Case report

The consequence of COVID-19

ABSTRACT

SARS-CoV-2 is the third and largest pandemic that emerged in Wuhan city, Hubei province, China in 2019. As per WHO 45,988,595 people have been infected and the COVID 19 has caused more than 1,194,979 deaths. The clinical spectrum of COVID 19 varies from asymptomatic presentation to multi-organ dysfunction. The pathophysiology behind the sequel of COVID 19 immunosuppression is an area yet to be explored. Here, we report a case of 52 year old male with persistent pyrexia post his recovery from COIVD-19. On further evaluation, a diagnosis of amoebic liver abscess that resulted as a sequel of COVID-19 was made.

Keywords: *COVID – 19; Clinical presentation; Liver abscess.*

INTRODUCTION

Amoebiasis, a common parasitic infection reported worldwide mostly in the developing countries. It is most commonly caused by Entamoeba histolytica. Amoebiasis has diversified clinical manifestations from asymptomatic to severe illness.[1] The complications of amoebiasis may be intestinal or extra intestinal. Post COVID19 complications, although rare, can cause dreadful secondary infections causing significant morbidity and mortality, especially in immunocompromised patients. Cases of secondary infections due to entamoeba have not been widely documented as per our extensive search through literature. We present this rare case of amoebic liver abscess post recovery from COVID 19.[2]

CASE REPORT

A 52 year old male who is a known case of diabetes mellitus for 4 years on oral anti diabetic medication was admitted with features suggestive of COVID 19. RTPCR for SARS CoV-2 was positive; CT chest showed COVID-19 reporting and data system (CORADS) stage 4 with 80% lung involvement and CT severity score of 20/25. Patient was treated with high flow oxygen therapy, steroids (inj.dexamethasone 8 mg IV OD for 5 days), antiviral (Inj.remdesivir) for 5 days and anti coagulants (Inj.clexane 0.4ml SC for 5 days). Patient improved symptomatically and discharged after 20 days of hospital stay in a clinically stable condition with spo2 of >97% in room air.

10 days post discharge, patient again presented with high grade fever for 5 days, myalgia, loss of appetite and nausea. On examination patient was febrile, tachycardic (PR-103/min), blood pressure was 140/70 mmHg with Spo2 of 95% in room air. Systemic examination revealed epigastric tenderness. Repeat RT PCR was negative for COVID 19. With the probable diagnosis of hospital acquired infection or community acquired common communicable disease, patient was started on antibiotics (Inj.ceftrixone and oral doxycycline) and supportive care.

Blood investigations revealed anaemia with neutrophilic leucocytosis. Investigations are shown in table. Urine routine showed albuminuria, glycosuria and leukocyturia. Urea, creatinine and serum electrolytes were within normal limits. C- Reactive Protein (CRP) was reactive with elevated Erythrocyte Sedimentation Rate (ESR). Derangement of liver function was noted with mild transaminitis and albumin

was low. In view of infective etiology patient was further worked up and found to be negative for Dengue, Malaria, Leptospira and Scrub typhus. HIV, HBsAg, HCV were negative. Blood cultures showed no growth. Urine culture showed growth of Acinetobacter and was sensitive to inj.ceftriaxone. Ultrasonography (USG) abdomen showed normal study. On day 3 of admission, patient continued to have high grade fever and also complained of right hypochondrial pain that radiated to left subscapular region. Vitals showed evidence of tachycardia (PR 120/min), hypotension (BP 90/70mm/Hg) and saturation of 94% in room air. Repeat blood investigation showed an increasing trend in neutrophilic leucocytosis with worsening of liver function tests, CRP was reactive with a value greater than 200mg/dl. Patient's antibiotic coverage was stepped up to inj. Piperacillin and tazobactam. In view of continued high grade temperature and patient's new onset abdomen symptoms, Computed Tomography (CT) Abdomen with chest screening was done. CT showed a well defined hypo enhancing lesion with irregular margins of size 9.2X6.3X7cm in segment IVA and B and another small hypo dense lesion with irregular margins of size 2.8X2.5cms was noted in segment VIII of liver (fig 1 and 2). CT chest showed features of evolving fibrosis. A radiological diagnosis of hepatic abscess was made. Patient was started on Inj. metronidazole and Inj.piptaz was continued. Under aseptic precautions, abscess was drained and it showed characteristic anchovy sauce pus (fig 3). The drained abscess was sent to pus culture that showed no growth and saline wet mount was also normal (no pathogen detected). Stool examination was positive for Entamoeba histolytica cysts. Given the characteristic pus drained from the abscess and florid clinical improvement with Inj. Metronidazole, a final diagnosis of amoebic liver abscess was made.

Table 1Baseline and Post follow-up blood Investigations of the subject:

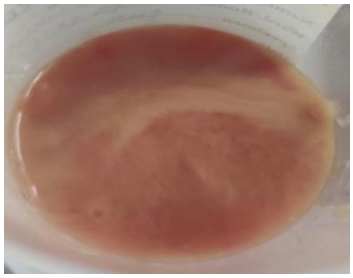
SNO	INVESTIGATIONS	DAY 1	DAY 3
1.	HB	10.3 mg/dl	10.2 mg/dl
2.	TLC	12600	16800
3.	CRP	11.8mg/dl	>200mg/dl
4.	ESR	42mm	50mm
5.	AST ALT ALP	74 85 140	119 183 280
6.	TOTAL BILIRUBIN	1.81mg/dl	1.91mg/dl
7.	DIRECT BILIRUBIN	0.25mg/dl	1.028mg/dl
8.	ALBUMIN	2.8g/dl	2.5g/dl

CT FINDINGS**:**

(Fig.1)-Well defined hypo enhancing lesion with irregular margins of size 9.2X6.3X7cm in segment IVA and B.

(Fig.2)-Small hypodense lesions with irregular margins of size 2.8X2.5cms was noted in segment VIII of liver

(Fig.3)-Anchovy sauce pus



DISCUSSION:

Infections due to viral aetiology promote secondary bacterial infections by depleting macrophages, diminishing NADPH oxidase dependent phagocytic function and dysregulating pro inflammatory cytokines. Various studies about SARS-CoV have reported that it promotes bacterial infections by down regulating Interferon production and signalling[4].Thus, COVID 19 in the same subgeneous as SARS virus is expected to increase the possibility of secondary infections.

Preliminary studies have suggested the possibility of direct gastrointestinal ract involvement by COVID19 as the RNA was detected from stools samples of positive patients. In addition increased expression of ACE2 mRNA in the gut suggests direct GI involvement due to COVID19.[4] Hence secondary infections involving GI tract post covid19 is a possibility given the evidence of local immunosuppression as cited previously and the high microbial diversity in the GI tract. Amoebic liver abscess (ALA) is rare complication of intestinal amoebiasis. It is more common among immunocompromised adults.[6] The clinical presentation of ALA is variable and unpredictable which may lead to diagnostic difficulty. ALA usually presents as an acute illness, with right upper quadrant pain, fever, and tender hepatomegaly. A past history of dysentery is occasionally absent. Aspiration of amoebic liver abscesses is not necessary for establishing the diagnosis. When aspirated, they contain acellular debris that forms a brown, thick fluid (called ‘‘anchovy paste’’). Trophozoites are seen in a minority of aspirates (<20 %) and typically only seen when the wall of the cyst is sampled**.**[7] Of note, when patients present with amoebic liver abscesses, their stool microscopy is often negative for E. histolytica, so stool microscopy cannot be relied upon for making the diagnosis, although a positive test is helpful.[6] As discussed above regarding the pathophysiology of immunosuppression in post covid 19 and the varied clinical presentation of amoebic liver abscess, here we report a case of 52 year old male with persistent fever after recovery from COIVD-19. On continued evaluation, a diagnosis of amoebic liver abscess that resulted as a sequel of COVID 19 was made.

Conclusion: Post COVID 19 bacterial and fungal infections (mucormycosis and aspergillosis) are commonly reported in the literature. This case report highlights the fact that parasitic infections must be excluded during work-up of PUO post Covid 19. In conclusion, the increasing use of newer antiviral

drugs, immunosuppressive agents, steroids, and antibiotics has resulted in an increase in the incidence of rare secondary infections. Hence physicians should be vigilant to diagnose both common and rare secondary infection during this covid 19 pandemic.

Disclaimer regarding Consent and Ethical Approval:

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors

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