline thrombi». PAS*250

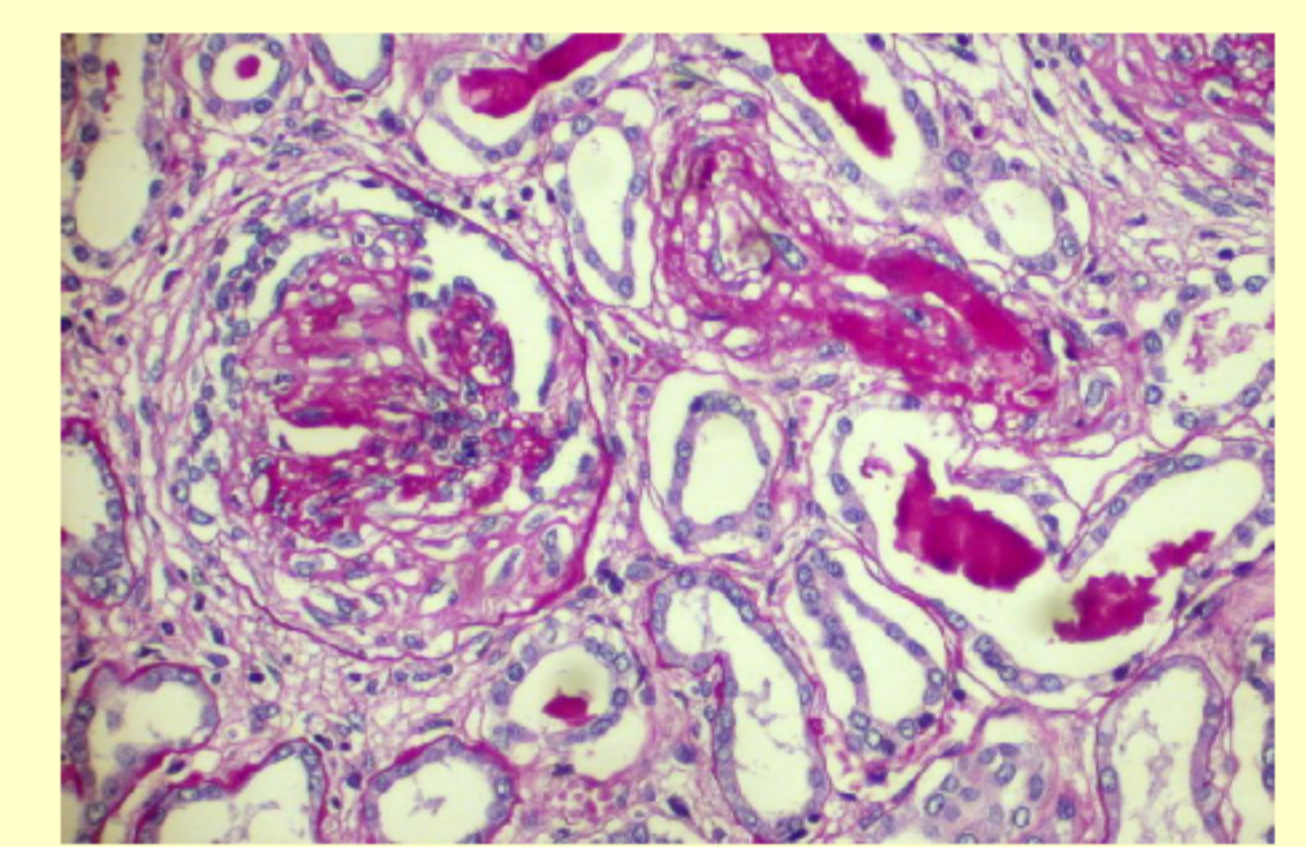


Fig. 8. Extracapillary glomerulonephritis with a large fibrocellular crescent and the break of Bowman's capsule. Necrotizing arteriitis in a small-sized artery. PAS *100

Results:

The kidney lesions was found in 40.5% (n=162) of autopsy HIV infection in stages C2-C3 (95.1%). The mean age at the time death was 33.6 ± 4.3 years (range, 25 to 57 years), 61.1% (n=99) were males and 38.9% (n=63) female. The main risk factor of HIV transmission was intravenous drug usage (70.4%). Most HIV-infected patients (68.5%) had coinfection with hepatitis C virus (HCV). The patients were classified in 2 groups according of causes of death. In group 1, there was a predominance of opportunistic infections and secondary diseases (58.6%, n=95). In group 2, there was a predominance of liver diseases, generalized bacterial infections (cryptogenic sepsis and infective endocarditis), another comorbidities diseases and combination of causes of death (41.4%, n=67). The main causes of death in group 1 there was a predominance of infections, which includes miliary tuberculosis, bacterial, virus and fungal infections. The primary final diagnoses are shown in Figure 1. The kidney lesions was predominant on the background of generalized tuberculosis (62.1%, n=59) in the phase of progression of the disease with predominantly military organ dissemination (Fig. 2). The diagnosis was confirmed by histobacterioscopic detection of Mycobacterium tuberculosis in all cases. The kidney lesions was found in 16 patients with bacterial (n=11) and pneumocystis jirovecii pneumonia (n=5). Cytomegalovirus infection was in 4.2 % of histological renal studies with tubular epithelium cytomegalic transformation and vascular endothelium of the glomeruli. Cryptococcosis was the cause of renal involvement in pathologic process in 5.3% of cases, generalized Candida infection and toxoplasmosis with the same frequency - 2.1%. Neoplastic diseases as a cause of death involving the kidneys in the pathological process were found in 6.4% of cases: 4.2% in non-Hodgkin's B-cell lymphomas (Fig. 3), 1.1 % in a generalized form of Kaposi's sarcoma (Fig. 4) and the same frequency in anaplastic astrocytoma. Coinfection HIV/HCV in 16.1% (n=26) of cases has been associated with membranoproliferative glomerulonephritis (Fig. 5), membranous nephropathy (Fig. 6) and chronic tubulointerstitial nephritis. In the third cause's observation were morphological signs of acute cryoglobulinaemic vasculitis (Fig. 7). Kidney lesions were revealed in 25.3% (41/162) cases of generalized bacterial infections: cryptogenic sepsis and infective endocarditis (Fig. 9). The main diagnoses were tubulointerstitial injury, acute tubular necrosis, septic nephritis and proliferative glomerulonephritis (n=2). In certain observations kidney lesions were found in combination of various diseases: generalized tuberculosis and CMV; generalized forms of Kaposi's sarcoma with renal tuberculosis and multiple localization; generalized toxoplasmosis with CMV and others. Diffuse extracapillary proliferative glomerulonephritis with rapidly progression of renal failure were found in 2 patients (Fig. 8).

Conclusions:

The results of this study revealed a high incidence of renal anatomopathological lesions in the natural evolution of HIV infection. Leading role in renal involvement in the pathological process belongs to a generalized flow of opportunistic infection, secondary and comorbidities diseases with heterogeneity of histopathological changes with a predominance of tubulointerstitial damage, focal formations over damage glomerular apparatus.

References:

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