Case Report

Thrombocytopenia following iron repletion with ferrous gluconate

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ABSTRACT

التخثر النقوي المناعي (ITP) هو اضطراب مناعي ذاتي يتميز بانخفاض عدد الصفائح الدموية مما يعرض المرضى لخطر النزيف الذاتي. أحد المخفزات النادرة لـ ITP هو إعادة تعبئة الحديد، وتم الإبلاغ عنها في عدد قليل من الحالات فقط. في هذا المقال، نستعرض حالة فريدة لرجل يبلغ من العمر 54 عامًا لديه تاريخ من ITP المتكرر الذي تعرض لنقصان سريع في الصفائح الدموية بعد إعادة تعبئة الحديد بالجلوكونات الحديدية. أدى التوقف عن استخدام الأدوية التي تحتوي على الحديد إلى عودة عدد الصفائح الدموية إلى المستوى الطبيعي الأساسي. بعد متابعة الحالة السريرية للمريض لأكثر من 30 عامًا، تُظهر هذه الحالة الطبيعة المزمنة لـ ITP وتعقيد أسبابها. هناك حاجة إلى مزيد من الدراسات لتحديد مدى انتشار النقص في الصفائح الدموية الناتج عن إعادة تعبئة الحديد وآلياته الكامنة.

Immune thrombocytopenia (ITP) is an autoimmune disorder marked by low platelet counts that puts patients at risk for spontaneous bleeding. A rare trigger for ITP is iron repletion, which has only been reported in a few cases. In this article, we present a unique case of a 54-year-old male with a history of recurrent ITP who experienced rapid thrombocytopenia following iron repletion with ferrous gluconate. Discontinuation of ferrous medications resulted in platelet counts returning to the normal baseline. Following more than 30 years of the patient's clinical timeline, this case demonstrates the chronic nature of ITP and the complexity of its causes. Further studies are needed to determine the prevalence of iron repletion-induced thrombocytopenia and its underlying mechanisms.

Keywords: immune thrombocytopenia, iron repletion induced, case report

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Immune thrombocytopenia (ITP) is an autoimmune condition characterized by low platelet counts under 100 x 10^9.[1] It can be a primary condition or secondary to other diseases, such as the human immunodeficiency virus, hepatitis B and C viruses, and other autoimmune conditions.[2] Chronic ITP is defined as ITP which lasts more than one year.[2] Patients with chronic ITP are at an increased risk for spontaneous bleeding, especially in patients with platelet levels lesser than 30 x 10^9/L.[3] Along with bleeding, patients frequently present with fatigue, which correlates with the degree of thrombocytopenia.[4]

Iron repletion is an exceedingly rare cause of ITP. Soff et al[4] reported 2 cases of thrombocytopenia triggered by iron repletion using ferrous sulfate and ferrous gluconate. We report the case of a male patient with recurrent ITP who suffered from rapid thrombocytopenia following iron repletion with ferrous gluconate. By sharing this case, we aim to further shed light on this rare cause of ITP and its management. This case was reported using the 2013 Case Reports (CARE) guidelines.[5]

Case Report. A 54-year-old male with a history of type 2 diabetes mellitus, dyslipidemia, hypertension, coronary artery disease treated with percutaneous coronary intervention 5 years ago, and recurrent ITP presented to our clinic for evaluation. His medication history included metformin 1,000 mg twice daily, empagliflozin 12.5 mg twice daily, gliclazide 30 mg once daily, semaglutide 1 mg once weekly, atorvastatin 40 mg at bedtime, amlodipine 5 mg once daily, losartan 50 mg once daily, metoprolol 25 mg twice daily, and aspirin 81 mg once daily.

Clinical findings. The patient was being followed for health care maintenance. At one of his visits, he was

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started on ferrous gluconate 300 mg daily due to low ferritin levels without anemia. Five weeks later, this led to a decline in his platelet count, from 223 x 10^9/L to 89 x 10^9/L. He remained asymptomatic during this period.

Diagnostic assessment. His experience with ITP began at 21 years of age when he presented with recurrent gum bleeding and petechiae. Suspecting ITP, a bone marrow biopsy was carried out, confirming the diagnosis. He was treated with corticosteroids and advised to have annual follow-ups to monitor his platelet levels, which averaged around 100 x 10^9/L.

At 39 years old, he presented to the clinic with widespread petechiae and persistent epistaxis following a recent upper respiratory tract infection. His vital signs were stable, and laboratory tests revealed a critically low platelet count.

Therapeutic intervention. He was treated with prednisone and intravenous immunoglobulin (IV Ig), followed by a tapering course of prednisone and ranitidine. **Table 1** summarizes the patient's ITP journey.

Follow-up and outcomes. After discontinuing the ferrous medication, his platelet count increased to 144 x 10^9/L within 10 days, suggesting a diagnosis of ferrous medication-induced ITP.

Discussion. This case of a 54-year-old male with a history of recurrent ITP offers a compelling perspective on the intricate and personalized approach necessary to manage ITP. Spanning more than 30 years, this patient's ITP journey underscores the chronic and relapsing character of the condition, necessitating meticulous management and ongoing monitoring. The effective use of corticosteroids and IV Ig in treating acute episodes of this disorder highlights the efficacy of established therapeutic strategies.

Thrombocytopenia resulting from ferrous medications is an exceedingly rare phenomenon, with less than 30 cases reported in the literature. Eisa et al[6] described a case of severe iron deficiency anemia that resulted in a transient drop in platelet counts after receiving intravenous ferrous carboxy maltose. A review by Babikir et al[7] found 20 patients who suffered from iron replacement-induced thrombocytopenia in 11 case reports and one case series. The patients' ages ranged from 15-42 years, and there was a female predominance of 3:1.

Patient perspective. Interestingly, the patient in the current study remained asymptomatic during the thrombocytopenia that followed iron repletion. This may suggest a different pathophysiological mechanism or perhaps a milder form of ITP related to ferrous gluconate. Further research is needed to understand this unique response and to shed light on whether this phenomenon is specific to the type of iron supplement used.

As a single case report, generalizations from this observation must be approached with caution. More extensive studies are needed to elucidate the mechanisms by which iron repletion might provoke ITP and to determine whether this rare phenomenon is more widely applicable. These findings would have substantial implications for clinical practice, guiding physicians in their choice of iron supplementation and monitoring strategies for patients with a history of ITP.

In conclusion, this case provides valuable insights into the multifaceted nature of ITP management, underscoring the importance of comprehensive understanding, careful monitoring, and recognition of potential rare triggers. The relationship between iron repletion and ITP, while rare, warrants further attention and investigation to facilitate a better understanding and management of this complex disease.

Table 1 - Clinical timeline of the patient presented in this manuscript.

Relevant past medical history and interventions			
Type 2 diabetes mellitus, dyslipidemia, hypertension, and coronary artery disease treated with percutaneous coronary intervention 5 years ago.			
Dates	**Summaries from initial and follow-up visits**	**Diagnostic testing**	**Interventions**
15/6/1990	Diagnosed with ITP	Bone marrow biopsy confirming ITP diagnosis	Corticosteroids
26/4/2008	Admitted for diffuse petechial rash with some gum bleeding	Platelet levels at $1x10^9$/L	Prednisone 1mg/kg orally and IV immunoglobulins 50g daily for 2 days
23/2/2022	Iron deficiency anemia	Ferritin level at 20.7ug/L	Prescribed ferrous gluconate
7/4/2022	Platelet levels reduced significantly	Platelet levels at $86x10^9$/L	Cessation of ferrous gluconate
ITP: Immune thrombocytopenia, IV: intravenous			

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