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Case Report

A Case of Covid-19 Infection Complicated by Disseminated Intravascular Coagulation in a Patient with Active Tuberculosis: A Rare Case-Report from Syria

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Abstract

We report a rare and interesting case of tuberculosis associated with COVID-19 infection complicated by DIC. Our patient was a 65 years old hypertensive Syrian male. He referred to us in our hospital with chief complaints of cough, fever, chest pain, weight loss and night sweats, fatigue, shortness of breath, 2 months ago with recent onset of sore throat, loss of sense of smell. It is difficult to diagnose Tuberculosis during pandemic of COVID-19. Clinical manifestations of tuberculosis are similar to these in covid-19, so we need a lot of attention to rule out covid-19 along with TB and distinguish between them. We will try in our present case to help the doctors to think and concentrate on difference, diagnosis, complications that may occur and treatment of both conditions together.

Keywords: *Tuberculosis; COVID-19; Disseminated Intravascular Coagulation*

Introduction

Corona virus epidemic is defined as an infection disease caused by the SARS-COV-2 Virus. which was first identified amid an outbreak of respiratory illness cases in Wuhan City, China at the end of 2019, then quickly spreading throw out the city. The WHO considered it global health problem, on March 11, 2020 [1]. Most cases with the virus about 80% will experience mild to moderate. However, some will experience sever and require medical attention, intensive care, and can develop into threatening complications such as massive hemoptysis, thrombotic disorders, acute respiratory failure, thrombotic heart disorders, pulmonary embolism, DIC etc. Risk factors for severe injury include underlying comorbidities such as cancer, hypertension, diabetes, chronic kidney failure, heart disease and any person can get sick with severe covid-19 and could die [2,3].

DIC: Is a rare and serious condition with high mortality rate. In this illness the proteins that control blood clothing overactive and that is responsible for the symptoms which maybe include severe bleeding in any organ and blood clots in small to medium- sized vessels. some causes of DIC include: pregnancy, cancer, trauma, burns, infections in the blood, recent surgery etc. We need laboratory tests such as (elevated D-Dimer, decreased fibrinogen, low platelet count, prolongation of PT etc.) and clinical evaluation to diagnosis of DIC [4] (TB) is an infectious disease. It can affects any part of the body mainly the lungs. This disease caused by bacteria called *Mycobacterium tuberculosis*, it is a global health problem and in 2020 a total of 1.5 million people died from TB [5].

Case Presentation

Our patient is 65 years old, Syrian, male with no travelling history. He is active smoker (35 packet/year) with no history of alcohol consumption. He has no remarkable medical surgical or drug history.

His complains started about 2 months-before he referred to our center with fever, chills, chest pain, cough with expectoration, night sweats, weight loss (15 kg/2 months) and fatigue. He has recent onset of sore throat, loss of sense of smell (one week ago).

The patient has mentioned unprotected contact with cousin who has recently corona infected. Clinical examination showed crackles on chest auscultation, heart rate 128 beats per minute, blood pressure 11/7 mmHg, temperature 39, respiratory rate of 22 breaths/min, oxygen saturation (SPO_2) 94% on air room.

Laborations showed elevated white blood cells (11,6 x 10^3), elevated CRP (90 mg/l), decreased HGB (9 g/dl), elevated ESR (110 mm in the 1st hour) (Table 2).

Chest X-ray on 11 March 2021 showed: bilateral areas of parenchymal and interstitial densities in the lungs, predominantly in the upper fields (Figure 1).

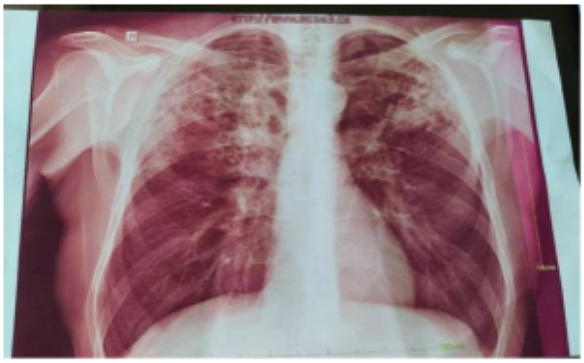

Figure 1: *Bilateral areas of parenchymal and interstitial densities, predominantly in the upper fields.*

His primary diagnosis was community acquired pneumonia with no improvement on antibiotic.

Computed tomography (Ct scan) completed on 10 April 2021 showed lesions typical of pulmonary tuberculosis with bilateral areas of interstitial densities, diffused ground-glass opacities (Figure 2).

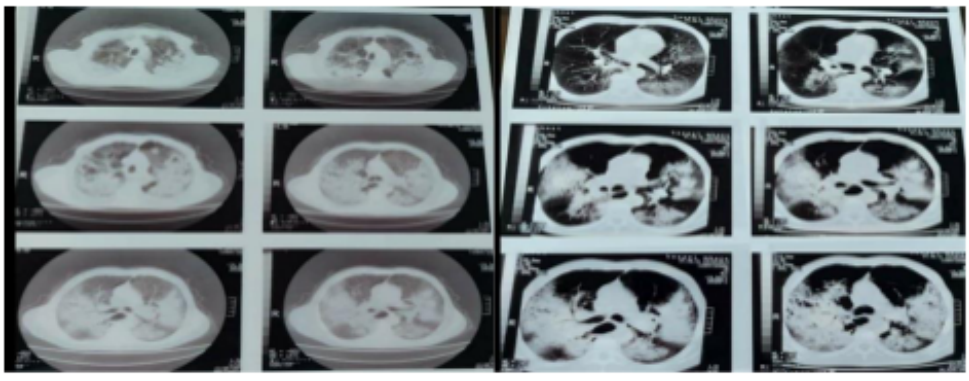

Figure 2: *Lesions typical of pulmonary tuberculosis with bilateral areas of interstitial densities, ground-glass opacities with mainly a peripheral and lower lobe distribution.*

The differential diagnosis of this patten includes pulmonary tuberculosis, Covid-19, interstitial lung disease.

To diagnosis COVID-19 infection, we performed genetic assay test (RT-PCR) on nasopharyngeal swab and the result was positive and confirmed covid-19 infection, the covid-19 IGM was positive, IGG was negative, which mean the patient is in the acute stage. We also used genetic assay test (Xpert MTB/RIF test) on sputum specimens to diagnosis TB [6] and the result was positive with mycobacterium tuberculosis sensitive to rifampicin (Table 1).

Diagnostic tests of TB Genetic assay	11 April 2021 GeneXpert Sputum (+)
Diagnostic tests of COVID- 19 Genetic assay	11 April 2021 Throat and nasal swab (RT-PCR) assay
COVID -19 IGM	Positive
COVID-19 IGG	Negative

Table 1*: Diagnostic tests of COVID-19 and TB.*

After confirming the diagnosis, the patient has started on covid-19 treatment (anti-coagulant- remdesivir) and tuberculosis therapy (INH + RMP+ PZA + EMB). Suddenly we noticed serious and recent decreased in platelets levels (34 x 10^3/uL). We asked for a bloody consultation which showed: elevated in D-Dimer levels (4,100 mg/l), decreased fibrinogen (1,5 g/L), prothrombin T (PT: 26% - 25,4 sec) (Table 2). Peripheral blood smear: fragmented erythrocytes and absence of platelets, He suggest DIC as a complication of Covid-19 and we quickly started treatment for DIC with blood plasma transfusion, platelet transfusion, blood thinners medication, corticosteroids.

Test	The fist day of Admission	The fourth day	After 2 days of treatment
WBC	11,6 x 10^3/uL	13,6 x 10^3/uL	9,1 x 10^3/uL
RBC	3,19 x 10^6/uL	3,19 x 10^6/uL	2,98 x 10^6/uL
HGB	9,00 g/dL	9,00 g/dL	8,8 g/dL
PLT	220 x 10^3/uL	34 x 10^3/uL	52 x 10^3/uL
ESR	95 mm (1hr)	110 mm (1hr)	
CRP	65 mg/l	90 mg/l	
D.Dimer	1400 mg/l	4,100 mg/l	
PT	90% - 14,3 sec	26% - 25,4 sec	60% - 16,4,4 sec
INR	1,13	2,26	1,38
Fibrinogen	3.00 g/L	1,5 g/L	
ALT	87 U/L	90 U/L	
AST	45 U/L	46 U/L	
LDH	900 U/L	1292 U/L	1030 U/L

Table 2: *Summary of the results of the patient's tests at the time of admission to the hospital.*

After two days of treatment we noticed significant clinical improvement (he does not need oxygen therapy during the recovery period) and laboratory tests improvement: elevated platelet levels, decreased in D-Dimer level, elevated fibrinogen, pt (26% - 25,4 sec).

Finally, the patient has been discharged in excellent condition with normal laboratory tests, drug tolerance for tuberculosis therapy and with no another complications of COVID-19 infection.

Discussion

Our case is very important, because it has several points needs a note and discussion.

The first point is, the co-infection of TB and viral diseases like MARS, etc. has been noticed in the past. Studies on association of TB and COVID-19 are few. Some Studies suggest that the pandemic has had negative effect on diagnosis TB, because delay or miss related to similarities in symptoms between both conditions. The relationship between TB and COVID-19 was noticed and suggested that TB infection may increase the probability to injury with severe covid-19 and TB disease progression [7-10].

The second point is DIC is a rare and serious condition with high mortality rate and few studies describing cases of COVID-19 complicated by DIC [11,12]. A remarkable feature of COVID-19 infection is the presence of coagulopathy and related to that many patients with covid-19 (mainly severe cases) develop thrombotic events which may affect micro and macro vessels, and that is responsible for the symptoms which maybe include severe bleeding or blood clots. The present case had mild to moderate clinical symptoms of COVID-19, but the patient showed a rare and serious complication [11,12]. So, it is very important to highlight about this serious complication of covid-19 infection and recommend clinical physician to pay greater attention and think of this complication. We also recommend that all patients hospitalized with covid-19 should have the measurement of complete blood count, D-dimer, PT, fibrinogen and repeat testing according to each state, to diagnose this disorder early and starting treatment quickly as possible to improve progression as performed in the present study patient [11,12].

The third point is our case is particularly interesting because therapeutic success was achieved despite the coincidence of COVID-19 complicated by DIC and tuberculosis.

Conclusion

The chest and general physicians should thinking and evaluating patients for co-infection TB and COVID-19 during the recent epidemic and they should giving attention to complications that can occur in COVID-19 infection like DIC and treating them quickly as possible to improve progression. In the current case, we found that our patient developed DIC without any introductory symptoms.

We need large studies from several centers to find out the incidence, mortality rate, management guidelines for coinfection tuberculosis and covid-19 complicated by DIC.

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