

# Immune Thrombocytopenic Purpura Flare as a Presenting Sign of COVID-19 Infection

## Background

- Immune Thrombocytopenic Purpura (ITP) is an immune condition characterized by a decrease in the number of platelets in the blood
- Thrombocytopenia has been associated with a threefold enhanced risk of severe respiratory disease in COVID-19 infection
- The mechanism of thrombocytopenia in patients with COVID-19 infection is likely multifactorial
- It is possible that the novel Coronavirus causes an auto-immune response against hematopoietic stem cells, megakaryocytes, and platelets inducing their growth inhibition and apoptosis.
- Platelet consumption in damaged lungs is a suggested alternative mechanism
- We present a case of a patient with pre-existing ITP in whom acute thrombocytopenia was the only sign or symptom of infection for the first two weeks of known infection

## Case Presentation

88-year-old Italian male with past medical history significant for ITP, dementia (alert only to self), type 2 diabetes, chronic kidney disease and class III obesity was found to have severe thrombocytopenia. Routine lab work obtained at the patient's skilled nursing facility revealed a platelet count of 5,000. COVID-19 was tested on admission given hospital policy to test all nursing home patients during the pandemic.

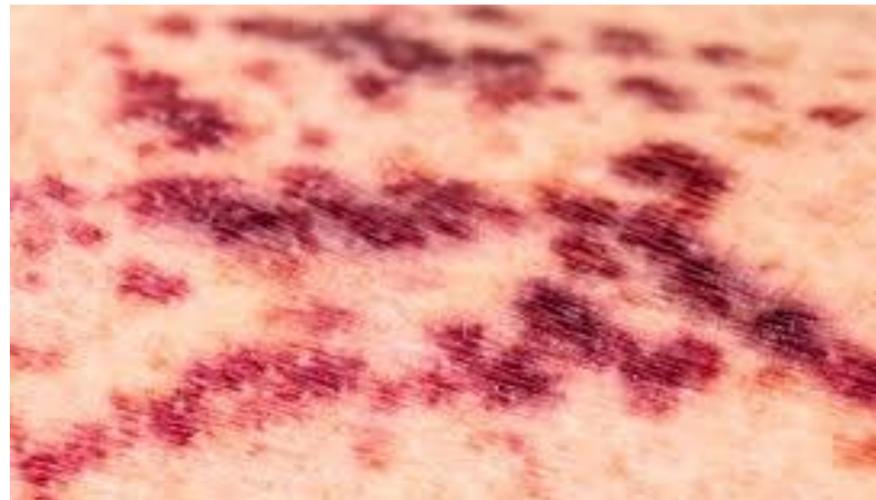
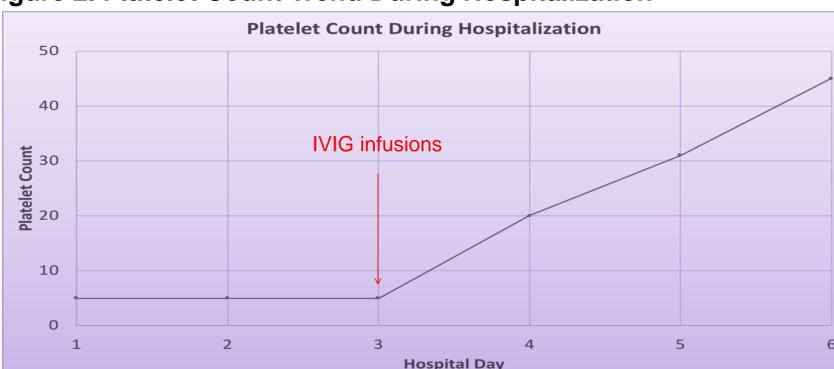
### Initial Physical Exam

Vitals: T 36.9 C, BP 103/71, HR 87, RR 18, O2 sat 97% on room air  
General: Awake and alert to self, no acute distress  
Cardiac: S1/S2, regular, no murmurs  
Respiratory: Clear to auscultation bilaterally, symmetrical chest expansion  
Abdomen: Normoactive bowel sounds, non-distended abdomen, nontender to light or deep palpation  
Skin: purpura on chest and bilateral upper and lower extremities

### Figure 1. Pertinent Labs

Platelets	5 K/mm <sup>3</sup> (normal 130-385)
CRP	101 ug/mL (normal 0-30)
Ferritin	297.6 ng/mL (normal 21-274)
D-dimer	743 ng/mL (normal <230)
Fibrinogen	178 mg/dL (normal 165-434)
COVID-19	Positive

### Figure 2. Platelet Count Trend During Hospitalization



Purpura from ITP Flare

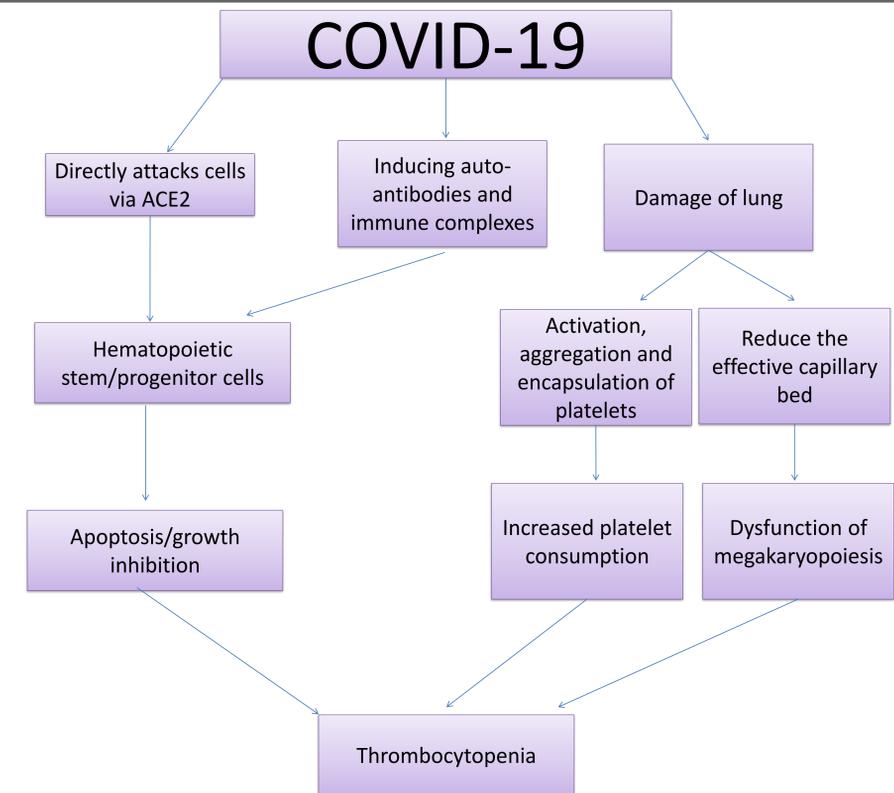


**Chest X-ray:** Mild cardiomegaly. No infiltrates or acute cardiopulmonary process, as opposed to a COVID-19 patient with respiratory failure

## Hospital Course

- The patient received a total of 2 doses of IVIG during hospitalization. His home eltrombopag (bone marrow stimulant) medication was increased to 50 mg daily
- During the course of hospitalization the patient did not have any cough, fevers, loss of taste or smell, or respiratory symptoms of COVID-19
- His platelet count increased to 41,000, and he was discharged safely on prednisone and eltrombopag to his skilled nursing facility
- Two weeks following discharge, the patient returned with epistaxis. He had an aspiration event leading to acute hypoxic respiratory failure
- During that admission, the patient's health-care representative decided to make the patient "comfort measures only." The patient passed away

## Possible Mechanisms of Thrombocytopenia



## Discussion/Conclusion

- There is still much to learn about COVID-19, including its effect on individuals with underlying immune conditions
- This case report suggests that COVID-19 was a trigger for a flare in ITP
- Patients with underlying ITP, found to be COVID-19 positive, have been reported to have more severe respiratory illness
- Low platelet count has been noted to be a biomarker associated with disease severity and risk of mortality
- In this case, our patient had severe thrombocytopenia, but did not have typical symptoms associated with COVID-19. This brings into question findings from previous meta-analysis which postulate thrombocytopenia as a biomarker of disease severity
- Additionally, in this patient with underlying ITP, the proposed mechanism of platelet consumption in damaged lungs does not appear to apply

## References

- Lippi G, Plebani M, Henry BM. Thrombocytopenia is associated with severe coronavirus disease 2019 (COVID-19) infections: A meta-analysis. *Clinica Chimica Acta*. 2020;506:145-148. doi:10.1016/j.cca.2020.03.022
- Mo Yang, Margaret HL Ng & Chi Kong Li (2005) Thrombocytopenia in patients with severe acute respiratory syndrome (review), *Hematology*, 10:2, 101-105, DOI: 10.1080/10245330400026170
- "COVID-19 and ITP: Frequently Asked Questions." *COVID-19 and ITP – Hematology.org*, [www.hematology.org/covid-19-and-ityp](http://www.hematology.org/covid-19-and-ityp)
- Immune Thrombocytopenic Purpura in a Patient with Covid-19. April, 2020 DOI: 10.1056/NEJMc2010472