Manifestations of pulmonary tuberculosis on computed tomography in patients with HIV infection

Poster No.:	C-1693
Congress:	ECR 2015
Type:	Scientific Exhibit
Authors:	P. Gavrilov[1], A. Lazareva[2]; [1]St.Petersburg/RU, [2]Sankt-Petersburg/RU
Keywords:	Computer Applications-Detection, diagnosis, CT, Thorax, Lymph nodes, Lung, Infection
DOI:	10.1594/ecr2015/C-1693

Aims and objectives

To study the CT semiotics of respiratory tuberculosis in HIV-infected patients in relation to the degree of immunosuppression.

Methods and materials

The study enrolled 98 patients with verified respiratory tuberculosis in the presence of HIV infection. 74 people have been confirmed TB detection MBT in sputum , 24 by biopsy. For the graduation of patients according to the degree of immunosuppression used classification developed by the Centers for Disease Control (CDC, Atlanta, USA, 1993). According to this classification, all patients were divided into 3 groups: 1) CD4 #500 cells / mm (n = 12); 2) CD4 200-499 (n = 34); 3) CD4 <200 (N = 52).

Inclusion criteria:

- Age older than 18 years;
- The presence of newly diagnosed lung changes
- The presence of HIV infection.
- The number of CD4-lymphocytes defined by no more than 7 days before or after the CTS surveys;
- #T of the chest performed during the detection of the disease (before the etiological treatment).
- Fence material for histological and etiological (including autopsy) studies conducted in the period of no more than 14 days before or after the SCT examination;
- Final verification of the etiological diagnosis or histological method.
- Negative data analysis, the presence of other infections.

Results

With spiral CT, focal changes with a predominance of clear-cut foci are visualized at a high frequency in the patients with pulmonary tuberculosis in the presence of HIV infection. In progressive immunosuppression, the CT pattern displays atypical syndromes (frosted glass-type foci, interstitial infiltration, and thin-walled cavities) with the lower rate of alveolar infiltration, as well as lung tissue decay. Enlarged intrathoracic lymph nodes are characteristic of 70.0% of the patients with HIV infection and tuberculosis regardless of the level of CD4 cells. The distribution frequency of the different syndromes CT according to the level of immunosuppression is shown in Table 1 (Fig.1). With a

decrease in CD4 stated reduce the frequency of alveolar infiltration , and the cavities. Increasing the frequency of interstitial changes and ground-glass nodules . In all groups, the high frequency of adenopathy .As immunosuppression progresses, the CT pattern of respiratory tuberculosis in the presence of HIV infection shows as atypical syndromes. Computed tomography methods have not high information in the differential diagnosis of pulmonary infections in patients with HIV infection on a background of severe immunosuppression

Images for this section:

CT manifestations of tuberculosis depending on the level CD4

CT syndrome	Group 1 (n = 12)	Group 2 (n = 34)	Group 3 (n =52)
Well- defined nodules	11 (91,7%)	29 (85,3%)	36 (69%)
Ground-glass nodules	1 (8,3%)	3 (8,8%)	9 (17%)
Alveolar infiltrates	5 (41,6%)	14 (41,2%)	19 (36,5%)
Interstitial infiltrates	1 (8,3%)	10 (29,4%)	9 (17,3%)
Cavities	8 (66,6%)	16 (47%)	19 (36,5%)
Adenopathy	11 (91,7%)	21 (61,8%)	39 (75%)
Pleural effusion	0 (0%)	6 (17,6%)	9 (17,5%)

Fig. 1: Table 1

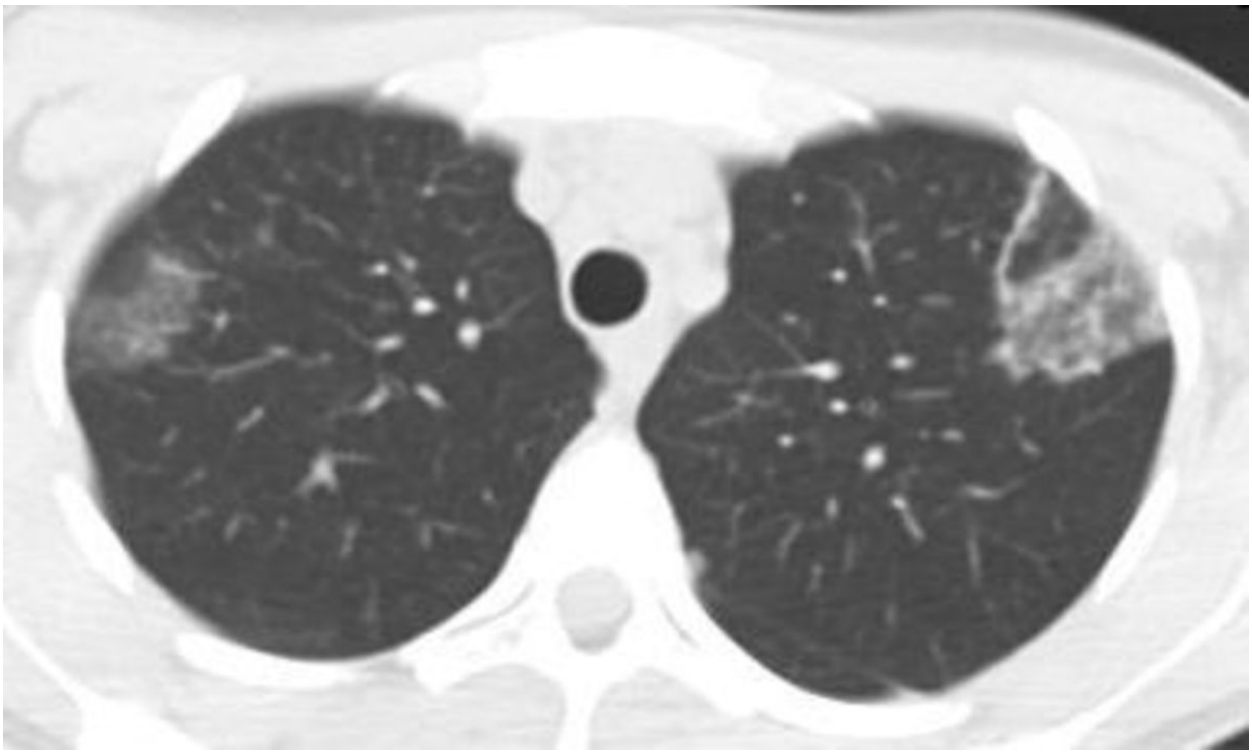

Fig. 2: Case of tuberculosis with HIV infection #D4 -270 cells/ul . Limited interstitial infiltrates in the lungs

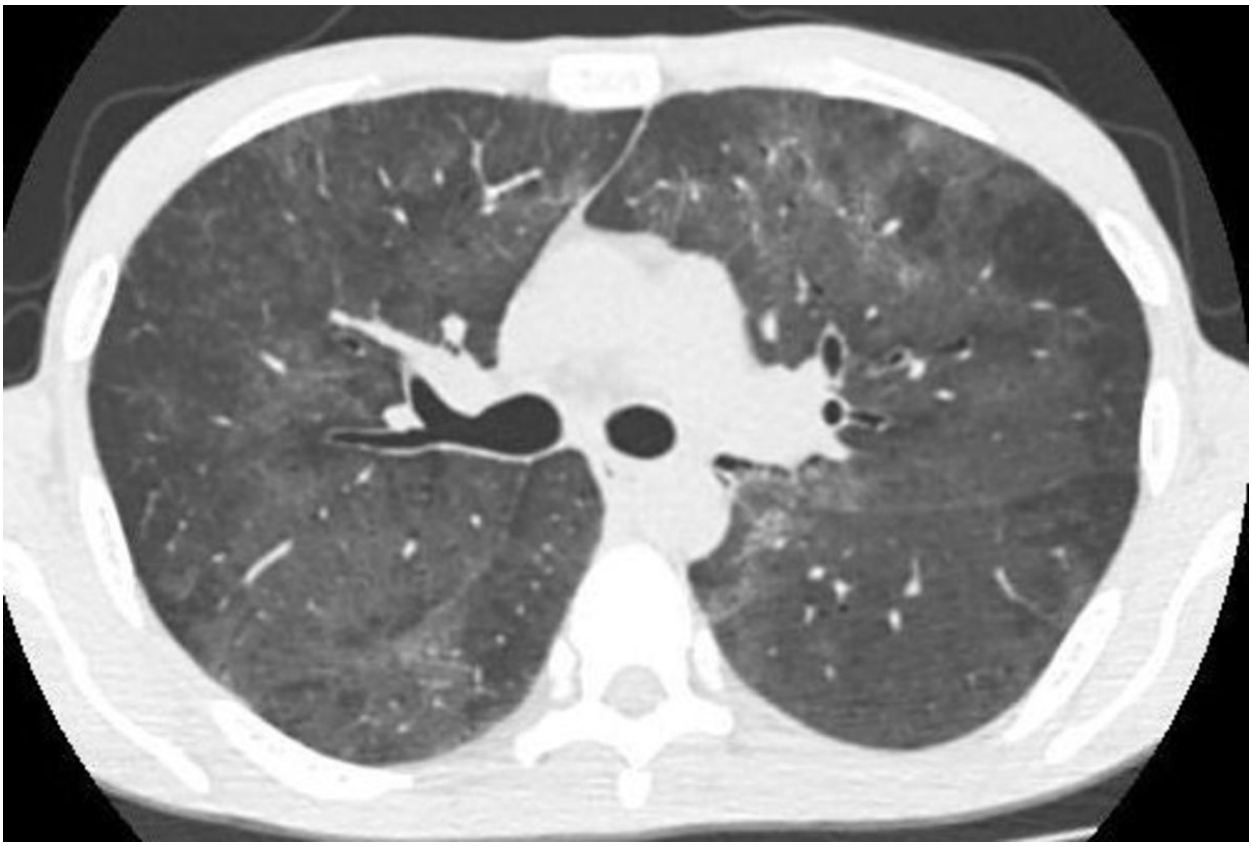

Fig. 3: Case of tuberculosis with HIV infection #D4 -36 cells/ul . Common Interstitial infiltrates in the lungs

Fig. 4: Case of tuberculosis with HIV infection #D4 -236 cells/ul . Several Adenopathy and pleural effusion

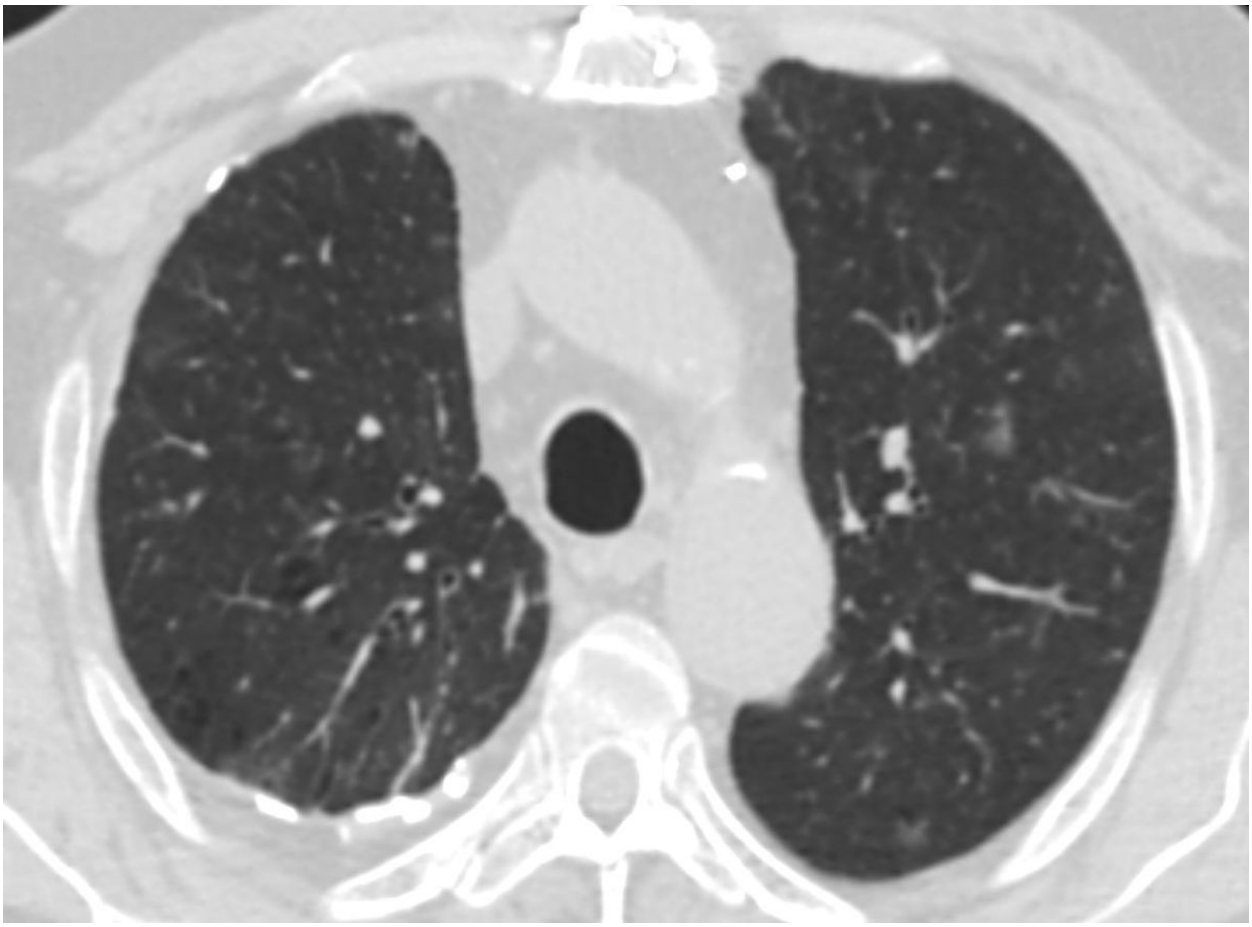

Fig. 5: Case of tuberculosis with HIV infection #D4 -250 . Ground-glass nodules in S1-2 left lung

Conclusion

As immunosuppression progresses, the CT pattern of respiratory tuberculosis in the presence of HIV infection shows as atypical syndromes. Computed tomography methods have not high information in the differential diagnosis of pulmonary infections in patients with HIV infection on a background of severe immunosuppression

Personal information

Pavel Gavrilov, Department of Radiology, The Reseach Institute of Phthisiopulmonology,, St.Petersburg, Russian Federation ; Anna Lazareva, Department of Radiology, The Reseach Institute of Phthisiopulmonology,, St.Petersburg, Russian Federation

References

1. Babaeva I. Yu., Zemskova Z. S., Gedymin L. E. et al. Pathological features of pulmonary tuberculosis in various stages of HIV infection (at autopsy). Problemy tuberkuleza i bolezney legkikh. 2007; 12: 38-42. (in Russian).
2. Zimina V.N., Vasil'eva I.A., Batyrov F.A., Yarovaya Zh. .Yu. Features of the course of tuberculosis in the late stages of HIV infection. Tuberkulez i bolezni legkikh. 2010; 3: 23-27. (in Russian).
3. Kornilova Z. Kh., Alekseeva L. P., Erokhin V. V. i dr. . Clinical and morphological characteristics of the course of tuberculosis in HIV infection. Problemy tuberkuleza i bolezney legkikh. 2008; 10: 13-20. (in Russian).
4. Allen CM, AL-Jahdali HH, Irion KL, Al Ghanem S, Gouda A, Khan AN. Imaging lung manifestations of HIV/AIDS. Ann Thorac Med 2010;5:201-16
5. Awoyemi OB, Ige OM, Onadeko BO. Pattern of active pulmonary tuberculosis in human immunodeficiency virus seropositive adult patients in University College Hospital, Ibadan, Nigeria. Afr J Med Med Sci. 2002 Mar;31(1):25-31.
6. Ingrid V. Bassett, et al. Intensive Tuberculosis Screening for HIV-Infected Patients Starting Antiretroviral Therapy in Durban, South Africa. Clinical Infectious Diseases 2010; 51(7):823-829
7. Lawn SD, Evans AJ, Sedgwick PM, Acheampong JW. Pulmonary tuberculosis: radiological features in west Africans coinfected with HIV. Br J Radiol. 1999 Apr;72(856):339-44.