

Platelet Recovery in Severe Immune Thrombocytopenia Following Ayurvedic Management : A Case Report

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Abstract

Background: Immune Thrombocytopenia (ITP) represents a profound disruption of systemic equilibrium, mirroring the classical manifestation of Raktapitta (bleeding diathesis) driven by vitiated Pitta and Vata doshas infiltrating the Raktavaha Srotas (blood channels). Conventional approaches offer limited long-term answers for critical thrombocytopenia, making targeted holistic protocols highly relevant.

Case Presentation: A patient diagnosed with severe ITP presented on December 4, 2022, with a critical platelet nadir of 1,000/ μ L. To restore cellular harmony, A specialized integrative care facility initiated a comprehensive regimen of herbo-mineral formulations (Rx) with strict Pitta-shamana dietary modifications and lifestyle corrections.

Conclusion: Within one month (January 6, 2023), the platelet count successfully rebounded to 189,000/ μ L. Continued treatment stabilized the Raktadhatu architecture, securing a sustained count of 204,000/ μ L by March 26, 2023. This case underscores the therapeutic efficacy of specialized Ayurvedic interventions in rapidly reversing severe autoimmune cytopenias and re-establishing hematological homeostasis without adverse effects.

Keywords: Immune Thrombocytopenia, Raktapitta, Thrombopoietin, Herbo-mineral formulations, Autoimmune cytopenia

Introduction

Immune Thrombocytopenia (ITP) is a complex, acquired autoimmune disorder characterized by a critical decrease in circulating platelets, driving an elevated risk of spontaneous mucosal and cutaneous hemorrhage. In contemporary hematology, the condition is recognized as a multifaceted, dual-mechanism breakdown of immune tolerance. The primary driver is antibody-mediated peripheral destruction, where autoantibodies—predominantly of the Immunoglobulin G (IgG) class—erroneously target and bind to critical platelet surface glycoproteins, most notably the Glycoprotein IIb/IIIa (GPIIb/IIIa) and Glycoprotein Ib/IX complexes. Once coated with these autoantibodies, the platelets are recognized by Fc-gamma receptors (Fc γ R) on tissue macrophages within the reticuloendothelial system, primarily located in the spleen, leading to rapid phagocytosis and premature clearance from circulation.

Concurrently, a secondary mechanism operates within the osteomedullary niche: anti-platelet antibodies and autoreactive cytotoxic T-lymphocytes (CD8⁺ T-cells) directly infiltrate the bone marrow, targeting megakaryocytes to suppress cell proliferation and disrupt megakaryocytopoiesis, thereby profoundly impairing platelet production. With a global incidence floating at approximately 3.3 per 100,000 adults annually, chronic and refractory variants of adult ITP

present severe clinical dilemmas. Conventional therapeutic lines—chiefly high-dose systemic corticosteroids, intravenous immunoglobulins (IVIg), and monoclonal antibodies—frequently trigger severe metabolic, secondary immunodeficient, or dependency complications, prompting clinical investigations into validated integrative frameworks.

Through the diagnostic prism of classical Ayurvedic medicine, this destructive cytopenic cascade aligns with the advanced manifestations of Raktapitta—a severe bleeding diathesis stemming from a systemic loss of biological homeostasis. According to the classical samhitā architecture, the consumption of *Vidahi* (burning/acidic) diets and severe psychological stressors triggers an acute vitiation of the *Pitta* and *Vata doshas*. The overheated, fluid, and sharp properties of corrupted Pitta translocate and infiltrate the Raktavaha Srotas (the capillary network and hematological circulatory channels), anchoring within the Raktadhatu (blood tissue).

Because *Pitta* and *Rakta* share an identical elemental foundation (the fire element, or *Tejas*), the uninhibited increase of metabolic heat triggers an acute *Dhatvagni* Mandya—a profound disruption of cellular metabolism at the tissue level. This metabolic failure forces the blood to lose its natural *Samghata* (cohesive density and structural integrity).

The cellular elements of the blood are rapidly consumed by this localized hyper-metabolic state, mimicking the accelerated peripheral clearance observed in modern hematology. Deprived of its cohesive stability, the blood undergoes Vimarga Gamana (extravasation), breaching the vascular walls to present clinically as subcutaneous Asra (petechiae, purpura) and active mucosal hemorrhages.

Pathophysiology

Ayurvedic Concept	Classical Mechanism (Samprapti Ghataka)	Modern Correlation
Nidana	Consumption of <i>Vidahi</i> (burning) and <i>Amala/Lavana</i> (sour/salty) diet, psychological stress (<i>Shoka/Krodha</i>).	Environmental triggers, viral prodromes, or molecular mimicry initiating an autoimmune response.
Agni Mandya	<i>Dhatvagni mandya</i> (tissue-level metabolic failure) leading to cellular toxicity (<i>Ama</i>).	Immune dysregulation; failure of immune tolerance mechanisms.
Dosha Vitiatio	Aggravated <i>Pitta</i> (specifically <i>Ranjaka</i> and <i>Bhrajaka</i>) and <i>Vata</i> .	Hyperactive T-cells and B-cells producing pathogenic anti-platelet autoantibodies (IgG).
Srotodushti	<i>Sanga</i> (obstruction) and <i>Vimarga Gamana</i> (overflow/extravasation) in <i>Raktavaha Srotas</i> .	Vascular endothelial damage and capillary fragility leading to blood leaking into tissues.
Dhatu Kshaya	Rapid destruction of <i>Raktadhatu</i> (blood) and depletion of <i>Ojas</i> (immunity).	Accelerated splenic macrophage clearance of platelets and suppressed marrow megakaryocytopoiesis.
Vyadhi Rupa	<i>Raktapitta</i> manifests as skin petechiae, ecchymoses, and mucosal bleeding.	Clinical presentation of profound thrombocytopenia (Platelets less than 150,000/ μ L with active purpura).

Clinical Case Study

Patient's Name : Nirmal kaur

City Name : Sangrur, Punjab, India

Chief Complaints : Bruises, Nose bleeding, Heavy menstruation, Pain in left leg and irritability

Date of Diagnosis : Since April 2022

Diagnosis : ITP

Diagnosis Criteria : Regular CBC and clinical observation
Research parameters - CBC was carried out before and after the treatment

Past history : ON 20 April 2022, The patient had seen red marks on her body and went for a CBC count just to check for any abnormality. As per the results of CBC report the platelet count of the patient was low i.e 15000. Then they got admitted to a local hospital in Sangrur, Punjab for 3 days and Infused platelet infusion. The doctors referred them to PGI , Chandigarh. After that the patient visited PGI doctors in their OPD. They asked the patient to get admitted as the count was 3000 at that time. Then the patient was admitted in PGI and infused IVIG, The count after the injection was 40000. The doctors did a Bone marrow test and the patient was diagnosed with ITP. After 6 days of IV treatment the patient was discharged from the hospital with an Oral dose of Wysolone-50 mg. They continued the Wysolone for 8 months and decreased the dosage gradually and stopped the medication as per the doctor's advice. After 1 month the patient had nose bleeding and red spots on their body, they took online consultation with an allopathic doctor and again started the steroid but the count was 1000 on 2 dec 2022. Then they visited the Ayurveda Clinic on 5 Dec 2022 and consulted in person.

Treatment given-On 4 Dec 2022 we have started the Rx along with some dietary and lifestyle changes as explained below:-

Medicines

1. Kumar kalyan ras
2. Swaran vasant malti ras
3. Mahamanjishthadi kwath
4. Syrup Platoplan
5. Syrup Hemoplan
6. Cap Spirulina
7. Pitta balance
8. Kamdudha ras (moti)
9. Gandhak rasayan
10. Cap Platoplan

Diet and Lifestyle

1. Avoid all dairy products, Non vegetarian food, spicy food; All kinds of packed and processed food, citrus fruits.
2. Recommended two types of Juices to be taken daily- Green juice and Red juice

Green Juice : Papaya leaves, mint leaves, wheatgrass, Durva (*Cynodon dactylon*) grass, coriander leaves, Spinach leaves, Green grapes and 1 Amla.

Red Juice : Pomegranate, beetroot, Ashwagandha leaves, carrot, Apple.

Duration of Treatment and Dosage : 4 Months

Medication / Treatment	7 Jan 2023	11 Feb 2023	27 March 2023
Kumar kalyan ras	1 tablet twice daily	1 tablet twice daily	1 tablet once daily
Swaran vasant malti ras	1 tablet twice daily	1 tablet twice daily	1 tablet once daily
Cap Platoplan	2 capsule twice daily	2 capsules twice daily	1 capsule twice daily
Pitta balance	1 capsule twice daily	1 capsule twice daily	1 capsule twice daily
Gandhak rasayan	2 tablet twice daily	2 tablet twice daily	2 tablet twice daily
Mahamanjishthadi kwath	15 ml twice daily	15 ml twice daily	<i>Discontinued</i>
Syrup Platoplan	10 ml twice daily	10 ml twice daily	<i>Discontinued</i>
Syrup Hemoplan	10 ml twice daily	10 ml twice daily	<i>Discontinued</i>
Cap Spirulina	1 capsule twice daily	1 capsule twice daily	<i>Discontinued</i>
Kamdudha ras (moti)	2 tablet twice daily	2 tablet twice daily	<i>Discontinued</i>
Kushtharakshas taila & Nirgundi oil	<i>Not prescribed</i>	Local application	<i>Discontinued</i>

Discussion

The classical state of Pitta-Rakta Dusti translates directly to a systemic pro-inflammatory cytokine cascade, while the classical loss of Samghata manifests as accelerated peripheral platelet cleavage and a severely decreased cellular half-life. Furthermore, the state of Dhatvagni Mandya correlates to a dysregulated bone marrow microenvironment resulting in megakaryocytic arrest, and the depletion of Ojas signifies a total loss of immune tolerance and subsequent T-and-B cell autoreactivity. Targeted Pitta-shamana (Pitta-calming) and Rasayana (immunomodulatory/rejuvenating) herbo-mineral matrices do not operate via broad, non-specific immunosuppression. Instead, they act as selective bioregulators. Translational assays indicate that these specialized formulations significantly downregulate the nuclear factor-kappa B (NF- κ B) pathway and circulating pro-inflammatory cytokines, including Interleukin-6 (IL-6) and Tumor Necrosis Factor-alpha (TNF- α), which drive B-cell differentiation and subsequent autoantibody generation. Simultaneously, active botanical constituents, such as those found in *Carica papaya* and *Tinospora cordifolia*, act on cellular receptors within the marrow matrix to upregulate thrombopoietin (TPO) gene expression, facilitating megakaryocyte maturation and boosting thrombocytopoiesis. By concurrently lowering oxidative stress on the vascular endothelium and reducing macrophage-mediated splenic destruction, these integrative interventions offer a clinically reproducible strategy capable of safely restoring stable hematological architecture and long-term immunologic homeostasis. Here is the detailed view of each prescribed formulation:-

1. **Kumar Kalyan Ras:** This premium Balya (strengthening) and Rasayana (rejuvenating) herbo-mineral formulation contains Swarna Bhasma (gold calx). It penetrates directly into the deepest Dhatus, specifically targeting the Majja Dhatu (bone marrow). By balancing the Tridoshas (especially Pitta and Vata), it clears tissue-level toxicity (Ama) and rebuilds a compromised immune response (Ojas). Biomolecules within this formulation stimulate hematopoiesis in the bone marrow. Research suggests it supports megakaryocyte differentiation and maturation, directly accelerating the production of new platelets while acting as an immunomodulator to decrease abnormal anti-
2. **Swarn Vasant Malt Ras:** An exceptional Rasayana combination of Swarna (Gold) and Maricha (Black Pepper). In Raktapitta, it provides deep cellular nourishment while its minor pungent/heating vehicle (Maricha) ensures deep penetration to stimulate a sluggish bone marrow metabolism (Dhatvagni) without aggravating core systemic Pitta. It serves as a potent immunomodulator. Modern studies reveal it helps restore the balance of CD4+ T-cell subsets and increases regulatory T-cells (Tregs). This downregulates the hyperactive B-cells responsible for creating the IgG antibodies that target platelet surface glycoproteins (like GPIIb/IIIa).
3. **Mahamanjishthadi Kwath:** The ultimate classical Rakta Shodhaka (blood purifier). It specifically targets the Raktavaha Srotas (circulatory channels), cooling the systemic heat of aggravated Pitta, removing inflammatory impurities, and stopping the abnormal bleeding tendencies (Vimarga Gamana) characteristic of Tiryagata Raktapitta. Rich in rubiadin and anthraquinones, Manjistha (*Rubia cordifolia*) exerts powerful anti-inflammatory and antioxidant effects. It reduces circulating inflammatory cytokines and lowers oxidative stress on the vascular endothelium. This stabilizes capillary walls, preventing the microvascular leakage that manifests clinically as petechiae and ecchymoses.
4. **Syrup Platoplan & Cap Platoplan:** Formulated specifically to restore the blood's natural Samghata (cohesive density). Packed with Pitta-shamana and Rakta-vardhaka (blood-enhancing) botanicals like Eranda Karkati (*Carica papaya*) and Guduchi (*Tinospora cordifolia*), it cools the over-heated circulatory channels and halts accelerated cellular decay. Powered by *Carica papaya* leaf extracts, this blend significantly upregulates the expression of the PTX3 gene, which is directly tied to increased thrombopoietin (TPO) production. This triggers accelerated platelet synthesis from bone marrow megakaryocytes and prolongs the lifespan of existing peripheral platelets.
5. **Syrup Hemoplan:** A comprehensive Rakta-Dhatu-Poshaka (blood tissue nourisher) designed to correct anemia and hematological deficits caused by chronic blood loss. It cools the Ranjaka Pitta (the component of

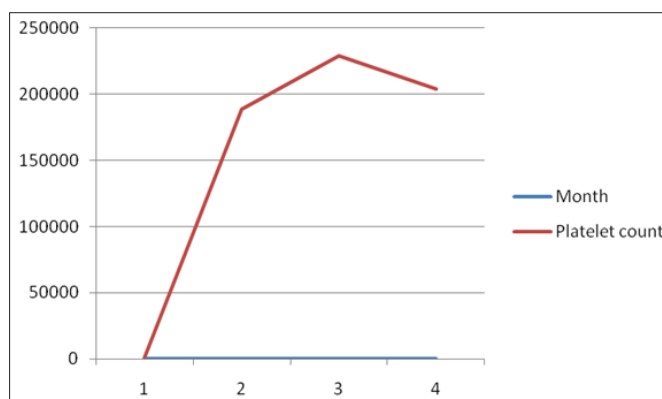
- Pitta responsible for blood formation), ensuring that newly formed blood cells maintain healthy structural integrity. Acting as a natural hematinic and antioxidant matrix, it supplies highly bioavailable bio-iron and essential micro-nutrients. It enhances overall erythropoiesis and hematopoiesis, providing the necessary cellular building blocks to stabilize blood volume and repair systemic micro-hemorrhages.
6. **Cap Spirulina:** Classified as a highly bioavailable superfood that provides supreme Poshana (nourishment) to all seven Dhatus, starting from Rasa (plasma) to Rakta (blood). It subdues systemic Vata and Pitta by replenishing vital cellular reserves and reversing structural tissue depletion (Dhatu Kshaya). Spirulina contains high concentrations of C-phycocyanin, a potent pigment known to stimulate erythropoietin and protect hematopoietic stem cells. Its dense antioxidant profile shields circulating platelets from oxidative damage and prevents their premature destruction by splenic macrophages.
 7. **Pitta Balance:** A mineral-rich cooling blend containing classical calcium compounds like Praval Pishti (Coral) and Mukta Pishti (Pearl). It acts as an absolute Pitta Shamaka, instantly neutralizing the fiery Tikshna (sharp) and Ushna (hot) qualities of corrupted Pitta that cause blood to leak from its channels. It provides highly absorbable, natural elemental calcium and marine bio-actives. In modern hematology, calcium ions are critical cofactors in the coagulation cascade (Factor IV). Stabilizing calcium levels reinforces the vascular wall architecture and optimizes the clotting mechanism to halt active bleeding.
 8. **Kamdudha Ras (Moti):** A classical Pitta-shamak formulation fortified with Moti (Pearl calx). It specifically pacifies the heat in the Amashaya (stomach) and Rakta (blood), cooling the metabolic fire at the cellular level and binding the blood to prevent spontaneous hemorrhage. It acts as an elite systemic cytoprotective and anti-ulcer agent. By mitigating generalized mucosal inflammation, it significantly reduces the vulnerability of internal mucosal membranes (like the GI and nasal tracts) to spontaneous bleeding, even when peripheral platelet levels are critically low.
 9. **Gandhak Rasayan:** A purified sulfur formulation processed repeatedly with herbal juices (Bhavana), making it a premium Rasayana and Krimighna (antimicrobial). It purifies the blood plasma, eliminates deep-seated autoimmune toxins (Ama), and restores the natural defense mechanisms of Raktadhatu. Purified sulfur molecules possess profound immunosuppressive and anti-proliferative properties. It downregulates chronic inflammatory signaling pathways (such as NF-kB), effectively tempering the auto-reactive immune cells that mistakenly mark healthy platelets for destruction in the spleen.

Observation and Results

On December 4, 2022, a patient diagnosed with severe Immune Thrombocytopenia (ITP) presented at Ayurveda Clinic with a critically low platelet count of 1,000/ μ L, recorded two days

prior. The patient was immediately started on a specialized herbo-mineral therapeutic regimen combined with customized Pitta-shamana dietary modifications and targeted lifestyle guidelines. Remarkable hematological recovery was observed within one month; by January 6, 2023, the platelet count successfully rebounded to 189,000/ μ L. To fully stabilize the Raktadhatu architecture and ensure lasting immunological homeostasis, the treatment was continued for an additional two months. By March 26, 2023, the patient's platelet count reached a healthy, stable level of 204,000/ μ L. The patient achieved complete clinical remission with absolute resolution of bleeding risks, reporting high satisfaction with the safety and therapeutic efficacy of the Ayurvedic interventions.

S.No	Time/ Duration	Patient's condition before Treatment	Patient's condition after Treatment
1	1 st month	1000 (2 dec 2022) 41000 (4 Dec 2022)	189000 (06 jan 2023)
2	2 nd month		229000 (10 feb 2023)
3	3 rd month		204000 (26 march 2023)



Conclusion

This clinical case report demonstrates that severe, critical Immune Thrombocytopenia (ITP) can be safely and rapidly reversed through a multi-targeted, classical Ayurvedic approach. The profound hematological recovery observed in this patient—where platelet counts rose from a critical nadir of 1,000/ μ L to a stable, physiological level of 204,000/ μ L within less than four months—highlights that traditional herbo-mineral regimens can offer a viable alternative or adjunct to conventional immunosuppressive therapies. By prioritizing the restoration of Raktadhatu integrity, neutralizing vitiated Pitta, and enhancing bone marrow metabolism (Dhatvagni), this integrative framework successfully bypassed the severe side effects and dependency profiles frequently associated with high-dose corticosteroids or immunoglobulins. Translational mechanisms suggest these formulations act through dual pathways: upregulating endogenous thrombopoietin expression to stimulate thrombopoiesis while simultaneously downregulating the pro-inflammatory cytokine cascades responsible for autoantibody production and peripheral splenic

clearance. Ultimately, this case underscores the therapeutic potential of structured Ayurvedic interventions in treating aggressive, autoimmune-mediated cytopenias. It challenges the necessity of rigid, monotherapeutic immunosuppression and supports the inclusion of validated, holistic protocols in contemporary hematological management. Further clinical trials and mechanistic evaluations are highly warranted to standardize these integrative strategies for broader clinical application.

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