



The Catastrophic Complications of COVID-19 Infection in Postpartum Period: A Case Report

Authors

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Introduction

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), responsible for causing the novel coronavirus disease has led to a global health crisis. Pregnant women are at an increased risk for severe illness from COVID-19 compared to non-pregnant women^[1]. Additionally, pregnant women with COVID-19 are at increased risk of adverse maternal and foetal outcomes.

Case Report

A 23-year-old female having no comorbidities, gravida 2, para 1 with previous LSCS 2.5 year back presented at SMGS hospital, Jammu, India on 19 Jan 2022. She was at 37 weeks and 5 days period of gestation and experienced labour pains. She had no symptoms suggestive of COVID-19 infection. She had not received COVID-19 vaccination. As per hospital protocol she underwent COVID-19 RAT on admission which was negative. Basic investigations were performed, her hb was 10.8 gm%, RFT and LFT were within normal limits. After 5 hours of admission she had an emergency LSCS in view of impending rupture of previous uterine scar.

7 hours after the uneventful surgery she developed diarrhoea and had 4 episodes of loose stools. Her pulse was feeble and reached 110bpm. BP dropped to 100/60 mm of hg and extremities were cold. This led to metabolic acidosis with hypokalemia and hypocalcemia. Patient was shifted to ICU. Supportive treatment was provided in form of IV fluids, IV antibiotics metronidazole and tazobactam, oral probiotics, IV electrolyte and acid base correction was performed. Her Systolic BP continued to fall below 80mm of hg, despite resuscitation with IV crystalloids, therefore inotropic support was started with noradrenaline and dopamine.

The levels of serum urea and creatinine began to rise on 1st post-op day (POD) as mentioned in table 1. CBC, LFTs, PT, PTI were initially normal. Urine output was normal. ECG showed sinus tachycardia. Her SpO₂ levels fell to 86% on room air.

The sudden deterioration in her general health led to high suspicion of underlying COVID-19 infection. RT-PCR sample was sent on first POD and she was confirmed as a case of SARS-CoV-2 infection on her second POD.

Patient was shifted to COVID-19 ICU. Supportive treatment continued as inhalational oxygen by high flow oxygen mask with reservoir bag, iv antibiotics- meropenem, teicoplanin and linezolid, enoxaparin injected subcutaneously, ionotropic support continued. So did Oral rehydration therapy along with probiotics. Patient was put in prone position at 2 hourly intervals. Chest physiotherapy was provided and nebulization with budesonide given. She subsequently developed bilateral covid pneumonia with multiple organ dysfunction syndrome. Disseminated intravenous coagulation set in with increased FDPs and D-dimer, decreased platelet counts on 5th POD. Inj enoxaparin was stopped, FFPs and platelets were transfused to the patient.

Inotropes were tapered and stopped on 5th POD. Loose motions settled on 6th POD. She was tested COVID-19 RTPCR negative on 7th POD.

Table 1: Investigations of the Patient

Date	19 jan	21 jan	23 jan	26 jan	29 jan	31 jan	2 feb	8 feb	27feb	7 mar
Investigation										
Hb (gm%)	10.8	9.6	9.6	10	8.1	8.8	9	8.8	8.5	8.9
Platelets (cells/mm3)	2.5 lakh	2 lakh	1.8	<20,000	38000	1 lakh	2.2 lakh	3 lakh	1.7 lakh	2.1
WBC (cells/mm3)	9000	9200	11000	23000	3000	5500	7500	9000	6500	7000
s. Bil (mg%)	0.8	1	1.4	5.1	4.6	2.6	0.9	0.9	0.8	0.8
SGOT (IU/L)	44	49	45	300	340	145	41	36	27	35
SGPT (IU/L)	37	31	29	85	104	67	54	87	43	34
Total protein (g%)	7.1	6	4.1	4.1	4	4.2	4.4	5.6	6.7	7.1
s. albumin (g%)	3.5	2.5	1.6	1.6	1.6	1.9	2	2.1	2.3	2.6
s. urea (mg%)	26	78	76	132	68	22	20	24	20	18
s. creatinine (mg%)	0.5	1.4	1.1	2.2	1.5	0.6	0.8	0.5	0.4	0.5
PTI (%)	92.5	85.1	PT prolong upto 2 min	92.3	-	-	92.8	86.6	-	100

She continued to be febrile on and off since 3rd POD. Despite worsening RFTs and LfTs, she had normal urine output.

Hyper-pigmented patches were noted over bilateral buttocks, thighs and legs on 7th POD which developed into bullae with superficial erosions from 8th POD onwards. It was clinically diagnosed as a case of Stevens-Johnson syndrome. Wound care of skin lesions carried out daily, cleansing with normal saline followed by application of silver colloid gel, fusidic acid and betamethasone cream, covered by chlorhexidine gauze and antiseptic dressing.

Picture 1: Bullous lesions on 7th POD.



Picture 2: SJS lesions on the back



Picture 3: SJS lesions on legs at 9th POD, 16th POD and 42nd POD



She developed dysphonia, 1 week after her COVID rt-PCR came positive, fibre-optic laryngoscopy was performed which was normal. Her voice got better over the next 5 weeks. In the 3rd week of admission sudden hair fall was noted over frontal area, which gradually increased over next 2 weeks after which the patient shaved her scalp hair.

Picture 4: Alopecia as on 25th POD



Antiseptic dressing of abdominal wound was done on day 3, day 6. Stitch removal was performed on 10th POD. The skin edges and the base of wound were necrotic and the wound gaped. Pus culture from wound showed growth of E. coli and acinetobacter. Fungal cultures were negative. Serial conservative wound dressing with limited debridement was then performed twice a day, wound was dressed with silver sulfadiazine ointment and chlorhexidine antiseptic gauze.

Picture 5: abdominal wound on 11th POD**Picture 6:** abdominal wound on 18th POD**Picture 7:** abdominal wound on 25th POD

Secondary suturing was done on 41st POD by plastic surgeon with placement of subcutaneous suction drain when the wound was clean and had healthy granulation tissue. The drain was subsequently removed on 3rd day following re-suturing. Post-operative iv antibiotics levofloxacin and doxycycline were given. She was discharged on 49th day of her hospitalization. Stitch removal was done on 14th day after secondary suturing and resulted in a healthy abdominal wound, by that time her SJS lesions had healed and growth of hair had also begun.

On 20 April 2022, on her 90th POD the patient presented to the outpatient department for follow up. There was no residual defect in her voice, hair covered most of her scalp, the SJS lesions on her legs and back had minimal scarring and abdominal LSCS wound seemed healthy.

Picture 8: Follow up visit on 90th POD

Case Discussion

The third wave of COVID-19 cases in India began in first week of January 2022, exponential increase was seen on 19 Jan 2022 with around 3.2 lakh new cases in one day, it extended till second week of February before the gradual decline in the number of new cases per day. The patient in the present scenario, was admitted in SMGS hospital, Jammu, J&K, India at the same time.

Though most cases among pregnant women are asymptomatic or mildly symptomatic^[2], many studies have found that pregnant women are more likely to be admitted to the ICU, intubated, require mechanical ventilation, and are at increased risk of composite morbidity compared to non-pregnant women^[1,3,4].

The main symptoms of COVID-19 include respiratory symptoms like fever, dry cough, fatigue and shortness of breath. Gastrointestinal manifestations like diarrhoea (2% to 33% of patients) and abdominal pain (1.6%) have been observed in these patients^[5]. SARS-CoV2 may also lead to several neurological complications like ataxia, seizures, neuralgia, unconsciousness,

acute cerebrovascular disease and encephalopathy [6].

The patient in the present study developed GI symptoms of COVID-19 infection initially, followed by circulatory failure, COVID-19 pneumonia, renal and hepatic dysfunction, DIC, hair loss, dysphonia, surgical site infection and SJS.

San-Juan R et al., diagnosed COVID-19 pneumonia in 61.5% of pregnant women infected with SARS-CoV2 while carrying out a cohort study at Spain^[7].

Cui J et al., in their study of coronavirus-infected pneumonia patients, found the incidence rate of MODS to be 20.7%, respiratory failure in 92.7%, circulatory failure in 52.0%, and liver function injury in 30.9% of patients^[8].

The pathogenesis of kidney involvement in COVID-19 infection is unclear. AKI in these patients accompanies sepsis, multi organ failure and shock, suggesting the cause of AKI to be acute tubular necrosis. Mild and transient liver injury, as well as severe liver damage can occur in COVID-19.

Wong et al indicated that 14.8-53.1% of COVID-19 patients had abnormal levels of alanine aminotransferase, aspartate aminotransferase, and bilirubin during the course of the disease. They reported that severity of liver damage is proportional to that of COVID-19^[9].

Liver and kidney damage may be due to microemboli in their vessels due to the prothrombotic state, drug-related damage, underlying co-morbidities or the innate immune response.

Hoarseness of voice was another symptom that our patient acquired during her hospitalization. Dysphonia after COVID-19 infection may have multiple causes like intubation injury, sensory neuropathy, post-viral neuropathy, mucosal inflammation of the upper respiratory tract by virus itself and the physical trauma of coughing, related hypersensitivity of the larynx and laryngopharyngeal reflux^[10]. Idiopathic vocal cord

paralysis may occur following COVID-19 infection; it is suspected to be related to post viral vagal neuropathy^[11].

SARS CoV2 may develop cutaneous manifestations ranging from urticarial, maculopapular, morbilliform rash, papulovesicular exanthem, chilblain like acral lesions, livedo-reticularis or racemosa like lesions^[12].

Our patient developed SJS in the course of her illness. There have been other case reports linking COVID-19 to SJS-TEN.

SJS is a rare and potentially fatal acute hypersensitivity reaction that causes a massive mucosal and skin reaction.

both SJS caused by COVID-19 and SJS caused by the COVID-19 vaccine have been described^[13].

Aulakh et al., reported 2 patients who developed SJS after COVID 19 infection, thus highlighting the possible role of viral etiology, in triggering these skin lesions^[14].

Rossi *et al.* reported that hydroxychloroquine given in patient suffering from SARS-CoV2 infection developed SJS TEN due to increased immune reactivation by virus^[15].

Pudukadan *et al.* also reported a patient who developed TEN, 2 weeks after being COVID-19 positive who had not received any drugs prior to the onset of the lesions.^[16]

SJS like lesions have been noted after COVID-19 vaccination by Elborae *et al.*^[17] and Dash *et al.*^[18] in their case reports.

COVID-19 can lead to temporary intense hair loss (telogen effluvium) after acute disease. Mieczkowska K et al., in their study presented 10 patients with concerns of increased hair loss following SARS-CoV-2 infection. They all experienced excessive hair loss within weeks to months after infection, which included hair coming out in large clumps and thinning along the frontal hairline^[19]. But it was a self-limiting non-cicatricial hair loss like the patient in our present study.

Surgical site infection in our patient seems to stem from her general ill health due acute illness, shock and low serum albumin levels. An increase in SSI have not been seen to be influenced by COVID-19 status^[20,21].

Our patient had not undergone vaccination for SARS-CoV2 despite the nation-wide vaccination drive supported by the government of India.

Moghadas SM et al., in their study found out that vaccination markedly reduced adverse outcomes, with non-ICU hospitalizations, ICU hospitalizations, and deaths decreasing by 63.5%, 65.6, and 69.3% respectively compared to non-vaccinated individuals^[22]. Sacco C et al., estimated that vaccination reduced 17% of expected cases, 32% hospitalisations, 29 % ICU admissions and 38% deaths were prevented by vaccination in their country^[23].

Conclusion

SARS-CoV-2 presents with a myriad of symptoms. A keen observation is essential for early diagnosis of the infection and interventions related to management of COVID-19. Wherever required a mutli-disciplinary approach should be sought. Pregnancy and puerperium form a vulnerable group at risk of severe COVID-19 infection. Vaccination should be encouraged for all individuals including pregnant females and mothers of new born infants to prevent these complications.

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