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"The Puzzle of Platelets: Idiopathic Thrombocytopenic Purpura in a Young Adult"

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ABSTRACT

Introduction

Idiopathic Thrombocytopenic Purpura (ITP) is an acquired autoimmune disorder characterized by isolated thrombocytopenia due to immune-mediated platelet destruction. It commonly affects children and young adults and presents with mucocutaneous bleeding, petechiae, or bruising. Diagnosis is clinical, supported by exclusion of other causes of thrombocytopenia. This case report highlights the importance of early recognition and appropriate management to prevent unnecessary interventions and anxiety.

Case Description

We present the case of Shristi, a 21-year-old female with no significant medical history, who was admitted to MMIMS&R Hospital, Mullana, Ambala, with complaints of spontaneous bruising and gum bleeding. She had no history of recent infections, drug use, or family bleeding disorders. On examination, petechiae were noted on her limbs, and her platelet count was critically low at 8,000/µL. Other hematological parameters and viral markers were normal. Bone marrow aspiration revealed increased megakaryocytes, confirming peripheral platelet destruction. A diagnosis of Idiopathic Thrombocytopenic Purpura was made. She was started on oral corticosteroids, resulting in a rapid rise in platelet count and resolution of symptoms.

Comment

ITP can present subtly and may be misdiagnosed, leading to unnecessary investigations or delayed treatment. The psychological impact on patients and families can be significant, especially in young adults. Early diagnosis and prompt corticosteroid therapy are effective in most cases. This report underscores the importance of clinical

vigilance in primary care and the role of interdisciplinary collaboration in managing autoimmune hematological conditions.

Keywords

Idiopathic Thrombocytopenic Purpura; Autoimmune thrombocytopenia; Platelet disorder; Corticosteroids

Introduction

Idiopathic Thrombocytopenic Purpura (ITP) is an acquired autoimmune disorder characterized by isolated thrombocytopenia resulting from immune-mediated platelet destruction. First described in the early 20th century, ITP presents most commonly in children and young adults and is marked by mucocutaneous bleeding, petechiae, ecchymosis, and, in severe cases, internal hemorrhage. Platelet counts often fall below 100,000/µL, with some patients presenting with counts under 10,000/µL.

The exact etiology of ITP remains unclear, though it is believed to involve autoantibodies targeting platelet surface glycoproteins. In many cases, ITP follows a viral infection, but it may also occur idiopathically. A population-based study in the UK estimated the annual incidence of ITP at 3.3 per 100,000 adults. Symptoms can vary widely, from asymptomatic thrombocytopenia to life-threatening bleeding episodes. Diagnosis is clinical and based on exclusion of other causes of thrombocytopenia, supported by peripheral smear and bone marrow findings.

Despite its relatively benign course in many patients, ITP is frequently misdiagnosed or overtreated, leading to unnecessary anxiety and interventions. Corticosteroids remain the first-line therapy, with intravenous immunoglobulin (IVIG) and splenectomy reserved for refractory cases. This case report highlights the importance of early recognition and appropriate management of ITP, particularly in young adults, to support quaternary prevention and reduce medical overuse.

Case description

A 21-year-old female named Shristi, with no significant family history, allergies, or regular medications, was evaluated for spontaneous bruising and mucosal bleeding. She reported the sudden appearance of petechiae on her lower limbs and episodes of gum bleeding over the past week. There was no history of recent infections, vaccinations, or drug intake. She denied fever, joint pain, or weight loss.

Her initial episode occurred in October 2025 and resolved spontaneously within a few days. However, over the following weeks, she experienced recurrent episodes of easy bruising and mild bleeding, prompting multiple visits to outpatient clinics and emergency services. These episodes were initially misattributed to nutritional deficiencies and managed with multivitamin supplements, which provided no significant improvement.

In November 2025, she presented again with worsening petechiae, gum bleeding, and fatigue. On examination, she was hemodynamically stable, with multiple ecchymotic patches on her arms and legs, but no hepatosplenomegaly or lymphadenopathy. There were no signs of systemic illness.

Laboratory investigations revealed severe thrombocytopenia (platelet count: 8,000/µL), with normal hemoglobin, white blood cell count, and coagulation profile. Peripheral smear showed isolated thrombocytopenia without abnormal cells. Viral serologies for HIV, hepatitis B and C, Epstein-Barr virus, and cytomegalovirus were negative. Bone marrow aspiration demonstrated increased megakaryocytes, consistent with peripheral platelet destruction.

Based on the clinical presentation, exclusion of secondary causes, and bone marrow findings, a diagnosis of Idiopathic Thrombocytopenic Purpura (ITP) was made. She was started on oral prednisolone (1 mg/kg/day), resulting in a rapid rise in platelet count to 45,000/µL within five days and resolution of bleeding symptoms.

The patient remains under regular follow-up with her primary care physician and hematologist. She has responded well to corticosteroid therapy, with no further bleeding episodes, and is currently on a tapering steroid regimen.

Comment

Idiopathic Thrombocytopenic Purpura (ITP), while frequently encountered in hematology and general practice, remains underrecognized and often misdiagnosed, especially in young adults. Diagnosis is primarily clinical and based on exclusion, as no single test definitively confirms ITP. The condition is characterized by isolated thrombocytopenia (platelet count <100,000/μL) without evidence of other hematologic abnormalities or systemic illness.

The American Society of Hematology (ASH) guidelines emphasize a thorough evaluation to rule out secondary causes such as viral infections (e.g., HIV, hepatitis C), autoimmune diseases (e.g., lupus), and drug-induced thrombocytopenia. Bone marrow examination, though not routinely required, may be performed in atypical cases or when initial therapy fails. It typically reveals increased megakaryocytes, supporting peripheral platelet destruction.

ITP presents with a wide spectrum of symptoms, ranging from asymptomatic thrombocytopenia to mucocutaneous bleeding, petechiae, and, rarely, life-threatening hemorrhage. Laboratory findings may include normal hemoglobin and white cell counts, with elevated platelet-associated IgG in some cases. However, these tests are not routinely used due to limited specificity.

Management is guided by bleeding severity and platelet count. First-line therapy includes corticosteroids (e.g., prednisolone), which suppress autoantibody production and improve platelet survival. Intravenous immunoglobulin (IVIG) is reserved for patients with active bleeding or those unresponsive to steroids. In chronic or refractory cases, second-line options include rituximab, thrombopoietin receptor agonists, or splenectomy.

This case highlights the importance of recognizing ITP early to avoid unnecessary antibiotic use, invasive procedures, and patient anxiety. Clinical vigilance and interdisciplinary collaboration are essential, particularly in primary care settings where initial presentations often occur. Empowering frontline clinicians with diagnostic confidence can improve outcomes and reduce healthcare burden

Management

Idiopathic Thrombocytopenic Purpura (ITP) currently lacks universally standardized treatment protocols, as clinical decisions are often guided by individual patient presentation, bleeding risk, and platelet count. While most cases in young adults are self-limited or responsive to first-line therapy, management remains highly individualized and may not significantly alter long-term outcomes.

According to the American Society of Hematology (ASH) guidelines and expert consensus, four main therapeutic strategies are recognized:

1. **Observation in asymptomatic patients with mild thrombocytopenia**
2. **First-line therapy with corticosteroids**
3. **Second-line options including intravenous immunoglobulin (IVIG), rituximab, or thrombopoietin receptor agonists**
4. **Surgical intervention via splenectomy in refractory cases**

Observation is appropriate for patients with platelet counts above 30,000/μL and no active bleeding. Corticosteroids remain the cornerstone of initial treatment, typically administered orally. Recommended dosing includes:

- **Prednisolone:** 1 mg/kg/day for 1–2 weeks, followed by a taper
- **Dexamethasone:** 40 mg/day for 4 consecutive days, repeated every 2–4 weeks in pulse therapy

IVIG may be used in cases of active bleeding or when a rapid platelet response is needed. Rituximab and thrombopoietin receptor agonists (e.g., eltrombopag, romiplostim) are considered in chronic or steroid-refractory cases. Splenectomy is reserved for patients with persistent thrombocytopenia unresponsive to medical therapy.

Patient education is essential, particularly regarding bleeding precautions and avoidance of NSAIDs. Regular follow-up and interdisciplinary coordination between primary care and hematology are critical for optimal outcomes

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