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Posttransfusion purpura sans purpura: A novel presentation

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Abstract:

Posttransfusion purpura (PTP) is a rare condition that develops 5–10 days after transfusion of platelet containing blood component. Temporal relationship to blood transfusion, thrombocytopenia, and purpuric rashes with or without bleeding manifestation, supported by the serological presence of antiplatelet antibodies, are characteristic of PTP. We, herein, report a case of posttransfusion thrombocytopenia without purpuric rashes or bleeding symptoms, which is a rare presentation. A 44-year-old multiparous female, being treated for menorrhagia, who was transfused with three packed red blood cell units developed significant thrombocytopenia on day 8 after transfusion of the first unit. Her coagulation profile was normal. No purpuric rashes or bleeding manifestation was seen. Serum revealed the presence of antiplatelet antibodies on performing platelet antibody screen. Her platelet count improved from day 9 and reached above 50,000/ μ l on day 10. She was managed conservatively with frequent monitoring for bleeding manifestations and blood counts.

Keywords:

Antiplatelet antibodies, low platelet count, posttransfusion purpura

Introduction

Posttransfusion purpura (PTP) is rare underdiagnosed and underreported transfusion complication first reported in 1961. The incidence of this complication has been reported to be 1 in 50,000–1 in 100,000 population. The incidence is higher among females, with a female-to-male ratio of >5:1. This immunologic complication occurs due to the destruction of platelets by antiplatelet antibodies such as antihuman platelet antigen (HPA-1A), the common antibody reported globally. Various other platelet antibodies can also cause PTP.^[1] PTP typically develops 7 days after the transfusion of a blood component containing or contaminated with platelets. Patients develop thrombocytopenia to a

platelet count of $<20 \times 10^9/L$ predisposing the patient to the risk of mucous membrane bleeding, gastrointestinal bleeding, and genitourinary bleeding; the other clinical features seen in PTP are petechial rashes that are almost seen in all cases that are reported. PTP is usually a self-limiting condition with a mortality rate of 10%, the primary cause being the intracranial hemorrhage.^[2] PTP is often misdiagnosed as there is less awareness about the condition, and a strong clinical suspicion is required to diagnose PTP. Excluding other causes of thrombocytopenia in a clinical setting along with serological confirmation of antiplatelet antibodies to platelet antigen aids in the diagnosis of PTP.^[3]

PTP is not widely reported in India. Here, we report a case of posttransfusion thrombocytopenia with a varied clinical presentation of PTP with serological evidence of antiplatelet antibodies posttransfusion.

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Case Report

A 44 year-old female was admitted with complaints of breathlessness and bleeding per vaginum for 4 months duration. Her hemoglobin was found to be 4.9 g/dl. Four years back, she had abnormal uterine bleeding and was transfused with two units of packed red blood cells. She has two live children aged more than 15 years. There was no history of abortions or stillbirths. She did not receive any transfusions during her two pregnancies. In view of low hemoglobin and symptomatic anemia, she was transfused three units of packed red blood cells, one packed red blood cell unit per day for 3 consecutive days. Her hemoglobin improved to 9.6 g/dl after the transfusion of the third unit. Her platelet count at the time of admission was 1,79,000/ μ l. Her platelet count dropped to 27,000/ μ l on day 8 since transfusion of the first unit [Figure 1]. The sequence of hemoglobin and platelet counts is given in Table 1.

Her platelet count reached the lowest count of 27,000/ μ l on day 8 after the first transfusion and began to rise from day 9 and reached over 50,000/ μ l by day 10. She did not reveal any symptoms of bleeding from gums or orifices. No mucosal bleeding or petechial rash was observed. Serum samples were obtained on day 7 and were screened for antiplatelet antibodies with Capture-P. Ready screen. lot No. A054, expiry date September 20, 2019, Immucor, INC, Nor cross GA 30071, USA [Figure 2]. This is a 13 well-platelet antibody screen assay with positive control, a negative control, and a blank. Platelet antibody screening was positive [Figure 2]. Her blood counts were repeated after 2 months, and platelet count found to be 197,000/ μ l.

Discussion

PTP results from an immune-mediated destruction of transfused platelets, and the recipient's own platelets typically occur after 5–10 days after transfusion of blood components containing platelets. The drop in platelet

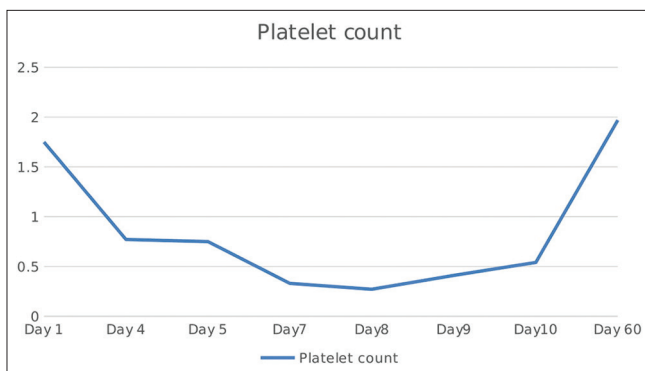


Figure 1: Platelet count plot from day 1 to day 60 depicting the drop and return to baseline X-axis: duration in days. Y-axis: platelet count $\times 10^5/\mu$ l

count is very prominent that thrombocytopenia occurs to a platelet count $<20,000/\mu$ l; although, this parameter is variable and some patients can have platelet count $>20,000/\mu$ l.^[4] The common features of PTP include a multiparous woman with a history of transfusions, presenting with thrombocytopenia and purpuric rash between 5 and 10 days after blood transfusion. Bleeding from mucous membrane has been observed commonly. This patient who was a multiparous woman with a history of transfusion and who developed thrombocytopenia to platelet count of $<50,000/\mu$ l on day 7 did not develop purpura. A scoring system proposed by Mohammed Albalawi *et al.* categorizes this patient as low-risk PTP with a score of 2.^[1] Scientific literature review reveals around 200 cases of PTP reported worldwide. The diagnosis of posttransfusion purpura is challenging when thrombocytopenia occurs in the setting of disseminated intravascular coagulation, heparin usage, and when the patient has underlying conditions that can predispose to thrombocytopenia.^[5] In this case, the patient did not have any other underlying cause of thrombocytopenia, and the patient's platelet count did not drop below 20,000/ μ l. Anti-HPA-1a antibody is the most common antibody implicated in PTP, although other antibodies such as anti-HPA-1b, anti-HPA 3a, anti-HPA 3b, anti-HPA-4b, anti-HPA-5a, and anti-HPA 5b are also implicated.^[1,6] Platelet count can reach to dangerously low levels of 2000/ μ l necessitating urgent treatment.^[7] PTP is a self-limiting phenomenon, but the management with corticosteroids, Intravenous immunoglobulin (IVIG), and plasmapheresis is often required considering the dangerously low level of platelet count predisposing to significant morbidity and mortality due to hemorrhage.^[4,5] The case described here is a case of posttransfusion thrombocytopenia where the

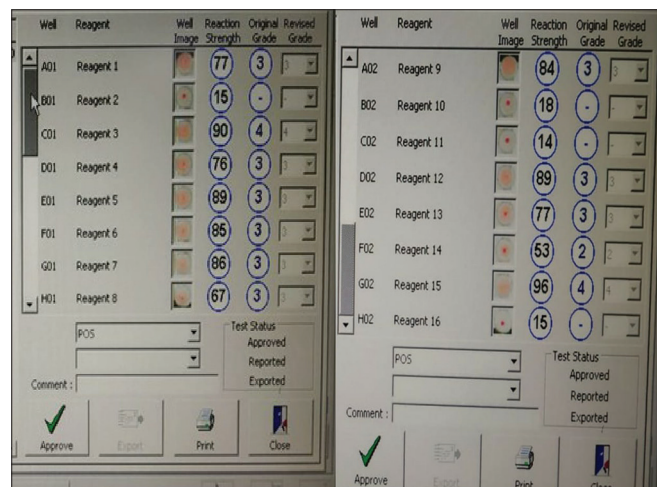


Figure 2: Capture – P platelet antibody screen assay using 13 reagent platelets (1–13 wells), well 14 – Blank, Well 15 – Positive control and well 16 – Negative control. A diffuse effacement throughout the well is a positive reaction while a cell button formed in the center is a negative reaction. Reactions are graded depending on the degree of effacement and the equipment records the results

Table 1: Hemoglobin and platelet count from day 1 to day 60

Test	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 60
Hemoglobin	4.9	ND	8.3	9.6	ND	ND	9.7	ND	ND	ND	12.6
Platelet count/ μ l	175,000	ND	ND	77,000	75,000	ND	33,000	27,000	41,000	54,000	197,000

ND=Not done

platelet counts fell to the least value of 27,000/ μ l, and no petechial rash was seen. The patient did not develop any bleeding manifestations and spontaneously recovered without any intervention. Investigating the serum for the presence of platelet antibodies revealed a positive screen. PTP is rarely reported event. Case reports of PTP are few from India due to lack of awareness and limitation in the evaluation of PTP. This type of posttransfusion thrombocytopenia is a rare presentation where the patient's platelet count did not fall below 10,000/ μ l, and no purpura was observed. The patient's platelet count recovered spontaneously. The limitation of this study was that platelet antibody identification could not be carried.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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