

Case Report

Open Access

Early Diagnosis of Drug-Induced Thrombocytopenia in a Patient with Major Depressive Disorder: A Case Report Highlighting Diagnostic Challenges and Multidisciplinary Management

Susan Khezri¹, Nazanin Younesi Moghaddam², Milad Mazarloo³, Nastaran Bagheri⁴,

Simin Saberi Amarghan⁵, Mohammad Khani-Eshratabadi^{6*}

1. Department of Internal Medicine, Ghaem Hospital, Mashhad University of Medical Sciences, Mashhad, Iran.
2. a) Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran; b) Department of Hematology and Blood Banking, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran. (ORCID iD: <https://orcid.org/0009-0006-5439-7885>).
3. a) Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran. b) Kashmar School of Medical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran. (ORCID iD: <https://orcid.org/0009-0004-0957-8519>).
4. a) Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran. b) Kashmar School of Medical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran. (ORCID iD: <https://orcid.org/0009-0007-7115-5922>).
5. Student Research Committee, Iran University of Medical Sciences, Tehran, Iran. (ORCID iD: <https://orcid.org/0009-0008-3970-4319>).
6. Kashmar School of Medical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran. (ORCID iD: <https://orcid.org/0000-0002-7592-0237>).

Abstract

Background and Aim:

Drug-induced thrombocytopenia (DIT) is a rare but potentially life-threatening condition triggered by certain medications. This report aims to emphasize the importance of early diagnosis and appropriate management of DIT in patients with Major Depressive Disorder (MDD) treated with a polypharmacy regimen.

Case Presentation:

A case study of a 39-year-old woman with MDD who developed bleeding following treatment with “aripiprazole”, “olanzapine”, “lorazepam”, and “sodium valproate” is presented.

Conclusion:

The patient’s condition improved significantly after medication changes and close collaboration between psychiatrists and hematologists. This highlights the need for proper care and correct prescription of medicines for patients with MDD.

Laboratory Highlights & Technical Implications:

This case report demonstrates the need for:

- Enhanced CBC review protocols for patients receiving psychiatric care/treatment who are on polypharmacy;
- Reflex testing algorithms for thrombocytopenia (low platelet count) workups;
- Standardized communication channels between lab and mental health teams.

Keywords: Drug-Induced Thrombocytopenia; Platelet; Major Depressive Disorder (MDD); CBC Monitoring; Antidepressants; Psychotropic Medications/Drugs; Lab-Clinic Collaboration.

***Corresponding author:** Mohammad Khani-Eshratabadi; **Email Addresses:** khaniem@mums.ac.ir, lskhani@yahoo.com; **ORCID iD:** <https://orcid.org/0000-0002-7592-0237>

Please cite this article as: Khezri S, Younesi Moghaddam N, Mazarloo M, Bagheri N, Saberi Amarghan S, Khani-Eshratabadi M. Early Diagnosis of Drug-Induced Thrombocytopenia in a Patient with Major Depressive Disorder: A Case Report Highlighting Diagnostic Challenges and Multidisciplinary Management. Arch Med Lab Sci. 2025;11:1-3 (e2). <https://doi.org/10.22037/aml.v11.44682>

Introduction

Thrombocytopenia is a medical condition which is defined as a platelet count less than 150,000/mm³. It is a usual harmful effect of some groups of drugs including non-steroidal anti-inflammatory drugs (NSAIDs), diuretics, and anticoagulants such as heparin; but psychotropic drugs are rarely reported to cause thrombocytopenia (1,2,7).

Drug-Induced Thrombocytopenia (DIT) can cause a significant and progressive decrease in platelet count, potentially leading to bleeding complications (3,6).

In some rare cases, it has been reported that olanzapine can lead to DIT, and hematological monitoring of patients is required (1). Sodium valproate can also cause DIT with low quality of life and low compliance (4). Because of the limited information available focusing on drug-induced thrombocytopenia (MDD), early identification and adequate management of this problem is essential.

This is a case report of a patient with DIT symptoms after taking “aripiprazole”, “lorazepam”, and “sodium valproate” medications.

Case Presentation

In this clinical case, a 39-year-old woman with major depressive disorder (MDD) developed bleeding after brushing her teeth. She had been taking “aripiprazole”, “olanzapine”, “lorazepam”, and “sodium valproate”.

The patient’s platelet count was found to be low in two consecutive Cell Blood Count (CBC) tests, with values of 33000/mm³ and 29000/mm³, respectively. Concurrently, she experienced symptoms of petechiae and purpura in her legs and left hand.

The physician suspected immune thrombocytopenic purpura (ITP) and initiated treatment with dexamethasone. However, further examination did not reveal any evidence of schistocytes or giant platelets. Based on previous studies, psychiatric medications such as valproate have been associated with thrombocytopenia (8). Additionally, aripiprazole has been reported to cause reductions in platelet and leukocyte counts, especially when combined with

other drugs (9). Cases of thrombocytopenia induced by olanzapine have also been documented (10). Furthermore, although rare, benzodiazepines like lorazepam have been linked to drug-induced thrombocytopenia (11). Considering this evidence and consultation with a psychiatrist changed the medication regimen, discontinued “aripiprazole”, “olanzapine”, “lorazepam”, and “sodium valproate” while introducing bipyridine, fluoxetine and clonazepam.

Following this adjustment, the patient’s platelet count improved significantly to 128000/mm³ (Table 1). Thrombocytopenia caused by aripiprazole, lorazepam, and sodium valproate was diagnosed.

Table 1. Cell Blood Count (CBC) Parameter Measurement

CBC Parameters	Test 1	Test 2	Test 3
PLT	33,000 mm ³	29,000 mm ³	128,000 mm ³
MCHC	31.74 g/dl	29.3 g/dl	32.14 g/dl
MCV	86.75 fL	86 fL	89.53 fL
HCT	33.4%	35.5%	30.8%
Hb	10.6 g/dL	12.1 g/dL	9.9 g/dL
RBC	3.85×10 ¹² /L	4.13×10 ¹² /L	3.44×10 ¹² /L
MCH	27.53 pg	29.3 pg	28.78 pg

Discussion

The presented case report highlights a patient with MDD who experienced bleeding after brushing her teeth. The patient’s medical history included the use of “aripiprazole”, “olanzapine”, “lorazepam”, and “sodium valproate”.

Concurrently, the patient developed petechiae and purpura in her legs and left hand. examination of the peripheral blood smear did not reveal any evidence of schistocytes or giant platelets. Consequently, consultation with a psychiatrist was sought to modify the medication regimen. The medications “aripiprazole”, “lorazepam”, and “sodium valproate”

were discontinued and replaced with “biperiden”, “fluoxetine”, and “clonazepam”.

Following appropriate management, the patient's condition significantly improved. Ultimately, thrombocytopenia caused by “aripiprazole”, “lorazepam” and “sodium valproate” was diagnosed. DIT typically occurs within 5 to 10 days after initiating a new drug or shortly after subsequent exposure. DIT is often severe with concurrent bleeding symptoms such as purpura lesions, bruising and epistaxis. Discontinuation of the suspected causative agent is the primary treatment for DIT, resulting in an expected increase in platelet count within 1 to 10 days.

DIT can be either immune (drug-dependent antibodies) or non-immune (bone marrow suppression) (5). This case highlights the importance of considering drug-induced thrombocytopenia as a potential cause of bleeding in patients with MDD. Early recognition and appropriate management, including medication adjustments, and close psychiatrist–hematologist collaboration can lead to significant improvement in patient outcomes.

Acknowledgments

The authors extend their sincerest gratitude to the participant patient for providing informed consent and for generously sharing clinical information and test results, which were essential to the preparation of this case report.

Conflict of Interest

The authors declare no conflict of interest.

Funding/Support

The authors declare that no funding was received for this work.

Ethics

Written informed consent was obtained from the patient for publication of this case report and any accompanying laboratory results.

Authors' Contributions

All authors made substantial contributions to this work, participating in one or more stages of conception, study design, data acquisition, analysis, or drafting. Final approval of the completed manuscript was provided by all authors.

AI Use Declaration

This article was written without the use of artificial intelligence.

References

1. Chebli H, Berrada H, Belbachir S, Ouanass A. Olanzapine-Associated Thrombocytopenia: A Case Report and Review of the Literature. *SAS J Med.* 2022 Oct;10:754-6.
2. Shehryar M, Ashraf MF, Ahmad RU, Prasad S, Franca HP, Franca Jr HP. Statin-Induced Thrombocytopenia in a Young Female: A Case Report and Literature Review. *Cureus.* 2021 Nov 10;13(11).
3. Butt MU, Jabri A, Elayi SC. Azithromycin-induced thrombocytopenia: a rare etiology of drug-induced immune thrombocytopenia. *Case Reports in Medicine.* 2019 Jul 8;2019.Örüm MH. Sodium valproate-induced isolated thrombocytopenia. *Anadolu Güncel Tıp Dergisi.* 2019 Sep 9;1(4):110-2.
4. Cisarovsky C, Théaudin M, Bart PA, Stalder G, Alberio L. Severe Late-Onset Drug-Induced Immune Thrombocytopenia Following IFN β -1a Treatment: A Case Report of a 52-Year-Old Woman with Relapse-Remitting Multiple Sclerosis. *Case Reports in Hematology.* 2022 Nov 24;2022.
5. Pérez AB, Niehues CA, Hicks CM, Patel H, Sanchez D, Martin DE, Sukpraput-Braaten S. Drug-Induced Thrombocytopenia: A Case Involving Vancomycin. *Cureus.* 2023 Jul 14;15(7).
6. Sahu N, Roy J, Vunnam R, Golamari R, Jain R. Naproxen-induced thrombocytopenia. In *Baylor University Medical Center Proceedings* 2020 Oct 1 (Vol. 33, No. 4, pp. 653-654). Taylor & Francis.
7. Ranieri MM, Bradley EF, Simon AB. Meloxicam-induced thrombocytopenia. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy.* 2014 Feb;34(2):e14-7.
8. Nasreddine W, Beydoun A. Valproate-induced thrombocytopenia: a prospective monotherapy study. *Epilepsia.* 2008 Mar;49(3):438-45. doi:10.1111/j.1528-1167.2007.01429.x
9. Mendhekar D, Duggal H, Andrade C. Leukopenia and thrombocytopenia on adding aripiprazole to phenytoin. *World J Biol Psychiatry.* 2009;10(4 Pt 3):1043-4. doi:10.1080/15622970802032292.
10. Bokhari SA, Butaher H, Saleem R, Elhassan NM. Olanzapine-Induced Thrombocytopenia in a Patient With Chronic Schizophrenia: A Case Report. *Cureus.* 2024 Nov 28;16(11):e74677.
11. Conti L, Gandolfo GM. Benzodiazepine-induced thrombocytopenia. Demonstration of drug-dependent platelet antibodies in two cases. *Acta Haematol.* 1983;70(6):386-8. doi:10.1159/000206797.