

Case Report

Gestational Candidiasis due to Long COVID Leading to Spontaneous Abortion

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A B S T R A C T

Introduction: Candidal infection of the decidua is very rare cause of premature fetal loss in pregnancy, however aetiology has not yet been reported because of COVID-19. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection can cause severe placental lesions leading rapidly to Intrauterine Fetal Death (IUFD). However covid related candida infection leading to spontaneous abortion due to gestational candidiasis has not been reported.

Case Presentation: A 36-year-old 12 weeks pregnant female presented with sudden complaint of spontaneous expulsion of fleshy mass per vaginum which microscopically showed fragments of decidua with severe inflammation and microabscess formation consisting mainly of plasma cells and few neutrophils. Occasional chorionic villi with trophoblastic cell necrosis, fibrinous exudate and intervillitis as evidence of previous covid induced change could be noted.

Conclusion: Pregnant women are more susceptible to developing severe COVID-19, which can lead to pregnancy-related complications. There is very limited information for the association of COVID-19 and its direct complications to the growing fetus during pregnancy which may include preterm birth, stillbirth, or long-term complications for the newborn. Screening tests may be helpful in pregnancy keeping in mind the possibility of transmitting the virus from the mother to the fetus. Furthermore understanding the disease progression and its relationship to manifestation severity is necessary to therapeutically intervene and reduce the associated morbidity.

Keywords: Gestational Candidiasis, COVID-19, Decidua

Introduction

Candidal infection of the decidua is very rare cause of premature fetal loss in pregnancy, however aetiology has not yet been reported because of COVID-19. Despite the high incidence of vulvovaginal candidiasis during pregnancy (13-20%) gestational Candidiasis is extremely rare.¹ The current

coronavirus disease 2019 (COVID-19) pandemic, caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has inflicted a serious health crisis globally. It is known that this virus is associated with a spectrum of respiratory illness ranging from asymptomatic, mild to severe pneumonia, acute respiratory distress syndrome. Severe acute respiratory syndrome coronavirus 2 (SARS-

CoV-2) infection can cause severe placental lesions leading rapidly to Intrauterine Fetal Death (IUFD). However covid related candida infection leading to spontaneous abortion due to gestational candidiasis has not been reported.

Case Report

A 36-year-old 12 weeks known case of sars-coV2 positive pregnant female presented with sudden complaint of spontaneous expulsion of fleshy mass per vaginum. She had a history of irregular menstrual cycles. Since last two months, which was not getting controlled by hormone therapy. On detailed history taking she was found to be a resident of containment zone during second covid pandemic when the incidence of covid 19 was very high. She had a complain of 2- 3 weeks she was having heavy and irregular menstrual bleeding. Her serological investigation showed that she was negative for TORCH. She was also negative for HIV and STS. Her hormone status was within normal limits. General physical examination and all other systemic examination was also within normal limits. The fleshy abortous material was sent for histopathological examination. Grossly, grey tan soft tissue altogether measuring 4x4x3cm was received. Microscopically showed fragments of decidua with severe inflammation and microabscess formation consisting mainly of plasma cells and few neutrophils. Few chorionic villi with trophoblastic cell necrosis, fibrinous exudate and intervillitis as evidence of previous covid induced change was also seen.

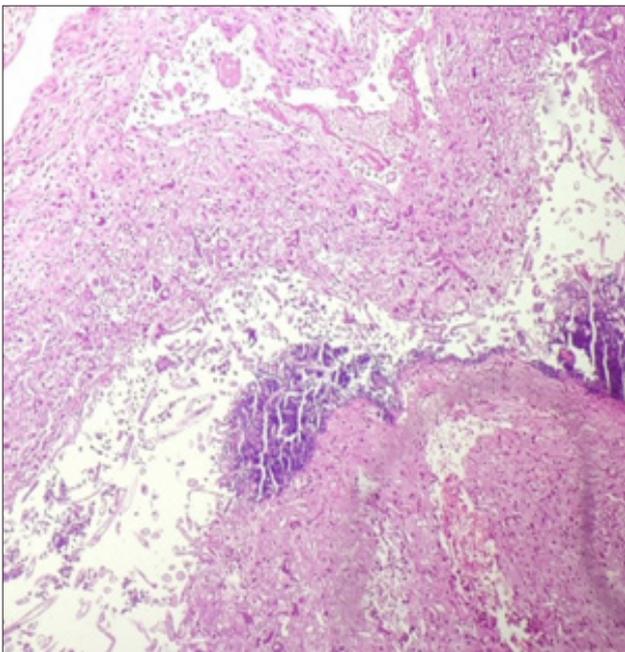


Figure 1(a).Photomicrograph Showing Fragments of Decidua with Severe Inflammation and Microabscess Formation along with Many Candida Spores and Hyphae Infiltrating Deep into the Depth of the Decidua (10x, H&E)

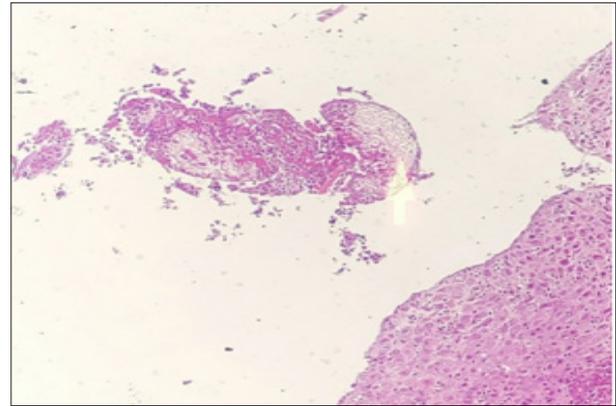


Figure 1(b).Photomicrograph Showing Few Chorionic Villi with Trophoblastic Cells Necrosis and Fibrinous Exudate (40x, H&E)

(Figure 1a, 1b) Candidial spores and hyphae could be seen on the surface of the fragments of decidua which were infiltrating deep into the depth of the decidua, almost reaching upto myometrium. PAS stain for fungal hyphae and spores showed it to be candida albicans.

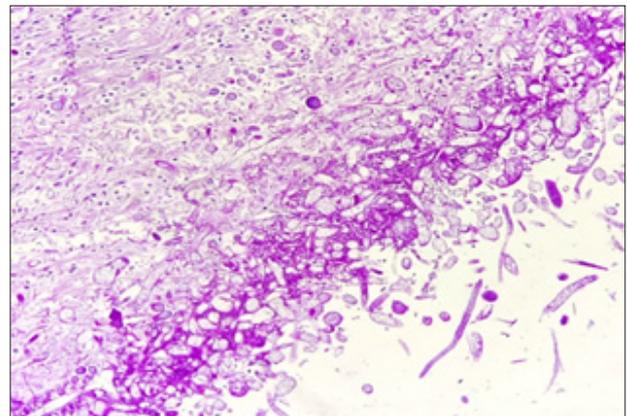


Figure 2(a).Photomicrograph Showing PAS Positive Candidial Spores and Hyphae on the Surface of the Fragments of Decidua Infiltrating Deep into the Depth of the Decidua (10x, H&E)

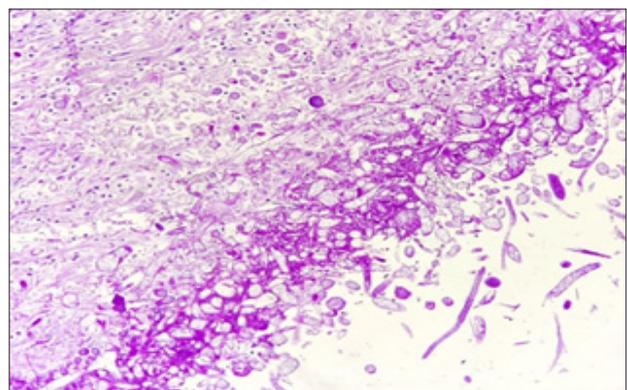


Figure 2(b).PAS Positive Candida Spores and Hyphae on the Surface of the Fragments of Decidua (40 x, H&M)

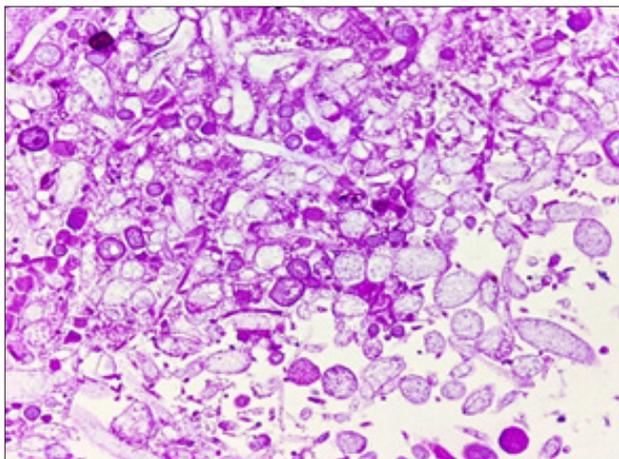


Figure 3(a).PAS Positive Candida Spores

(Figure 2a, 2b, 3a). Histopathological diagnosis of Spontaneous abortion due to Candidial infection of decidua was made.

Discussion

The prevalence of candidial vulvovaginitis is high and ranges between 10–35% in pregnant women.² However, decidual, placental as well as antenatal or congenital candidial infection in foetus is very rare. Choriomnionitis is observed in less than 1% of pregnant females and is considered to be one of the mechanisms of foetal infection during such pregnancy.³ Accumulating evidence supports that COVID-19 is not merely a respiratory illness per se, but potentially affects other organ systems including the placenta. COVID-19 can be associated to a rare set of placental lesions which can lead to fetal demise, preterm birth, or growth restriction. Vertical transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and pregnancy complications can pose serious concerns for pregnant individuals with COVID-19. In a systematic review examining 2567 COVID-19 confirmed pregnancies with 746 deliveries, there were 3.4% women with maternal critical disease requiring mechanical ventilation support, 0.9% maternal death, 21.8% preterm birth, primarily iatrogenic rather than spontaneous, less than 1% perinatal death.⁴ In another review on 324 pregnancies with COVID-19, it was reported that up to 14% mothers with severe pneumonia required critical care, with a total of 9 cases of maternal deaths, 4 cases of spontaneous abortion, 4 cases of intrauterine fetal deaths, 3 cases of neonatal death.⁵ Reassuringly, pregnant women who were asymptomatic or had mild COVID-19 disease were observed to have benign outcomes. Based on early RNA detection of SARS-CoV-2 after birth, vertical transmission's incidence of SARS-CoV-2 has been estimated to occur in around 2–3% of neonates.⁶ The short- and long-term consequences of this infection on the newborn are still poorly understood and neither is the histopathological changes well documented. However,

in SARS-Cov-2 containment zone, different abnormal placental findings have been reported in cases of mothers who were COVID-19 negative. It may be presumed that these were asymptomatic cases which went undetected. Since the beginning of the pandemic, many nonspecific placental lesions have been described, including fetal and maternal vascular malperfusion, or chorioamnionitis, all negative in immunohistochemistry with the anti-SARS-CoV-2 antibody. On the other hand, lesions characterized by trophoblastic necrosis, fibrinous deposits, intervillitis are more confirmatory of covid involvement which lead to Intrauterine Fetal Death (IUFD). However none of these showed any superadded candidial infection. During second pandemic the area surrounding this patient's village came under complete lockdown as it was declared containment zone because the incidence of covid cases in this area were very high. Over and above this the percentage of COVID positive cases, approximately 97% of cases were totally asymptomatic. This patient's whole village where she stayed was completely infected by COVID-19. It is difficult to find the source of spread or infection. However the histological changes like trophoblastic necrosis, fibrinous exudate and intervillitis indicates this complication is because of covid involvement, considering the long duration after which she developed the infection, the possibility of long covid complication cannot be excluded. Also we believe this is the first case where patient had spontaneous abortion due to COVID Candidiasis.

Conclusion

The changing physiology and immune responses during gestation, pregnant women are more susceptible to developing severe COVID-19, which can lead to pregnancy-related complications. There is very limited information for the association of COVID-19 and its direct complications to the growing fetus during pregnancy which may include preterm birth, stillbirth, or long-term complications for the newborn. Screening tests may be helpful in pregnancy keeping in mind the possibility of transmitting the virus from the mother to the fetus. Furthermore understanding the disease progression and its relationship to manifestation severity is necessary to therapeutically intervene and reduce the associated morbidity.

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Conflict of Interest: None

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