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CASE REPORT

Detoxification as an effective intervention for alcohol-induced thrombocytopenia. A case report

Abubakr Elmotesim Abdulla Elamin[1], Hassan Ahmed Khubrani[2*], Mohammed Abdullah Alhejji[3]

Full list of author information is available at the end of the article.

ABSTRACT

Background: Alcohol-induced thrombocytopenia is a common but often overlooked hematologic abnormality associated with chronic alcohol use. It is typically reversible with alcohol cessation.

Case Presentation: We present a case of a middle-aged male with severe thrombocytopenia, which resolved with conservative management and participation in a structured alcohol detoxification program.

Conclusion: In patients with chronic alcohol use and unexplained thrombocytopenia, alcohol-induced suppression should be considered.

Keywords: Alcohol abuse, thrombocytopenia, detoxification, reversible cytopenia, conservative management.

Introduction

Chronic alcohol consumption has multiple hematologic consequences, one of which is thrombocytopenia. Although typically asymptomatic, it may present with bleeding manifestations in severe cases. The mechanism involves bone marrow suppression, decreased platelet production, and splenic sequestration. Recognition is essential as the condition is usually reversible with alcohol cessation. Considerable progress has been made in recent years in delineating the importance of ethanol itself as a hematological toxin [1].

Platelet is considered to be very crucial for the normal functioning of the human body and play a key role in various processes like inflammation, thrombosis, hemostasis, and wound healing. Balance of platelet creation, maintenance in circulation, and final clearance from the blood is required to ensure optimal functioning of the human body. Thrombocytopenia is a medical condition characterized by a decrease in the platelet count to less than 1,50,000 per microliter (Normal 1,50,000-4,00,000 per microliter). Multiple studies have elicited the effect of alcohol on various blood parameters, including hemoglobin, various enzymes of liver function tests (LFT), and components of renal function tests (RFT), but the effect of alcohol on platelets in particular is often the most overlooked parameter. Even though thrombocytopenia in people using alcohol has been reported since the 1960s, there are only a handful of studies that have tried eliciting the phenomenon of thrombocytopenia due to alcohol use, and mostly they were in the form of case reports and case series, while some other had relatively smaller sample [2].

The mechanism of this toxicity is not sufficiently understood and explained. Recently, it has been hypothesized that people with some variants of aldehyde dehydrogenase may have increased levels of acetaldehyde, which can damage DNA in bone marrow cells [3].

In many patients with thrombocytopenia, rebounding platelet numbers even exceed normal values. This re-bound thrombocytosis after cessation of alcohol

Correspondence to: Hassan Ahmed Khubrani
*Consultant Psychiatrist, Department of Internal Medicine, Relib Center, Riyadh, Saudi Arabia.
Email: hkhubrani@care.med.sa
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Table 1. *Explain biochemical before and after conservative treatment.*

Test with normal lab range	20-02-2025	27-02-2025	05-03-2025
PLT 10^9/L (150-400)	42.4 ↑	67.3 ↑	193.00
WBC 10^9/L (4-10)	5.22	6.46	10.6
HGB g/dL (14.1-18.1)	14.6	14.0	14.5
AST u/l (15-37)	106 ↑	118 ↑	54 ↑
ALT u/l (30-65)	23	43	46
GGT u/l (5-85)	700 ↑	559 ↑	153 ↑
Alkaline Phosphatase (50-136) U/l	82	73	100

consumption also occurs in the majority of patients whose platelet counts are normal at the time of hospitalization. In these patients, the extent of the excess in circulating platelets usually is higher than in patients presenting with thrombocytopenia. Failure of the platelet counts to rise after 5 to 7 days of abstinence usually indicates the presence of another underlying disorder affecting the platelets [4].

Case Presentation

A 48-year-old Saudi male, married with four offspring, employed as a primary school teacher. Admitted on 20 February 2025 for alcohol detox. He has a 25-year history of alcohol abuse, starting as an occasional drinker in adulthood. Over the past 5 years, his alcohol consumption has significantly increased, averaging around 1 liter per day on a daily basis. Despite multiple attempts to quit, he has been unsuccessful due to severe withdrawal symptoms, including hallucinations and seizures. He has been hospitalized multiple times due to alcohol withdrawal. His alcohol use has significantly impacted his life, leading to poor work performance and recurrent school absences, along with diminished attention to family matters.

Patient reported a past history of OGD due to black stool but result as normal. Also, the history of the gastric sleeve 7 years ago. There was no history of liver disease diagnosis, recent infections, or drug use. Family History of no significant findings.

On clinical examination, the patient was of average body weight. There were several petechiae and ecchymosis spreading through the body. Also, there was apparent course tremor on outstretching hand and tingling sensation in the foot, but no lower limb edema. However, the patient was not pale or jaundiced, chest/cardiac/abdomen/neurological examination was unremarkable, hemodynamically stable, and ECG was unremarkable.

Biochemical tests at admission showed (Table 1):

- Liver enzymes: significantly elevated high AST and GGT,
- Serum bilirubin: Normal
- High PT and INR,
- very low platelet (42.4 10^9/l), hemoglobin(14.6 g/dl), and TWBCs(5.22 10^9/l)
- urine is positive for urolobilinogen,
- borderline low Mg, low vitamin D, High total cholesterol
- Viral markers: Negative (HBV, HCV, HIV)
- Whole abdominal US reported that the liver is mildly enlarged in size, displaying bright echopattern, which indicate mild enlarged fatty liver.

Management:

The patient was admitted for monitoring and initiated on:

- Intravenous fluids
- Multivitamin supplementation (thiamine, folic acid, magnesium, and vitamin D)
- Nutritional support
- PPI prophylactic dose.
- No platelet transfusion was required.
- Detox protocol had been started for the patient using a diazepam regimen,
- Regular lab check up.

Outcome and Follow-up:

Over the next 14 days,

The patient's platelet count rose steadily:

- Day 7: 67.3 10^9/L
- Day 14: 193.00 10^9/L

He remained abstinent from alcohol and continued in the inpatient detox program. At 6 weeks, all blood parameters had normalized, and the patient reported improved energy levels and no further bruising.

Results and Discussion

Alcohol-induced thrombocytopenia is a reversible condition that should be considered in any patient with chronic alcohol use and low platelet count. The pathophysiology may involve direct toxic effects of ethanol on megakaryocytes and bone marrow suppression. It is also important to rule out other causes such as immune thrombocytopenia, liver cirrhosis, and hematological malignancies.

This case highlights:

- The importance of recognizing reversible thrombocytopenia in alcoholics.
- The effectiveness of conservative, non-invasive management.
- The value of a structured alcohol detox program in ensuring long-term recovery.

Limitations

Bone marrow aspiration was not performed due to the patient's refusal.

Conclusion

In patients with chronic alcohol use and unexplained thrombocytopenia, alcohol-induced suppression should be considered. With alcohol cessation and supportive care, patients often recover fully. Early diagnosis and intervention can prevent complications and unnecessary investigations or treatments.

List of Abbreviations

AST	Aspartate transaminases
GGT	Gamma glutamyl transferase
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
Mg	Magnesium
US	Ultrasound
OGD	esophagogastroduodenoscopy
PPI	Proton pump inhibitor
PT	Prothrombin time
TWBC	Total white blood cells

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Conflicts of Interest

The authors declare that they have no competing interests.

Author details

Abubakr Elmotesim Abdulla Elamin[1], Hassan Ahmed Khubrani[2], Mohammed Abdullah Alhejji[3]

1. Specialist, Department of Internal Medicine, Relib Center, Riyadh, Saudi Arabia
2. Consultant Psychiatrist, Department of Internal Medicine, Relib Center, Riyadh, Saudi Arabia
3. Executive Director of Extended Care, Relib Center, Riyadh, Saudi Arabia

References

1. Bing RJ, Tillmanns H, Ikeda S. Metabolic effects of alcohol on the heart. Ann N Y Acad Sci. 1975;252(1):243–9. https://doi.org/10.1111/j.1749-6632.1975.tb19164.x
2. Vijayakumar S, Ramasamy S, Ibrahim SU. Thrombocytopenia in alcohol dependence syndrome: a hospital-based observational study. Indian J Priv Psychiatry. 2025;19(1):30–5. https://doi.org/10.5005/jp-journals-10067-0179
3. Silczuk A, Habrat B. Alcohol-induced thrombocytopenia: current review. Alcohol. 2020;86:9–16. https://doi.org/10.1016/j.alcohol.2020.02.166
4. Nikiforov II, Rakitin MM, Merkin AG, Aronov PV, Kostyuk GP, Savelyev DV, et al. Neurological complications of alcoholism. Nevrol Neiropsikhiatr Psikhosom. 2017;9(4):95–100. https://doi.org/10.14412/2074-2711-2017-4-95-100