World Journal of Medical Case Reports
2022; 3(2): 21-24
http://www.sciencepublishinggroup.com/j/wjmcr
doi: 10.11648/j.wjmcr.20220302.12

A Case Report: Post COVID Immune Thrombocytopenia

Faraz Waheed

Department of Medicine, Khyber Medical College, Peshawar, Pakistan

Email address:
farazwhd1998@gmail.com

To cite this article:
Faraz Waheed. A Case Report: Post COVID Immune Thrombocytopenia. *World Journal of Medical Case Reports.* Vol. 3, No. 2, 2022, pp. 21-24. doi: 10.11648/j.wjmcr.20220302.12

Received: February 26, 2022; **Accepted**: April 22, 2022; **Published**: April 28, 2022

Abstract: Immune thrombocytopenia is a condition in which our body destroys its own platelets. It is characterized by platelet count less than 100,000/uL which can lead to easy bruising and bleeding. ITP can be primary or secondary. Secondary causes are diverse and include viral infections. The novel corona virus is known to affect mainly respiratory system along with the involvement of multiple other systems. It presents with non specific symptoms such as fever, fatigue, cough, dyspnea and might lead to a few rare complications post COVID with ITP being on of them. One of the potential cause of ITP is attributed to this viral infection. This is a case of 29 year old female who presented with easy bruising on the both upper and lower limbs 1 week after being tested negative for corona virus infection on PCR. Platelet count on admission was 59,000/uL. She was diagnosed as ITP caused by corona virus after ruling out other hematological causes of thrombocytopenia. The further workup did not reveal the pathophysiology of ITP caused by this virus. However the patient was treated with glucocorticoids which improved the condition gradually. The patient was discharged and a follow up was advised.

Keywords: COVID-19, Thrombocytopenia, Post COVID Syndrome, Clinical Medicine, Post Viral Platelet Disorder

1. Introduction

Immune thrombocytopenia is the condition in which autoantibodies are formed against the body's platelets. There are two main forms of the disease; Acute ITP which occurs mostly in children following a viral infection and resolves on its own usually within 6 months. Chronic ITP occurs in adults mostly but can also occur in adolescents, this form lasts for a minimum of 6 months but can last for a lifetime. (1) Chronic ITP affects females more than males. Recurrence can occur and regular follow up is required. Post viral ITP occurs when antibodies formed against viruses cross react with platelets, leading to their destruction in spleen. Viruses like hepatitis C, chicken pox, AIDS virus have been commonly associated with ITP. Viral infections can trigger a recurrence of ITP or cause secondary ITP. (2) Covid 19 virus infection can cause a range of symptoms, most notably fever, flu, inability to smell, body aches and malaise (3). Most of the covid cases are self limiting and patients recover without developing any dreadful complications however few post covid complications are noted with ITP being one of them (4). Our case report focuses on the significance of monitoring patients for any secondary disease that is acquired during covid or post covid. Post covid ITP should be kept in mind while dealing a patient with unexplained thrombocytopenia. ITP should be treated promptly once diagnosed to prevent the patient from developing any severe bleeding disorders. However the exact mechanism is still unknown, every measure to avoid this course of disease should be taken before hand. The importance of vaccines in prevention of ITP should be addressed.

2. Case Presentation

We present the case of 29-year-old female who came to Outpatient department with bruises on both upper and lower extremities. The patient had no significant past medical history. She was diagnosed with COVID 19 3 weeks prior. She had mild symptoms of COVID at that time like runny nose, fever, fatigue and body aches. The diagnosis was made with the help of PCR testing of a nasal swab. The patient was treated supportively and no specific medications were taken. A follow up rapid antigen testing came back negative after 2 weeks. Patient noticed bruises on arms and legs the day before presentation. She denied any past history of hematologic disorders and serious lung problems.

Vitals were normal at the time of presentation. Temperature was 98.6 F, blood pressure was 120/81, heart

rate was 80bpm, pulse was regular and equal in both hands. The patient was admitted and a full hematological workup was ordered, the results of which showed thrombocytopenia with platelet count of 59,000/uL. (Figure 1).

HAEMATOLOGY REPORT

Test	Report	Reference Ranges
CBC		
RBC Count	3.780 X 10`6/uL	4.5 - 5.5 X 10`6/uL
Haemoglobin	11.50 g/dL	M: 13-18, F: 11.5-16.5, Infant:14-19 g/dL
TLC (WBC Count)	10.30 X10`3/µL	04-11 X10`3/uL
Platelets	59 X10`3/µL	150 - 450 X10`3/µL
Rechecked and correlated with smear examination		
PCV (HCT)	33.12 %	Male (40 - 54), Female (36 - 46)
MCV	87.60 FL	75 - 95
MCH	30.40 Pg	26--32
MCHC	34.70 g/dL	30 - 35
DLC		
Neutrophils	80 %	40--75%
Eosinophils	01 %	1--6%
Monocytes	02 %	2--10%
Lymphocytes	17 %	20--45%
Basophils	0 %	0--2%

Figure 1. *Initial hematology report.*

Once thrombocytopenia was diagnosed, the patient was given a 2 weeks course of 60mg Prednisone daily, repeat testing was done after 2 weeks and yielded a platelet count of 100,000/uL and 320,000 after 4 weeks. (Figure 2).

There was no recurrent bleeding or bruising.

HAEMATOLOGY REPORT

Test	Report	Reference Ranges
CBC		
RBC Count	3.720 X 10`6/uL	4.5 - 5.5 X 10`6/uL
Haemoglobin	10.62 g/dL	M: 13-18, F: 11.5-16.5, Infant:14-19 g/dL
TLC (WBC Count)	9.20 X10`3/µL	04-11 X10`3/uL
Platelets	320 X10`3/µL	150 - 450 X10`3/µL
PCV (HCT)	32.22 %	Male (40 - 54), Female (36 - 46)
MCV	86.60 FL	75 - 95
MCH	28.50 Pg	26--32
MCHC	32.90 g/dL	30 - 35
DLC		
Neutrophils	64 %	40--75%
Eosinophils	03 %	1--6%
Monocytes	05 %	2--10%
Lymphocytes	28 %	20--45%
Basophils	0 %	0--2%
Prothrombin Time with INR		
Patient	14 seconds	
Control	12 seconds	
INR	1.1667	
Difference of 4 seconds is normal		

Figure 2. *Hematology report 4 weeks later.*

3. Discussion

The corona virus pandemic of 2019, is widely known to have brought serious consequences to health system and individuals alike. [5] A wide range of complications are associated with particularly hematological manifestations as an important issue. [6] Like other viral infections, SARS-CoV2 can also trigger ITP the etiology of which is multifactorial. [7] In a systemic review, many of the ITP cases were known to have occurred after clinical recovery and 20% 3 weeks after appearance of COVID symptoms [8]. In the setting of active COVID infection as well as post COVID, secondary ITP is an increasingly recognized entity. England Journal of Medicine described the first case of ITP caused by COVID-19. [9] The presentation of ITP varies widely and can range from asymptomatic, mild to severe life threatening bleeding. [10] Thrombocytopenia have been reported in 36.2% of patients with higher rates occuring in severe diseases. [11] At the time presentation our patient tested negative implicating that ITP can also occur post COVID. Those who tests positive are given anti viral agents (Remdesivir) and supportive care. [1] However our patient was not treated with any of the above medications. Under observation our patient responded well to glucocorticoids and platelet count jumped from 59,000/mm^3 to 320,000/mm^3 in 4 weeks. The treatment plan depends on the platelet count of the patients. The aim of the treatment is to halt any significant bleeding which may be debilitating.[12]. There was no active bleeding and no platelet transfusions was given to our patient as usually platelet transfusions are not approved until the condition is very severe [12]. American College of Hematology (ASH) also recommends additional testing of the patients diagnosed with ITP after exclusion of other diseases, for HIV and Hepatitis C. [13]. ITP in a patient who has recently suffered from COVID is an important diagnosis, as severe drops in platelet counts can be life threatening and also frightening for the patient. Care should be taken to avoid unnecessary testing for the cause of thrombocytopenia specially if the patient has no significant past history but a recent viral infection like COVID 19. Additional tests are required if there are other anomalies in the hematological report or on blood smear.

4. Conclusions

ITP can be aggravated by a viral infection such as COVID 19. It may present at different times during the course of disease, active infection or during recovery. The Patient usually comes with petechiae, purpura or epistaxis. The patient should be kept under observation and platelet levels are checked. Glucocorticoids, IVIG or a combination of both can be used for the treatment. Platelet infusions are required in severe cases which are life threatening usually when the platelet levels are below 30,000/uL. Recognition of COVID 19 as a potential cause of ITP, not only during active infection but also after recovery can lead to better outcomes for the patients and avoid unnecessary testing.

5. Recommendations for Future Research

Most of the case reports available on COVID 19 induced thrombocytopenia are those of patients having thrombocytopenia while being in-hospital for COVID-19. However Post COVID thrombocytopenia (as in this case) as well as relapses of thrombocytopenia secondary to COVID-19 vaccine also occur [14] and research should be undertaken to find; 1. the rate of recurrences post COVID and 2. The average duration of time these recurrences take. For this purpose proper follow up of these patients is important. Given the variety of COVID vaccines being used in different parts of the world, research should also be done on the different rates of ITP associated with these vaccines, as studies have shown that use of different vaccines have different outcomes. [15] Another important aspect of thrombocytopenia associated with COVID-19 is the severity of platelet drop that occurs. Different studies have different reports and a systematic review may help delineate the severity of the problem and help guide management.

Ethical Considerations

Informed consent was obtained from the patient reported in this study and no personal information like name, address or occupation was disclosed.

References

[1] Justiz Vaillant AA, Gupta N. ITP-Immune Thrombocytopenic Purpura. [Updated 2021 Dec 5]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK537240/

[2] Merli, M., Ageno, W., Sessa, F. *et al.* Recurrence of immune thrombocytopenia at the time of SARS-CoV-2 infection. *Ann Hematol* 99, 1951–1952 (2020). https://doi.org/10.1007/s00277-020-04130-2

[3] Guan WJ, Ni ZY, Hu Y, et al.: Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med. 2020, 382: 1708-1720. 10.1056/NEJMoa2002032.

[4] Bomhof G, Mutsaers PGNJ, Leebeek FWG, Te Boekhorst PAW, Hofland J, Croles FN, Jansen AJG: COVID-19-associated immune thrombocytopenia. Br J Haematol. 2020, 190: e61-4. 10.1111/bjh.16850.

[5] Huang C, Wang Y, Li X, et. al.: Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020, 395: 497-506. 10.1016/s0140-6736(20)30183-5.

[6] Giannis D, Ziogas IA, Gianni P: Coagulation disorders in coronavirus infected patients: COVID-19, SARS-CoV-1, MERS-CoV and lessons from the past. J Clin Virol. 2020, 127: 104362. 10.1016/j.jcv.2020.104362.

[7] Goeijenbier M. Van Wissen M. Van de Weg C. et al. Review: Viral infections and mechanisms of thrombosis and bleeding. J Med Virol. 2012; 84: 1680-1696.

[8] Bhattacharjee, S., & Banerjee, M. (2020). Immune Thrombocytopenia Secondary to COVID-19: a Systematic Review. *SN comprehensive clinical medicine*, *2* (11), 2048–2058. https://doi.org/10.1007/s42399-020-00521-8

[9] Zulfiqar AA, Lorenzo-Villalba N, Hassler P, Andrès E: Immune thrombocytopenic purpura in a patient with COVID-19. N Engl J Med. 2020, 382: e43.

[10] Stepman G, Daley I, Bralts D, et al. (June 22, 2021) A Case of Immune Thrombocytopenia After COVID-19 Infection. Cureus 13 (6): e15843. doi: 10.7759/cureus.15843.

[11] Xu P, Zhou Q, Xu J. Mechanism of thrombocytopenia in COVID-19 patients. *Ann Hematol*. 2020; 99 (6): 1205-1208. doi: 10.1007/s00277-020-04019-0.

[12] Platelet transfusions, indications, ordering and associated risks (https://www.medilib.ir/uptodate/show/7918).

[13] Cindy Neunert, Wendy Lim, Mark Crowther, Alan Cohen, Lawrence Solberg, Mark A. Crowther; The American Society of Hematology 2011 evidence-based practice guideline for immune thrombocytopenia. *Blood* 2011; 117 (16): 4190–4207. doi: https://doi.org/10.1182/blood-2010-08-302984.

[14] Dijk, W., & Schutgens, R. (2022). Relapse of immune thrombocytopenia after COVID-19 vaccination. *European journal of haematology*, *108* (1), 84–85. https://doi.org/10.1111/ejh.13713

[15] Pishko, A. M., Bussel, J. B. & Cines, D. B. COVID-19 vaccination and immune thrombocytopenia. *Nat Med* 27, 1145–1146 (2021). https://doi.org/10.1038/s41591-021-01419-1