International Journal of Health Sciences and Research
[Indexed, Peer-Reviewed Journal]
Volume 15; Issue: 2; February 2025
Website: www.ijhsr.org
Case Report *ISSN: 2249-9571*

A Comprehensive Case Report on the Integrative Ayurveda Approach for Aplastic Anemia

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DOI: https://doi.org/10.52403/ijhsr.20250215

ABSTRACT

Aplastic Anemia (AA) is a rare bone marrow failure syndrome caused by the immune system attacking early blood-forming cells. Despite progress in modern medicine, the exact cause and best treatment for AA remain unclear. This case study examines a 38-year-old male with severe Aplastic Anemia who experienced a relapse after initial immuno-suppressive therapy (IST). He was then managed with an integrative approach, incorporating Ayurvedic medicines, specific yogasanas (yogic postures), pranayamas (breathing exercises), and a personalized diet plan. The patient showed remarkable recovery, with stabilized hemoglobin levels, normalized biochemical parameters, and no signs of carcinoma or other complications. The holistic regimen supported his metabolic health, improved nutrient absorption, and enhanced blood cell production. This case suggests that combining Ayurvedic medicine with naturopathic therapies and yogic practices can offer a comprehensive, effective approach to managing Aplastic Anemia, leading to faster recovery and improved quality of life. This integrative therapy could provide a promising alternative for AA patients, especially those who relapse after conventional treatments. Further research is warranted to explore its broader application and efficacy.

Keywords: Aplastic Anemia; Ayurvedic Medicine; Integrated-Pathy; Yoga Therapy; Hematopoeitic Recovery

INTRODUCTION

Acquired aplastic anemia (AA) is a rare and life-threatening bone marrow failure (BMF) disorder that impacts individuals of all ages. It is characterized by lymphocyte-mediated destruction of early hematopoietic cells (Peslak et al., 2017). More than a century has passed since Ehrlich described the first case of aplastic anemia in a pregnant woman in 1888. Since then, clinicians have significantly expanded their understanding of the pathophysiology and treatment of this condition (Bulduk, 2023). The incidence of AA is 2 to 3 per million per year in Europe, but higher in East Asia (Montané et al., 2008). In Europe and the United States, 40-70% of acquired cases have an unknown origin. In Japan, over 90% are idiopathic (Kumar and Bai., 2015). In India, with particularly high rates reported in the states of Uttar Pradesh, Bihar, and Delhi/NCR. Annually, approximately 80-100 new cases per million people are diagnosed in these regions, often leading to fatalities (Jain et al., 2010). The one-year mortality rate for untreated severe aplastic anemia is >70%

(Bulduk, 2023). Historically, immuno-suppressive therapy (IST) and bone marrow transplantation (BMT) have been the primary treatments for AA in eligible patients. However, recent advancements in frontline and salvage therapies are significantly altering the treatment landscape for AA, especially in adults. In pediatric patients, advancements in transplant strategies and supportive care have greatly enhanced outcomes, leading to increased use of BMT in both initial and refractory cases (Olnes et al., 2012). Combination therapy with anti-thymoglobulin (ATG) and cyclosporin (CSA) has been shown to be effective in managing AA, but the estimated five-year survival rate for a typical patient receiving immunosuppressive therapy is 75% (Scheinberg et al., 2010). Patients who undergo bone marrow transplantation (BMT) face additional challenges related to toxicity from the conditioning regimen and the risk of graft-versus-host disease (GVHD) (Chan et al., 2008).

Aplastic anemia is not considered a classic condition in Ayurveda, but it can be categorized as Pāṇḍūroga due to its symptoms aligning with Majjāśoṣa (bone marrow abnormalities), which result from Vāta-Vṛiddhi (excessive blood loss). Excessive blood loss (raktakṣaya) leads to Vāta-Vṛiddhi, and Majjāśoṣa is a symptom of this imbalance. The treatment for Vāta-Vṛiddhi includes Strotośodhana (channel cleansing), Dīpana (metabolism enhancement), and Rasāyana (immunomodulation) therapies (Srivastava, 2023). Despite advancements in medical science, our understanding of aplastic anemia (AA) remains incomplete. While considerable progress has been made in understanding its causes and treatments, the exact etiology and effective management of AA remain elusive to scientists. Ancient Indian literature and Ayurvedic texts contain numerous formulations for managing anemia under the chapter "pandu" (Singh et al., 2013). A systematic evaluation of these formulations may reveal potential curative or supportive remedies for those affected by this disease. Here, we present a case of severe aplastic anemia (SAA) treated with Ayurvedic therapy.

CASE PRESENTATION

This case study aims to explain the comprehensive management plan implemented for a patient diagnosed with severe Aplastic anemia.

Patient Information

A 38-year-old male was visited at Patanjali Yogpeeth, Haridwar, suffering from Aplastic anemia (ICD11- 3A70.Z).

Physical Examination

The patient displayed generalized weakness, fatigue as well as petechial rash over back and occasional rectal bleeding.

Past Medical History

In August 2020, the patient was diagnosed with severe aplastic anemia. He was treated with immunosuppressive therapy (IST) using equine ATG along with Eltrombopag and Cyclosporine through blood transfusion support, to which he responded well until April 2021. However, by July 2021, serial CBC monitoring revealed a progressive decline in Haemoglobin, white blood cell and platelet counts. Specifically, the absolute neutrophil count (ANC) decreased from 1,514 to 684 cells/cumm and platelet count dropped from 35,500 to 15,800 cells/cumm, indicating a relapse of (SAA). Meanwhile, a series of blood tests assessing various parameters were conducted from the year 2021 to 2024 at different intervals, as detailed in (Table 2).

Psycho-social History

The patient has no significant family history of Aplastic anemia (AA) or any other related conditions. He leads a disciplined and balanced lifestyle, abstaining from smoking and alcohol, and adhering to controlled dietary habits.

Diagnostic Assessment

Several diagnostic tests, including a complete blood count (CBC), reticulocyte count, peripheral blood smear, and bone marrow biopsy, as well as viral serology and autoimmune marker tests, needed to assess disease progression and severity were performed during the course of treatment.

Laboratory Findings

Upon arrival at the hospital, the patient underwent a broad systemic examination to assess the disease's impact. Vital signs-including temperature, pulse, blood pressure, height, and weight were measured to determine physiological status (Table 1). Meanwhile, a detailed blood examination conducted to analysis different blood parameter showing in (Table 2).

Table 1: Systemic Examination of the patient at the time of admission

Blood Pressure	120/80 mmHg
Pulse/Temp.	76 bpm/98.6°C
Height	170 cm
Initial Weight	55 kg
Final Weight	53.4 kg
Sleep	Normal
Body Strength	Low

Table 2: The changes in Hematological parameters during treatment

Parameters	**Months**						
	24-Dec-21	**20-Jun-22**	**27-Jun-22**	**30-Jul-22**	**14-Aug-23**	**26-Oct-23**	**27-Dec-23**
Haemoglobin (Hb)	7.4 g/dL	6.9 g/dL	5.9 g/dL	5.2 g/dL	8.4 g/dL	9.5 g/dL	10.2 g/dL
Erythrocyte (RBC) Count	2.17mil l. /cmm	2.08mi ll. /cmm	1.82mill. /cmm	1.66mill. /cmm	2.35mill. /cmm	2.53mill. /cmm	2.94mill. /cmm
Total Leucocytes (WBC) Count	3700 /cmm	3000 /cmm	2900 /cmm	2300 /cmm	3700 /cmm	3090 /cmm	4200 /cmm
Platelet Count	35000 /cmm	9000 /cmm	8000 /cmm	9000 /cmm	22000 /cmm	41000 /cmm	127000 /cmm
PCV (Packed Cell Volume)	21.30%	19.10 %	17.10%	15%	25.90%	32.10%	31.90%
MCV (Mean Corpuscular Volume)	98.2 fL	91.8 fL	94 fL	90.4 fL	110.2 fL	126.9 fL	108.5 fL
MCH (Mean Corpuscular Hb)	34.1 pg	33.2 pg	32.4 pg	31.3 pg	44.3 pg	37.5 pg	34.7 pg
MCHC (Mean Corpuscular Hb Conc.)	34.7 g/dL	36.1 g/dL	34.5 g/dL	34.7 g/dL	40.2 g/dL	29.6 g/dL	32.0 g/dL
RDW (Red Cell Distribution Width)	-	-	-	-	-	14.80%	13.60%
MPV	-	-	-	-	-	9.0 fI	8.3 fI
Neutrophils	52.50%	31.50 %	36.10%	35.50%	42.20%	40.40%	51.30%
Lymphocytes	39.50%	59.50 %	51.90%	54.50%	44.10%	49.70%	37.70%
Eosinophils	3.00%	3.00%	4.00%	3.00%	6.70%	4.90%	6.00%
Monocytes	5.00%	6.00%	8.00%	7.00%	7.00%	5.00%	5.00%
Basophils	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Timeline

Initially the patient was admitted to the Patanjali Wellness Centre, Haridwar on August 24, 2022, for a 5-day stay and was discharged with advised prescriptions and a customized diet regime. The first follow-up took place one month after discharge, during which the patient adhered to the

prescribed medications, engaged in yoga practices, and followed the recommended diet. Following this, the doctors advised the patient to continue the complete therapy and medication plan until the next visit. The patient was advised for admission again on August 16, 2023 for a 7-day therapy course. A second follow-up was conducted on December 29, 2023 revealed a significant reduction in vital signs, along with improvements in hematological and biochemical parameters.

Therapeutic Intervention

The triple assessment formed the foundation for personalized care, enabling timely interventions and optimizing patient outcomes. This regimen included the administration of an integrated therapeutic approach, combining Ayurveda, Naturopathy and Yoga, alongside a personalized diet plan. The recommended yogasanas, pranayamas, dietary regimen, and Ayurvedic medicines and their action according to the treatment protocol are detailed below in (Table 3 & 4).

Table 3: Recommended Ayurvedic Medicines, Yoga and Diet according to treatment protocol

Naturopathy			**Yogasana & Pranayam**		**Ayurvedic Medicine**	
Therapies	**Diet**	**Duration**	**Name**	**Duration**	**Name**	**Duration**
Shatkarma: Chhachh Enema, Eye Wash, Jal Neti. Hot Cold Compress to Spine, Mud Compress + Eye Pack, Calf Massage + Thermal Pack, Abdominal Thermal Pack, Nabhi Basti, Nasyam, Mud Bath, Potli to whole back and legs with lapet, Abhyang	**Medicated Water:** Saunf Water **Juices:** Wheat Grass, Aloe Vera, Anar, Heam, Platogrit, Seesam durva **Dry Fruits:** 5 Almonds, 2 Figs, 3 Current, 2 Dates, 2 Walnut **Vegetables:** Plain Khichri, Chhachh, Chhaina, Rost Chana, Tofu, Goat Milk, Camel Milk, Ragi Roti, Boiled Lauki and Parmal, Jau Daliya,	1000ml throughout the day 300 ml twice a day Soaked Overnight and taken after breakfast Twice a Day in alternate manner.	Kapalbhati Ujjai Anulom Vilom Bhramri Udgith Samanya Yoga Abhyas	10 min. 10 min. 40 min. 20 min. 10 min. 40 min.	Divya Sarvakalp Kwath Divya Platogrit Divya Livogrit Vital Divya Immunogrit Gold Divya Livamrit Advance Divya Yograj Guggul Pat Nutrela Sea Buckthonrn	Take empty stomach in the morning and evening for 30 days Thrice a day 1 tab/capsule before meal for 30 days Thrice a day 1 tab/capsule after meal for 30 days 1 tab/capsule after breakfast for 30 days

Table 4: Ingredients and action of recommended Ayurvedic Medicines

Drug Name	**Ingredients**	**Action**
Sarvakalp Kwath	Punarnava (*Boerhaavia diffusa*), Bhumi amla (*Phyllanthus niruri*), Makoy (*Solanum nigrum*)	Useful in liver diseases and gastric disorders
Immunogrit Gold	Vidharikand (*Pueraria tuberosa*), Meda (*Polygonatum airrhifolium*), Shatavar (*Asparagus racemosus*), Kakoli (*Roscoea procera*), Kshirkakoli (*Lilium polyphyllum*), Riddhi (*Habenaria*	Useful for general debility, as rasayan (immuno modulator)

	intermedia), Varahikand (*Dioscorea bulbifera*), Bala (*Sida cordifolia*), Safed Musli (*Chlorophytum borivilianum*), Konch (*Mucuna pruriens*), Ashwagandha (*Withania somnifera*), Rajat Bhasma, Mukta Pishti, Swarn Bhasma, Vasant Kusumakar Ras, Ashwagandha	
Divya Platogrit	Giloy (*Tinospora cordifolia*), Aloe vera (*Aloe barbadensis*), Papaya (*Carica papaya*), Anardana (*Punica granatum*), Palak (*Spinacia oleracea*)	Helps to increase platelets and prevents anaemia
Divya Livogrit Vital	Punarnava (*Boerhaavia diffusa*), Bhumi amla (*Phyllanthus niruri*), Makoy (*Solanum nigrum*), Rose hip (*Rosa centifolia*), Thalamus (Hypanthium), Palak (*Spinacia oleracea*), Corn (*Zea mays*)	Support detoxification, beneficial for digestive health
Divya Livamrit advance	Bhumi Amla (*Phyllanthus niruri*), Makoy (*Solanum nigrum*), Daruhaldi (*Berberis aristata*), Kasani (*Cichorium intybus*), Dronpushpi (*Leucas cephalotes*), Punarnava (*Boerhaavia diffusa*), Atibala (*Abutilon indicum*), Erand (*Ricinus communis*), Giloy (*Tinospora cordifolia*), Kalmegh (*Andrographis paniculata*), Sonapata (*Oroxylum indicum*), Sharpunkha (*Tephrosia purpurea*), Kutki (*Picrorhiza kurroa*)	Support detoxification
Divya Yograj guggul	Chitrak (*Plumbago zeylanica*), Pippla (*Piper longum*), Ajwain (*Trachyspermum ammi*), Kala Jeera (*Centratherum anthelminticum*), Via Vidang (*Embelia ribes*), Ajmod (*Apium graveolens*), Safed Jeera (*Cuminum cyminum*), Devdaru (*Cedrus deodara*), Chabya (*Piper retrofractum*), Chhoti Elaichi (*Elettaria cardamomum*), Saindha Namak, Kutha (*Saussurea lappa*), Rasna (*Pluchea lanceolata*), Gokhru (*Tribulus terrestris*), Dhania (*Coriandrum sativum*), Harad (*Terminellia chebula*), Chhoti Pippal (*Piper longum*), Dalchini (*Cinnamomum zeylanicum*), Khas (*Saccharum spontaneum*), Yavkshar (*Hordeum vulgare*), Tejpatra (*Cinammomum tamala*), Pure Ghee, Shuddh Guggul (*Commiphora wightii*), Amla (*Phyllanthus emblica*), Nagarmotha (*Cyperus scariosus*), Mirch (*Piper nigrum*), Saunth (*Zingiber officinale*), Bahera (*Terminalia bellirica*)	Alleviate joint pain, enhances digestion, complexion, strength, and immunity, balancing vata imbalances

RESULT

After a four month treatment regimen, the patient showed significant improvement following integrative therapy. Haemoglobin levels were stabilized and within the normal range, cancer biomarker tests showed negative result as well as biochemical parameters, including complete blood count have normalized. In the final follow-up, the patient is now asymptomatic, with no signs of carcinoma or other complications.

DISCUSSION

This case study highlights the potential benefits of an integrative therapeutic approach for managing severe Aplastic Anemia (SAA), a rare and life-threatening condition. The use of Ayurvedic medicine, yogasanas, pranayamas, and a personalized diet demonstrated significant improvements in the patient's hematological and biochemical parameters. This suggests that traditional therapies, when combined with modern medicine, could offer a holistic alternative to conventional treatments like immuno-suppressive therapy and bone marrow transplantation. The Ayurvedic regimen, aimed at cleansing channels, enhancing metabolism, and promoting immune modulation, aligns with the concept of restoring balance in the body's systems, particularly in conditions involving bone marrow failure. This case also underscores the importance of personalized care, as the patient's therapy was tailored to his specific condition, lifestyle, and response to treatment. Further studies are warranted to explore the efficacy and mechanisms of such integrative approaches in a broader population, potentially offering a supportive or curative option for patients with relapsed or refractory Aplastic Anemia.

CONCLUSION

The findings suggest that an integrative approach combining Ayurveda, naturopathy, and yoga can be an effective strategy for Aplastic anemia. By promoting metabolic health, nutrient absorption, and blood cell regeneration, this approach offers a promising avenue for improved outcomes and long-term wellness. The synergistic use of Ayurvedic medicines, Yogic postures (Yogasanas), and breathing exercises (Pranayams) offered a comprehensive and integrative approach to the patient's healing process, this approach not only supports the body in regaining its natural homeostasis but also promotes overall health and reduces the possibility of recurrence. Conclusively we can say the integrative approach offers a sustainable solution, leading to better recovery and quality of life for AA patients.

Declaration by Authors

Acknowledgement: None
Source of Funding: None
Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Kaushalendra Dwivedi, Anjali Dubey, Jyoti Arya, Mayur Chauhan, Jaya Upreti, Prashant Katiyar. A comprehensive case report on the integrative ayurveda approach for aplastic anemia. *Int J Health Sci Res.* 2025; 15(2):121-126. DOI: *10.52403/ijhsr.20250215*

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