

Introduction

- Covid-19 infection is associated with systemic inflammation involving widespread manifestations.
- Priapism in Covid-19 is rare and with unclear pathophysiologic association involving prothrombotic inflammatory state and venous thromboembolism.
- We report a case of low-flow priapism with no response to multiple corporal aspirations.

Case Presentation

•Chief complaint: Progressive shortness of breath (SOB)
•HPI: A 41-year male with prior history of hypogonadism and unvaccinated for COVID presented with shortness of breath 11-days after diagnosis of COVID 19 infection.

Vitals	BP: 141/63mmHg	HR: 102 bpm	RR: 32/min	SpO2: 47%	Temp: 37.1 C
Venous blood gas	pH:6.93	pO2: 53mmHg	pCO2: 85mmHg		
Laboratory Values (Reference range)					
Hemoglobin	13.9 (13.5-17.5 g/dl)	Platelets	346 (150-450 x10 ⁹ /L)		
White cell count	11.5(3.8-10.4 x10 ⁹ /L)	Creatinine	4.65(0.74-1.35mg/dl)		
Neutrophil	86% (40-60%)	Procalcitonin	1.39ng/ml(n<0.1 ng/ml)		
Lymphocyte count	9.0% (20-40%)	C-reactive protein	30.9mg/L(n<10mg/L)		

•Imaging: CXR: Diffuse interstitial and alveolar airspace disease in this COVID positive patient is consistent with COVID pneumonia.
•ED course: Immediately put on Bi-level positive airway pressure ventilation (Bi-pap) and his SOB, hypoxia and blood gases improved on Bi-pap ventilation with FIO2:100%, IPAP:16 cmH2O, EPAP:10 cmH2O
•Patient received IV dexamethasone 6mg and IV Sarilumab-once along with venous thrombosis prophylaxis dose of enoxaparin.

Timeline	Hospitalization Course events
8 hours after admission	-Patient complained of painful erection which was ongoing for last 5 hours. -Patient was evaluated immediately by Urology team and on examination: <u>Penis shaft:</u> firm, erect shaft which was tender. <u>Glans penis:</u> cold to touch and tender. -Aspiration of Corporal blood: pH-6.82, pO2-40, pCO2-110.
Within ½ hour of complain of penile pain	Under sterile precaution and local anesthesia two 18-gauge needle inserted at base of penis into corpora bodies and dark blood aspirated along with injection of phenylephrine. Complete detumescence was achieved.
4 hours after the procedure	Priapism re-occurred and aspiration procedure was repeated.
6 hours after the procedure	With third time recurrence- Al-ghorab shunt was planned. Meanwhile, patient was intubated for worsening hypoxia and mental status. CTA-chest could not be done as patient suddenly deteriorated.
About 24hours after admission	Patient suffered PEA cardiac arrest and unfortunately could not be revived.

Mechanism of COVID-19 Thrombosis

Disease stage	Mild and Moderate	Severe	Critically ill
	Inflammation	Hypercoagulation	Thrombosis
Clinical features	Dry cough Fever Fatigue Nasal congestion Sore throat	Shortness of breath Dyspnea Thrombosis	Shortness of breath Dyspnea Drowsiness Shock Thrombosis
Biochemical indicators	Leukocyte ↓ or normal Lymphocyte ↓ D-dimer ↑ LDH ↑	CRP ↑ Lymphocyte ↓ D-dimer ↑↑ LDH ↑ Inflammatory factors ↑	CRP ↑↑ Lymphocyte ↓ D-dimer ↑↑↑ LDH ↑↑ Inflammatory factors ↑↑↑

Figure 1. Clinical features and biochemical changes following COVID-19 infection. After virus invasion, active defense is made in response to the virus. With the progression of disease severity, patients show characteristic changes in clinical manifestations and haematological biochemical indicators. CRP: C-reactive protein; DC: Dendritic Cells; IL: interleukin; LDH: Lactate dehydrogenase; PMN: Polymorphonuclear neutrophil; TNF: tumor necrosis factor.

Chest X-ray PA Imaging

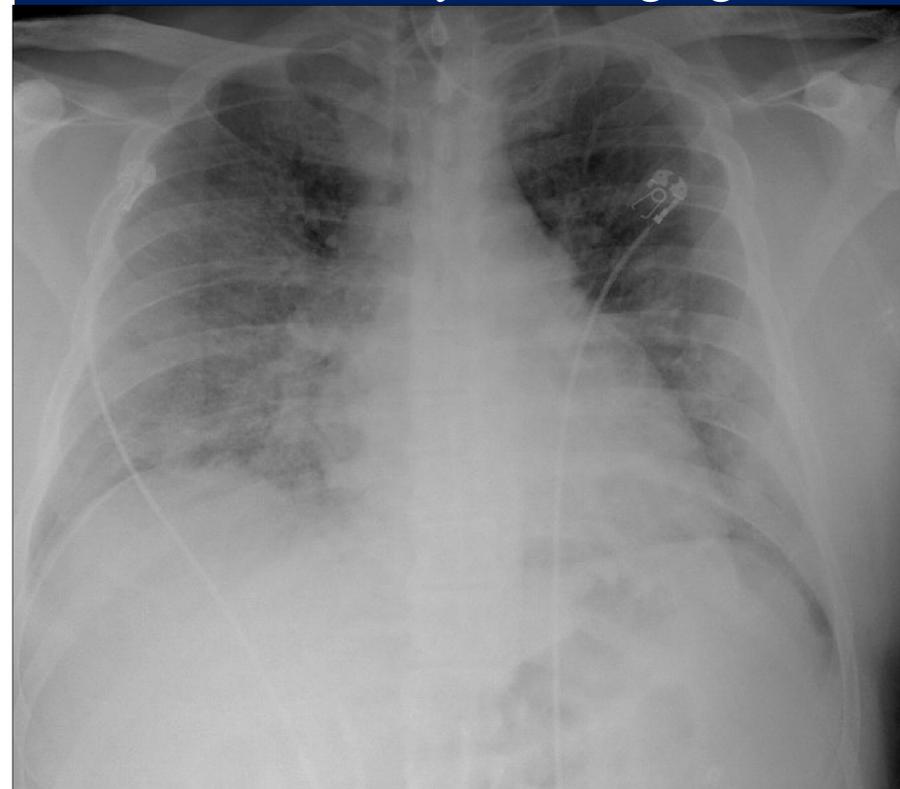
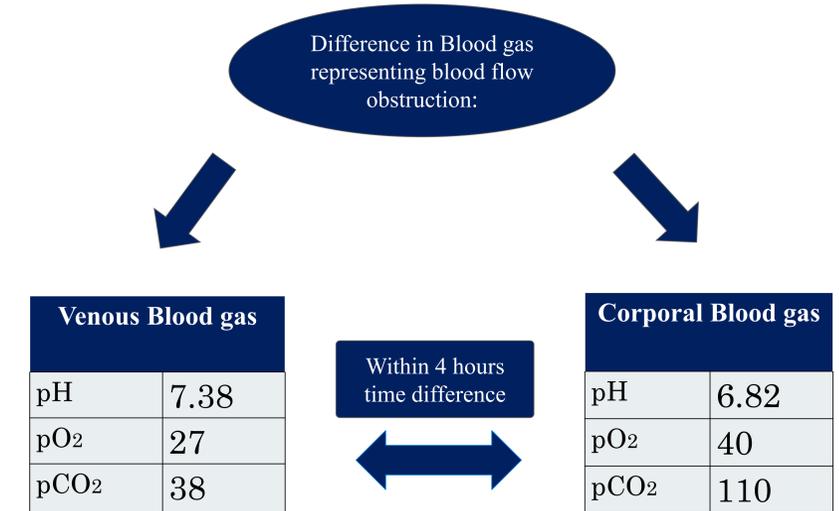


Figure 2: Chest radiograph shows Diffuse interstitial and alveolar airspace disease in this COVID positive patient is consistent with COVID pneumonia



Discussion

- Current literature review has less than 10 case reports of ischemic priapism related to severe COVID 19 infection.
- Prothrombotic state along with endothelial dysfunction play a role in venous thromboembolism and obstruction of small emissary veins.
- This theory is supported by findings such as dark, clotted and acidic blood on aspiration and recurrent ischemic priapism after multiple aspirations.
- Despite theoretical association of thromboembolism and severe inflammation with ischemic priapism, no clear mechanism of onset has been defined.

Conclusion

- Rapidly deteriorating Covid-19 patients with high oxygen demands requiring Intensive care are prone to complications like ischemic priapism.
- High clinical suspicion is necessary as its an emergent condition and timely treatment can prevent permanent damage and infertility.
- Most cases were reported to have high inflammatory serum markers pointing towards prothrombotic state and reduced venous flow as the likely mechanism, however further studies are needed to establish pathophysiologic mechanism

References

1. Liu H, Hu T, Zhang C, Chen X, Zhang S, Li M, Jing H, Wang C, Hu T, Shi J. Mechanisms of COVID-19 thrombosis in an inflammatory environment and new anticoagulant targets. American Journal of Translational Research. 2021;13(5):3925.
2. De Rose AF, Ambrosini F, Gaia LG, Mantica G, Terrone C. Ischemic Priapism During Severe SARS-CoV-2 Infection: A Case Report and Literature Review. Research and Reports in Urology. 2022;14:259.
3. Malinga DM, Laher AE, McDowall J, Adam A. Coronavirus disease 2019 (COVID-19) and priapism: An unexplored association. Current Urology. 2022 Jun;16(2):55.