



Case Study

INTEGRATED APPROACH FOR MANAGEMENT OF THE ACUTE MYELOID LEUKAEMIA (AML) WITH DUODENAL ULCERO-PROLIFERATIVE GROWTH AND SEVERE ANAEMIA

Reena Jajoria^{1*}, Jitendra Sankhala², Jyoti Mehta³, Sharad M. Porte⁴

¹PG Scholar, ²PhD Scholar, ³PG Scholar, ⁴Professor, Department of Agad Tantra, National Institute of Ayurveda (DU), Jaipur, Rajasthan, India.

Article info

Article History:

Received: 20-04-2026

Accepted: 20-05-2026

Published: 07-06-2026

KEYWORDS:

Leukaemia, Acute Myeloid Leukaemia, Cancer, Ayurveda, Case Report.

ABSTRACT

Acute myeloid leukaemia (AML) is one form of leukaemia. Duodenal ulcero-proliferative growth is a rare but clinically significant gastrointestinal condition, often associated with chronic inflammation or malignancy. In patients with Acute Myeloid Leukaemia (AML), such lesions may cause gastrointestinal bleeding and malabsorption, thereby worsening anaemia. Ayurveda have basic principle for diagnosis and management of any *Ukta* and *Anukta vyadi* and it's used in this case. A 75yr old male patient, came to Ayurveda cancer OPD with complaints of weakness, fatigue, belching, flatulence, constipation, melaena, fever and recurrent respiratory infections. and ulcerative growth in duodenum, previous treatment, clinical findings, severe pallor, on examination lymphadenopathy, hepatosplenomegaly was found. Biopsy confirmed it to be acute myeloid leukaemia patient was treated along with Ayurvedic medicine *Punrnvamandur*, *Tapyadi Lauha*, *Swanbasantmalti Ras*, *Vaikrant Bhasm*, *Drakshavleha*, *Swanmakshik Bhasm*, *Hirak Bhasm*, *Syrup Amyron*, *Giloya Kwath*, *Shunthi Churna*, *Sutshekhar Ras*, *Syrup Lohasav*, *Syrup M-Liv*, *Trivarta Churna*, *Triphala Churna*. This case demonstrates that an individualized Ayurvedic management approach, based on *Dosha-Dushya-Srotas* assessment, was associated with significant improvement in haematological parameters, gastrointestinal symptoms, and overall clinical status in a patient of AML complicated by duodenal ulcerous proliferative growth and severe anaemia. The observed rise in haemoglobin, leukocyte and platelet counts, along with reduced transfusion dependency and symptomatic relief, suggests a potential supportive role of Ayurveda as an adjuvant therapy in the comprehensive management of AML.

INTRODUCTION

Leukaemia is a malignancy of the blood and bone marrow marked by the uncontrolled proliferation of abnormal white blood cells. The accumulation of these dysfunctional cells, disrupts normal haematopoiesis and compromises the immune system, thereby reducing the body's ability to fight infections and maintain normal blood function.^[1]

Leukaemia can affect individuals of any age and is broadly classified into two categories: acute and chronic. Acute forms progress rapidly, while chronic forms develop more slowly.^[2]

There are four major types of leukaemia: Acute Lymphoblastic Leukaemia (ALL), Acute Myeloid Leukaemia (AML), Chronic Lymphocytic Leukaemia (CLL), and Chronic Myeloid Leukaemia (CML). Among these, AML represents a heterogeneous group of clonal haematopoietic stem cell disorders characterized by failure of differentiation and excessive proliferation of immature myeloid cells (myeloblasts), leading to their accumulation in the bone marrow and peripheral blood.^[3] AML is the most common acute leukaemia in India. Common clinical manifestations include fever, fatigue, cough, easy bruising or bleeding, recurrent infections, and unexplained weight loss.^[4]

Leukaemia remains a major global health concern, with a mortality rate of approximately 5 deaths per 100,000 individuals annually. However, advancements in treatment and early diagnosis have significantly improved outcomes. The overall five-year

Access this article online	
Quick Response Code	
	https://doi.org/10.47070/ijapr.v14i6.4219
Published by Mahadev Publications (Regd.) publication licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)	

relative survival rate for all types of leukaemia is now about 67%, and death rates continue to decline by nearly 2% per year.^[5]

According to global cancer statistics, leukaemia ranks 13th among all cancer types in incidence, with an estimated 46,777 new cases (2.4% of all cancers). It ranks 10th in cancer related mortality, causing approximately 305,033 deaths worldwide (3.1% of all cancer deaths). It accounts for about 6.7% of all malignancies, and it is slightly more common in men (7.17%) than in women (6.3 %).^[6]

Duodenal ulcerous proliferative growth is a rare but clinically important gastrointestinal condition that may occur in association with chronic inflammation or malignancy. In patients with Acute Myeloid Leukaemia (AML), such lesions can contribute to gastrointestinal bleeding and malabsorption. Severe anaemia, a common complication of AML, results from bone marrow failure and chronic blood loss, leading to significant fatigue and increased transfusion dependence. The severity of anaemia ulcero-proliferative growth in duodenal also contribute in the reduction in haemoglobin.^[7,8] The coexistence of these conditions presents therapeutic challenges and warrants an integrated management approach.

As per the modern medical science, the primary treatment for Acute Myeloid Leukaemia (AML) is chemotherapy (Azacitidine), often followed by stem cell or bone marrow transplantation. Targeted therapies and supportive care also play important roles. Common side effects of chemotherapy include fatigue, hair loss, thrombocytopenia (low platelet count), neutropenia (low white blood cell count), increased risk of infection, anaemia, nausea, vomiting, and appetite changes.^[9]

There is no direct reference of leukaemia and AML found in Ayurveda but the clinical manifestation of leukaemia and AML are likely to similar to *Majjadhatugat Javar* and *Pandu Roga*, hence on the basis of basic principle of ayurveda. diagnosis and management of Ayurveda *Ukta* and *Anukta* disease

like.^[10,11] The present case study highlights the management of AML by using integrated approach.

Case History

A 75-year-old male patient, case of Acute Myeloid Leukaemia (AML) approached the cancer consultation and Treatment Unit National Institute of Ayurveda Jaipur (OPD No. 33202537 210) with chief complaints of weakness, fatigue, loss of appetite, belching, flatulence, constipation, melaena, abdominal pain, Fever, Paleness, low blood pressure, lymphadenopathy, hepatosplenomegaly was revealed on examination.

Past history: The patient was diagnosed with Acute Myeloid Leukaemia (AML) on 24.12.2024 and has been on chemotherapy (Azacitidine) since then. Patient has subsequently developed ulcero-proliferative growth of the duodenum, melaena, and severe anaemia, leading to marked weakness and fatigue, after which he approached the Cancer Consultation and Treatment Unit, National Institute of Ayurveda, Jaipur.

Pathological findings: Test reports- CBC (complete blood count) patient reported with haemoglobin 3.9 gm/dl, total Leucocytes (2.7x10⁹/l) and PLT 50x10⁹/l with raised ESR (Erythrocyte Sedimentation Rate) 5 mm in 1st hour.

Histopathological findings

Bone marrow trephine biopsy- The marrow is involved by acute myeloid leukaemia rich in promyelocytes (24/12/2024)

Endoscopy of abdomen- 19/12/2024

- Endoscopy - Stomach-diffuse erosions seen in body and antrum. small superficial ulcer seen in antrum. Blood seen in stomach.
- Duodenum- A smooth surface mass lesion with nodularity and mild ooze seen in D1. Mild blood seen in D2.

Therapeutic intervention

The Ayurvedic medicine were started after examination in detail are given in table 1.

Table 1: Therapeutic intervention in the patient

S.No.	Medicine	Dose	Interval	Time
1.	<i>Punrnva mandur</i> <i>Tapyadi lauha</i> <i>Swarn bhasnta malti ras</i> <i>Vaikrant bhasam</i>	125mg 50mg 125mg 50mg	Twice per day with <i>Drakshavleha</i>	After food
2.	<i>Drakshavleha</i>	5gm	Twice per day	After food
3.	<i>Avipttikar churn</i> <i>Pittantak yog churn</i> <i>Muktashukti bhasm</i> <i>kahrava pisti</i> <i>Akik pisti</i>	3gm 1gm 250mg 125mg 125mg	Twice per day with water	Empty stomach

4.	Syrup M-Liv	15ml	Twice per day with water	Before food
5.	Syrup Amyron	10ml	Twice per day with water	After food
6.	Shunthi churna Sutshekhar ras Mishree	2gm 125mg 3gm	Twice per day with water	1 hr before food
7.	Lavanbhasakar Sarjikshar	3gm 2gm	Twice per day with Chhachh/anar juice	Between meal

Observation- In patient of leukaemia the clinical improvement has found in pallor (Hb), jaundice, itchy skin, haemoglobin, TLC, platelets, and patient has symptomatically improved.

Table 2: Frequency of Blood transfusion per month

Blood transfusion per month					
S.No	Before treatment	During treatment			
		1 st month	2 nd month	3 rd month	4 th month
1	4 times/month	4 times/month	3 times/month	3 times/month	2 times/month

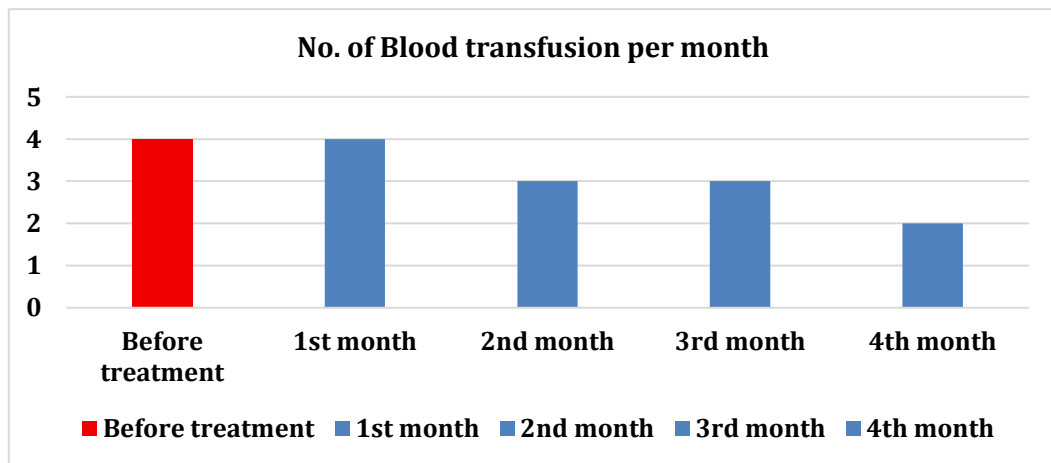


Figure 1: No. of Blood transfusion per month

Table 3: Pathological test report

Date	Before treatment	During Treatment			
	20/1/25	24/2/25	21/3/25	11/4/25	9/5/25
Total leucocytes count	2.7x10 /l	0.9 x10 /l	1.5x10 /l	1. x10 /l	3.6x10 /l
Haemoglobin	3.9 g/dl	4.0 g/dl	6.5 g/dl	8.3 g/dl	7.0 g/dl
PLT	50x10 /l	45x10 /l	120x10 /l	100x10 /l	330x10 /l

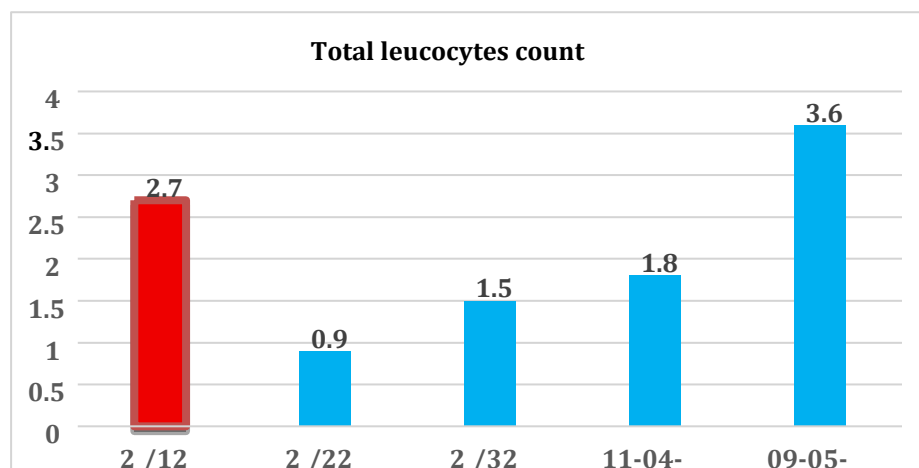


Figure 2 (1): Pathological test report- Total leucocytes count

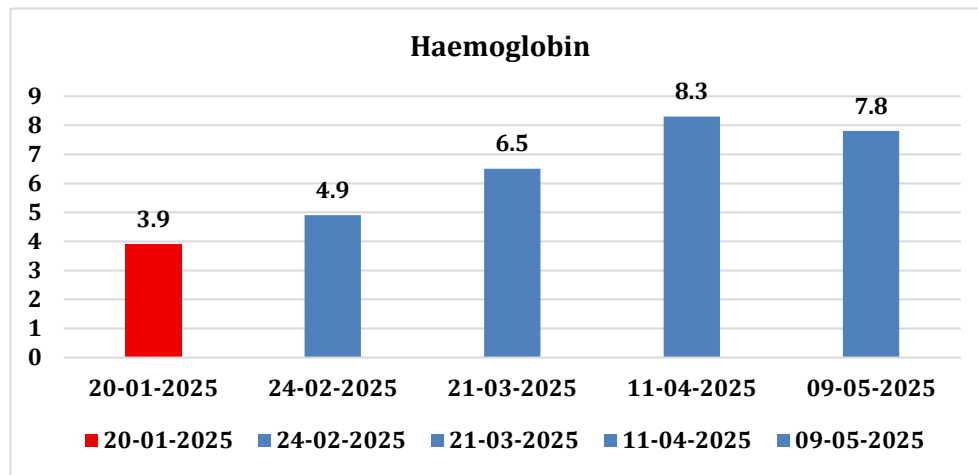


Figure 2 (2): Pathological test report- Haemoglobin

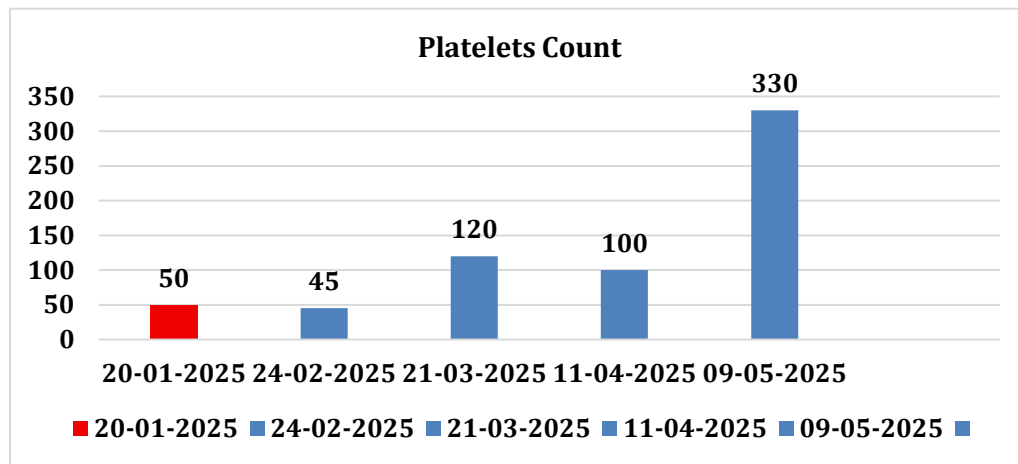


Figure 2 (3): Pathological test report- Platelets count

Table 4: Endoscopy report before and after treatment

Endoscopy report		
Findings	Before Treatment 19/12/24	After Treatment 31/12/25
Stomach	Diffuse erosions seen in body and antrum. Small superficial ulcer seen in stomach.	No any abnormality found.
Duodenum	A smooth surfaced mass lesion with nodularity and mild ooze seen in D1. Mild blood seen in D2.	D1. ulcero-proliferative growth D2. normal

Table 5: Symptom assessment before and after treatment in AML

S.No.	Symptoms	Before treatment	After treatment			
			1 st month	2 nd month	3 rd month	4 th month
1	Weakness	2	2	1	1	1
2	Fatigue	3	3	2	2	2
3	Loss of appetite	2	2	1	1	0
4	Belching	2	2	1	0	0
5	Flatulence	2	2	1	0	0
6	Constipation	2	1	0	0	0
7	Melaena	1	1	1	1	1
8	Abdominal pain	2	2	1	1	1
9	Fever	1	1	0	0	0
10	Paleness	3	2	2	1	1
	Total	20	18	10	7	6

0- No symptoms

1- Mild

2- Moderate

3- Severe

DISCUSSION

Leukaemia is one type of blood cancer leading to uncontrolled and abnormal growth of WBC. AML is a fast-acting cancer of blood. In Ayurveda texts, although no direct reference to leukaemia are found, the clinical manifestations are somewhat similar to *Majjadhathugat javar* and *Pandu*. Duodenal ulcerous proliferative growth is a rare but clinically important gastrointestinal condition that may occur in association with chronic inflammation or malignancy. In patients with Acute Myeloid Leukaemia (AML), such lesions can contribute to gastrointestinal bleeding and malabsorption. Severe anaemia, a common complication of AML. The severity of anaemia due to association of ulcero-proliferative growth in duodenal also contribute in the reduction in haemoglobin. The patient of AML with duodenal ulcerous proliferative growth and severe anaemia has been diagnosed on the basis of *Dosha*, *Dushya*, *Srotas*, *Srotodushti*. Based on the principle of Ayurveda diagnostics of *Pitta Pradhan tridoshajanya dosha*, *Dushya* (*Ras dhatu*, *Rakta dhatu* and *Majja dhatu*), *Srotas* (*Rasvaha*, *Majjavaha srotas*), *Srotodushti* (*Atipravati*), *Sthyan* (*Rasa-Rakta*) and *Sthan Sansraya* (*Majja & Pakvashaya*). The patient was treated with *Punarnavamandur*, *Tapyadi lauha*, *Swanbasantmalti ras*, *Vaikrant bhasm*, *Drakshavaleha*, *Swanmakshik bhasm*, *Hirak bhasm*, *Syrup Amyron*, *Giloya kwath*, *Shunthi churna*, *Sutshekhar ras*, *Syrup Lohasav*, *Syrup m-liv*, *Trivarta churna*, *Triphala churna*. The present study demonstrates a gradual and clinically meaningful improvement in hematological parameters, gastrointestinal findings, and subjective symptoms. Haemoglobin levels increased steadily from 3.9g/dL before treatment to 8.3g/dL by the third month, indicating significant correction of severe anaemia.

Total leukocyte count initially showed a decline during early treatment but subsequently improved from $0.9 \times 10^9/L$ to $3.6 \times 10^9/L$ by the end of the observation period, suggesting hematopoietic recovery. Platelet count showed a marked and consistent rise from $50 \times 10^9/L$ before treatment to $330 \times 10^9/L$, indicating improvement in thrombocytopenia and reduced bleeding risk.

A reduction in dependency on blood transfusion was noted. The frequency decreased from 4 transfusions per month before treatment to 2 transfusions per month by the fourth month, reflecting stabilization of haematological parameters and reduced transfusion burden.

The total symptom score reduced from 20 at baseline to 6 by the fourth month. Marked improvement was observed in weakness, fatigue, loss of appetite, abdominal pain, fever, and paleness. Gastrointestinal symptoms such as belching, flatulence, and constipation resolved completely.

Although melena persisted, its severity remained stable without progression, correlating with improved haematological and endoscopic findings.

Acute myeloid leukaemia (AML) is characterized by bone marrow failure, anaemia, thrombocytopenia, immunosuppression, and frequent gastrointestinal complications. From an Ayurvedic standpoint, the clinical presentation of AML resembles a *Tridoshaja* condition with predominance of *Pitta* and *Rakta dushti*, associated with *Jwar*, *Agnimandya*, *Rasvaha srotodushti*, *Raktavaha srotodushti*, and *Dhatukshaya*, as described under conditions such as *Pandu*, *Raktapitta*, and *Dhatupaka* in classical texts^[12,13].

Punarnava Mandura and *Tapyadi Lauha* is found beneficial to increase the haemoglobin^[14]. Experimental and clinical studies have demonstrated that Lauha-based formulations improve haemoglobin and red cell indices with good tolerability, supporting their role in anaemia associated with chronic diseases, including malignancy^[15].

Swarnabhasma and *Vaikranta Bhasma* are described as *Pitta Shamak*, *Rasayana*, *Ojovardhaka*, and *Balya* drugs. Modern studies suggest that *Swarna bhasma* exhibits immunomodulatory, antioxidant, anticancer and cytoprotective effects^[16,17].

Bleeding manifestations and thrombocytopenia in AML correlate with *Raktapita*. Gastrointestinal erosions and ulceration are recognized causes of chronic blood loss in leukemia patients^[20]. Drugs such as *Avipattikar Churna*, *Pittantak Yoga*, *Muktashukti Bhasma*, *Akik Pishti*, and *Kaharva Pishti* possess *Pittashamana* and *Raktastambhaka* properties^[13,18,21,22]. These agents may help stabilize vascular integrity and reduce mucosal bleeding. Studies have reported the hemostatic and gastroprotective effects of calcium-based *Pishti* preparations, supporting their use in bleeding disorders^[19].

Sutshekhar Rasa and *Shunthi Churna* act by correcting pacifying *Samapitta*. Healing of gastrointestinal lesions in the present case may have significantly contributed to improved haemoglobin levels and reduced transfusion dependency.

M-Liv syrup acts as a hepatoprotective agent, improving liver function and supporting metabolism. Hepatoprotective Ayurvedic formulations have previously been shown to indirectly improve haematological parameters by enhancing metabolic efficiency^[23,24].

Drakshavaleha use in *Pandu* and *Raktapitta*. *Drakshavaleha* and *Amyron* both drug function as *Brimhana*, *Rasayana*, improving appetite, strength and overall quality of life. *Rasayana* therapy has been reported to reduce cancer-related fatigue, improve

nutritional status, and enhance tolerance to long-term illness in oncology patients^[25,26].

CONCLUSION

The present case suggests that an individualized Ayurvedic approach based on *Dosha-Dushya-Srotas* assessment may provide supportive benefits in a patient of AML complicated by duodenal ulcerous proliferative growth and severe anaemia.

The integrative use of *Lauha* preparations, *Rasayana*, *Pittashamana*, and *Brimhana* therapies was associated with improvement in haemoglobin, leukocyte and platelet counts, reduction in transfusion dependency, and marked relief in gastrointestinal and constitutional symptoms. Thus, the patient of AML with duodenal ulcerous proliferative growth and severe anaemia has been improved clinically and pathologically by integrated approach.

REFERENCES

- Hoffbrand AV, Moss PAH. Essential Haematology. 7th ed. Oxford: Wiley-Blackwell; 2016.
- Kumar V, Abbas AK, Aster JC. Robbins and Cotran Pathologic Basis of Disease. 10th ed. Philadelphia: Elsevier; 2021.
- Döhner H, Weisdorf DJ, Bloomfield CD. Acute myeloid leukemia. *N Engl J Med*. 2015; 373(12): 1136-52.
- Arber DA, Orazi A, Hasserjian R, et al. The 2016 revision to the WHO classification of myeloid neoplasms. *Blood*. 2016; 127(20): 2391-405.
- Siegel RL, Miller KD, Jemal A. Cancer statistics. *CA Cancer J Clin*. 2023; 73(1): 17-48.
- Sung H, Ferlay J, Siegel RL, et al. Global cancer statistics 2020: GLOBOCAN estimates. *CA Cancer J Clin*. 2021; 71(3): 209-49.
- Cappell MS. Gastrointestinal bleeding associated with malignancy. *Med Clin North Am*. 2008;92(3):491-509.
- Tisi MC, Hohaus S, Cuccaro A, et al. Gastrointestinal complications in acute leukemia. *Leuk Lymphoma*. 2017; 58(3): 531-42.
- Pollyea DA, Amaya M, Strati P, Konopleva MY. New drugs for acute myeloid leukemia. *Blood*. 2019; 134(18): 1519-31.
- Agnivesha. Charaka Samhita, Chakrapani commentary. Varanasi: Chaukhambha Bharati Academy; Sutrasthana.
- Sushruta. Sushruta Samhita, Dalhana commentary. Varanasi: Chaukhambha Surbharati Prakashan; Sutrasthana.
- Agnivesha. Charaka Samhita. Chikitsa Sthana, Pandu Chikitsa Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2011.
- Sushruta. Sushruta Samhita. Uttara Tantra, Raktapitta Pratishedha Adhyaya. Varanasi: Chaukhambha Orientalia; 2010.
- Sharma PV. Dravyaguna Vijnana. Vol 2. Varanasi: Chaukhambha Bharati Academy; 2012.
- Panda AK, Mishra US, Sharma R. Clinical evaluation of Lauha preparations in iron deficiency anemia. *AYU*. 2011; 32(3): 354-359.
- Bajaj S, Vohora SB, Pillai KK. Immunomodulatory potential of Swarna Bhasma. *Indian J Exp Biol*. 2001; 39(7): 610-614.
- Paul A, Chugh A, Kumar A. Metallic bhasmas and their role in immunomodulation. *J Ayurveda Integr Med*. 2016; 7(4): 221-228.
- Vagbhata. Rasa Ratna Samuccaya. Bhasma-Pishti Prakarana. Varanasi: Chaukhambha Amarabharati Prakashan; 2011.
- Kulkarni RR, Patil VC, Deshpande S. Evaluation of Pishti formulations in bleeding disorders. *AYU*. 2014; 35(2): 190-195.
- Kumar R, Bansal R, Kumar A. Gastrointestinal bleeding in patients with acute leukemia. *World J Gastroenterol*. 2012; 18(20): 2515-2520.
- Tripathi KD. Essentials of Medical Pharmacology. 7th ed. New Delhi: Jaypee Brothers Medical Publishers; 2013.
- Patil VC, Patil S, Shah N. Clinical efficacy of Avipattikar Churna in Amlapitta. *AYU*. 2013; 34(2): 148-152.
- Estey E, Döhner H. Acute myeloid leukaemia. *Lancet*. 2006; 368(9550): 1894-1907.
- Thakur RS, Puri HS, Husain A. Hepatoprotective role of Ayurvedic formulations. *J Res Ayurveda Siddha*. 2010; 31(1-2): 1-7.
- Balachandran P, Govindarajan R. Cancer- An Ayurvedic perspective. *Pharmacol Res*. 2005; 51(1): 19-30.
- Rao AV, Rao LG, Pandey MM. Role of Rasayana therapy in chronic diseases. *J Ayurveda Integr Med*. 2014; 5(3): 151-156.

Cite this article as:

Reena Jajoria, Jitendra Sankhala, Jyoti Mehta, Sharad M. Porte. Integrated Approach for Management of the Acute Myeloid Leukaemia (AML) with Duodenal Ulcero-Proliferative Growth and Severe Anaemia. *International Journal of Ayurveda and Pharma Research*. 2026;14(6):226-231.

<https://doi.org/10.47070/ijapr.v14i6.4219>

Source of support: Nil, Conflict of interest: None Declared

*Address for correspondence

Dr. Reena Jajoria

PG Scholar,
Department of Agad Tantra,
National Institute of Ayurveda (DU),
Jaipur.
Email: reenajajoria94@gmail.com

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.