Extrapulmonary manifestations of tuberculosis in the neck in HIV positive patient
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Abstract

Introduction
Tuberculosis is a necrotizing granulomatous infectious disease with different clinical distribution and events. The appearance of AIDS has caused a direct link between pathological entities HIV and tuberculosis. Co-infection is characterized by the extrapulmonary form of tuberculosis and atypical radiographic findings. The co-infection of HIV and tuberculosis is characterized by the appearance of multidrug-resistant tuberculosis (MDRTB) and extremely drug-resistant tuberculosis (XDR TB), which are very difficult to treat and increase the mortality rate. This paper reports a case of extrapulmonary manifestations of tuberculosis in the neck in HIV positive patient.

Case report
A 25-year-old female patient was admitted into the Department of Maxillofacial Surgery in Niš for a biopsy and HP verification of the tumour on the right side of the neck in order to create a treatment plan. Upon delivery of HP findings tuberculostatic therapy was prescribed. Expression of opportunistic disease related to HIV is directly related to the number of CD4 cells. Maintenance of CD4 cells over 55mm² prevents clinical deterioration which leads to death of the patient.

Conclusion
Extrapulmonary manifestations of tuberculosis in the neck in the form of massive soft tissue conglomerate is a rare pathological entity. The regression of tuberculosis processes of the neck shows the efficiency of the combined surgical and tuberculostatic therapy in the treatment of tuberculosis among HIV-positive patients without compromising the immune system.

Introduction
The emergence of AIDS has caused a direct link between pathological entities HIV and tuberculosis. HIV changes the pathogenesis of tuberculosis causing a progressive loss of immunity at the cellular level which leads to a significant increase in the risk of tuberculosis among HIV-positive patients. Despite the possibility of effective treatment of tuberculosis caused by HIV, the infection rates continue to rise in countries of sub-Saharan Africa where HIV and tuberculosis are endemic appearances. According to the World Health Organization, one third of the world population is infected by Mycobacterium Tuberculosis.

Tuberculosis is the most common opportunistic infection that occurs among HIV-seropositive patients and the most common cause of death among patients infected by HIV. The World Health Organization’s data show that one in every three AIDS patients dies from tuberculosis.

The co-infection of HIV and tuberculosis is characterized by the appearance of multidrug-resistant tuberculosis (MDRTB) and extremely drug-resistant tuberculosis (XDR TB), which are very difficult to treat and increase the mortality rate. The most frequent forms of tuberculosis affect lymph nodes predominantly in the neck region. Intrathoracic lymphadenopathy is not a feature of primary HIV syndrome and should cause suspicion of tuberculosis or limfom.

Other forms of extrapulmonary tuberculosis in the clinical picture have pleural or pericardial effusion, abdominal tuberculosis or tuberculosis meningitis. Independently of HIV status, current guidelines recommend that tuberculosis requires at least six-month treatment with four drugs in the intensive care unit and two drugs in the following phase. The therapy involves the use of Isoniazid, Rifampicin, Etambutol and Piranizamid. Antiretroviral therapy is administered after proving the HIV infection.

Here we report a case of extrapulmonary manifestations of tuberculosis in the neck in a HIV positive patient.

Case report
A 25-year-old female patient was admitted into the Department of Maxillofacial Surgery in Niš for a biopsy and HP verification of the tumour on the right side of the neck in order to create a treatment plan. According to medical records, she had been hospitalized a month before in the Department of Infectious and Tropical Diseases of Clinical Center Niš because of headaches, difficulty in movement and of suspected acute meningitis. After examining the medical records, she was determined to have undergone a western blot analysis which had verified HIV infection. CD4 cell number at the time of proving the HIV virus in the serum was 21mm².

During the hospitalization period she was treated with Amfotericin B, Fluconazole, antiretroviral therapy and polysymptomatic therapy. During the ordinary treatment her general condition stabilized and objective symptoms retreated. The number of CD4 cells was 150mm². During the ten-day hospitalization a tumour formation in the lateral triangle neck area sized 10x20mm was observed. The skin over and around the tumefaction had physiological characteristics. Tumefaction was mobile and painless. Tumefaction painlessly enlarged, so
that upon admission into the Department of Maxillofacial Surgery it had dimensions 80x40mm, very firm consistency, it was mobile and painless. Tumefaction was located in the lateral neck triangle area, in the right thyroid region and paratracheal region expanding to the opposite side.

The skin over the tumefaction was lividly discoloured with signs of necrosis. The patient underwent MSCT of the neck, 80x40 mm sized tumefact was observed on the level IV with extension to the opposite side, which showed a striking contrast material capture at the periphery and large zones of necrosis in the middle (Figure 1). Tumefact was in close contact with VJI and CCA.

After preoperative preparation in the general endotracheal anaesthesia with the identification and conservation of VJI and CCA, the patient underwent the extirpation of tumefact in the triangle lateral neck region, supraclavicular, infraclavicular, thyroid, and paratracheal region. The patient underwent a lymphadenectomy of the neck at the level III liv. The patient underwent the excision of the necrotic part of the skin. The emerged defect was reconstructed by the local skin flap.

Active suction was placed. Skin and subcutaneous tissue were sewn with single stitches. Antibiotic, anti-edematous and rehydration therapy were post-operatively administered. On the second post-operative day the active suction was removed. On the seventh postoperative day, the stitches were removed. The extirpated content, that is, grey-yellowish tissue of multilobular material, was sent for histopathological analysis (Figure 2).

According to the histopathological findings of Inflamatio chronic caseosa granulomatos (Figure 3), the patient was sent to the Clinic for Pulmonary Diseases and Tuberculosis of Clinical Center Niš, where tuberculous therapy was administered: 750 mg Tbl. Etambutol 1x1, Tbl. Isoniasid 250 mg 1x1, 1200 mg Tbl. Pyrasinamid 1x1, Tbl. Rifampicin 1x1. Two weeks after the removal of the stitches there were signs of necrosis in the lateral triangle neck area. The patient underwent a tissue necrectomy and the area in question epithelized in full after daily toilet and wound dressing. The patient continued with ordinary antiretroviral therapy administered at diagnosis of HIV infection, Tbl.Kivex 1x1 and Tbl.Storcin 1x1. The patient underwent regular tests of blood, biochemistry and CD4 cells which were within the normal range. Three months after the start of therapy, the patient underwent tuberculostatic NMR control, which showed a homogenous oval formation size 22x13 mm in the lateral triangle neck area bellow SCMI, which extensively postcontrastly increased on the edges.

The NMR control and examination of the patient showed regression of tuberculosis focus on the neck upon the performed surgical intervention and tuberculostatic therapy. The patient continued with regular control by an infectious disease specialist and maxillofacial surgeon and with a regular control of CD4 cells, tuberculostatic and antiretroviral therapy.

Discussion

Human Immunodeficiency Virus attacks CD4 cells and CD4 positive lymphocytes, macrophages and antigen presenting cells. By reduction in number of these, the immune system weakens which enables the invasion of bacteria and viruses. CD4 cell number is very important for the development of tuberculosis within HIV diseases Hwang JH et al. A study that included 1301 HIV-positive patients showed that the probability for the occurrence of tuberculosis infection is twice as high among patients with a CD4 cell number below 200mm³. This fact was also confirmed by the case of the presented patient who had CD4 cell number 24mm³ at the time of proving the existence of HIV infection. The co-infection of HIV and tuberculosis is characterized by the appearance of MDRTB and XDRTB form of tuberculosis. They are characterized by a specific resistance rate to tuberculostatics and therefore by a long treatment and an uncertain prognosis. Sunil Sethi et al. determined the occurrence of HIV and TB co-infection among 44 patients in a group of 219 patients (20.1%). The phenomenon of MTRTB was noted among 27.3% of...
HIV-positive patients and 15.4% of HIV-negative patients. The resistance to nonstandard use of tuberculostatics, 26.4% of Isoniazid, 9.9% to Rifampicin, 14.9% of Ethambutol has been determined. The increased frequency of the resistant strains has been associated with HIV status and a previous infection that had not been treated adequately. The regression of tuberculosis focus in the neck and the absence of prior tuberculosis infection confirm the absence of resistant strains in the presented patient.

Helen Van Der Plas et al. observed a group of 112 HIV-positive patients with medium border CD4 cell number of 55mm3 and found in 65% of cases the dissemination of tuberculosis, in 27% of cases the expansion of tuberculosis infection in the CNS, in 15% of cases there appeared opportunistic pathological entity type Kaposi sarcoma, dissemination of oral candidiasis, bacterial infection and in 8% of cases thromboembolism.

Concerning the fact that the level of CD4 cells in the presented patient was over 150mm3 during the treatment, we confirm the mentioned assertion concerning the lack of the complications and a stable clinical course after the inclusion of tuberculostatics and antiretroviral therapy. In contrast to HIV, whose diagnosis by ELISA and western blot test is a routine procedure, the very diagnosis is difficult because of clinical manifestations that raise suspicion of other changes of genesis.

According to the localization of change, its extensive expansion in relation to vital neck structures and the presence of HIV infection, we decided to go for extirpation biopsy and antiretroviral therapy with regular monitoring and maintenance of CD4 cell number. Tuberculostatic therapy was administered after delivering HP findings by pulmonologists.

Conclusion
Extrapulmonary manifestations of tuberculosis in the neck in the form of massive soft tissue conglomerate is a rare pathological entity. The initial diagnosis is difficult because of clinical manifestations that raise suspicion of other changes of genesis.

Researching the neck by echosonography shows no specific features which may be associated with tuberculosis. This method registers hypoechoic soft tissue formation which raises the suspicion of metastases, sarcoidosis or lymphoma, pathologic entities included in the differential diagnosis of tuberculosis of the neck. Definitive diagnosis is based on the findings of HP.

Having reviewed the available literature, there was not found a single case of tuberculosis in the neck area of the lateral triangle and supraclavicular region with expansion to infraclavicular and thyroid region and the extension to the main blood vessels of the neck.

The performed extirpation biopsy has not only diagnostic, but also therapeutic purpose. Further treatment is based on the administration of tuberculostatics at least for six months with regular check-ups by infectious diseases specialist, monitoring and maintaining the level of CD4 cells.

Consent
Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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