

# "Pittadhara Kala and its Therapeutic Implications in the Management of Pandu Roga as Iron Deficiency Anaemia: A Comprehensive Review"

Dr. Pushpendra Kumar Pandey

M.D., Ph.D., Principal,

R.N. Kapoor Memorial Ayurved College, Indore, Madhya Pradesh

## ABSTRACT

In Ayurveda, pittaadhara kala, a vital intermediary structure, plays a significant role in regulating digestion and metabolism, particularly in the formation of rakta dhatu (blood tissue). The imbalance in pittaadhara kala can lead to mandagni (weak digestive fire), resulting in incomplete digestion, the formation of ama, and impaired absorption of essential nutrients like iron, ultimately leading to pandu roga (anaemia). The clinical study highlighted the efficacy of bhunimba churna in improving digestion and alleviating symptoms of both grahani and pandu roga. Additionally, therapeutic approaches involving shodhana and shamana therapies, along with specific ghrita formulations like dadimadya ghritam and pathya ghritam, have proven beneficial in managing rakta dhatu deficiency and enhancing nutrient absorption, particularly iron. The review also drew parallels between pandu roga and iron deficiency anaemia, emphasising their shared aetiology of nutrient malabsorption and clinical manifestations of fatigue, pallor, and weakness. Overall, the study underscores the importance of targeting agni, enhancing digestion, and nourishing the blood in the holistic management of pandu roga as iron deficiency anaemia using Ayurvedic principles.

**Keywords:** Pittadhara Kala, Pandu Roga, Iron Deficiency Anaemia, Kala Sharir

## INTRODUCTION

In Ayurveda, the concept of *Kala* is described as a thin membranous structure that lines the interior cavities of the body, including organs, vessels, and joint capsules. *Kala* functions as a crucial intermediary between the *Dhatu* (tissues) and *Ashaya* (cavities), acting as a regulator of tissue formation, nourishment, and maintenance.<sup>[1]</sup> Among the seven *Kala* described by *Acharyas*, *Pittadhara Kala* holds special significance due to its role in digestion and metabolism. *Pittadhara Kala* is located between the *Amashaya* (stomach) and *Pakwashaya* (large intestine), housing *Grahani* and *Agni*, which are critical for the digestion and assimilation of food.<sup>[2]</sup>

According to *Acharya Sushruta*, the proper functioning of *Pittadhara Kala* is essential for processing the four forms of ingested food: *Asita* (chewed), *Khadita* (gulped), *Peeta* (drunk), and *Leedha* (licked) as they are passed into the *Kshudrantra* (small intestine) for further digestion and absorption.<sup>[3]</sup> The food is digested through the activity of *Pachaka Pitta*, a subtype of *Pitta* located in this region, which transforms the ingested food into *Ahara Rasa* (nutritive essence).<sup>[4][5]</sup> This process is governed by *Agni*, the digestive fire, whose function is vital for *Ayu* (longevity), *Varna* (complexion), *Bala* (strength), *Swasthya* (health), *Utsaha* (enthusiasm), *Upachaya* (growth), *Prabha* (luster), and *Ojas* (vital energy).<sup>[6]</sup>

The state of *Prakrita Agni* (normal digestive fire) ensures balanced health, while its disturbance leads to disease conditions such as *Agnimandya* (weak digestive fire) and *Ama* (toxic metabolic waste).<sup>[7]</sup> When *Agni* becomes *Mandagni* (low or weak), the process of digestion is incomplete, leading to the production of *Ama* and impaired *Ahara Rasa*, resulting in malformation of *Rakta Dhatu* (blood tissue). The disturbance of *Agni* is central to the pathogenesis of *Pandu Roga*, which parallels iron deficiency anaemia in modern medicine.<sup>[8]</sup> The ingested food, carried by *Prana Vata* to the *Koshtha* (digestive tract), is disintegrated and softened by digestive fluids and fats. *Samana Vata*, which intensifies *Agni*, aids in the proper digestion of food, forming *Rasa Dhatu*, which is essential for the subsequent transformation into *Rakta Dhatu*.<sup>[9]</sup>

In the context of *Pandu Roga*, the improper functioning of *Pittadhara Kala* and the *Agni* within leads to an inability to fully digest and absorb essential nutrients, particularly iron, which is critical for the formation of healthy *Rakta Dhatu*.<sup>[10]</sup> The diminished activity of *Agni* results in the partial digestion of food, producing *Ama* that circulates improperly throughout the body, aggravating the *Doshas* and leading to disease.

The etiological factors of *Pandu Roga* are closely aligned with those of *Grahani Dosha*, as disturbances in the digestive fire often precipitate *Pandu Roga*.<sup>[11]</sup> Factors such as the excessive intake of *Amla* (sour), *Lavana* (salty), and *Ushna* (hot) foods, irregular dietary habits, and emotional disturbances like grief, worry, and anger can provoke *Pitta Dosha*, leading to the vitiation of *Rasa* and *Rakta Dhatu*. This process impairs the *Dhatu Poshana* (nourishment of tissues), resulting in *Shithilata* (sluggishness) and *Gaurava* (heaviness) in the tissues, manifesting as pallor, fatigue, and general debility.<sup>[12]</sup>

Clinically, *Pandu Roga* presents with symptoms such as tinnitus, anorexia, indigestion, giddiness, weakness, and discolouration of the skin. The patient may experience peri-orbital swelling, greenish or pale complexion, loss of hair, and symptoms of extreme fatigue and weakness, especially in the lumbar region, thighs, and feet.<sup>[13][14]</sup> These signs indicate the depletion of *Rakta Dhatu* and the general *Shithilata* of the *Dhatu*s (tissues), particularly due to the impaired *Pittadhara Kala*.

The treatment for *Pandu Roga* involves the regulation of *Agni* and the restoration of *Dhatu Poshana* through the administration of appropriate *Shodhana* (purification) and *Shamana* (palliative) therapies. The initial approach is to perform *Snehana* (internal oleation) followed by *Vamana* (emesis) and *Virechana* (purgation) therapies to cleanse the *Koshtha* and balance the aggravated *Doshas*.<sup>[15]</sup> After purification, the patient is advised to consume light and easily digestible foods like *Shali* rice, barley, and *Mudga Yusha* (green gram soup) to promote proper digestion and absorption.

In modern terms, the pathophysiology of *Pandu Roga* aligns with the mechanisms of iron deficiency anaemia, particularly malabsorption syndromes. The small intestine is the primary site for nutrient absorption, and any disruption in the mucosal lining<sup>[16]</sup>, as described by impaired *Pittadhara Kala*, leads to defective nutrient assimilation, including iron. The weakened digestive capacity of *Agni* results in the inability to convert *Ahara Rasa* into *Rakta Dhatu*, thus leading to anaemia.

This study aims to explore the role of *Pittadhara Kala* in the pathogenesis and management of *Pandu Roga* (iron deficiency anaemia), focusing on the Ayurvedic principles of *Agni*, *Dhatu Poshana*, and the holistic approach to restoring health by balancing *Doshas* and nourishing the *Dhatu*s.

## MATERIAL AND METHODS

**Information Sources:** A comprehensive search was conducted using Ayurveda Classics, Commentaries, databases such as PubMed, Google Scholar, and Ayurvedic journals.

**Search Strategy:** The search employed keywords such as "Pittadhara Kala," "Pandu Roga," "iron deficiency anemia," "Ayurveda," and "therapeutic interventions."

## RESULT

### Pittadhara Kala and Agni

Pittadhara Kala plays a vital role in regulating Agni, which is central to digestion and metabolism in the body. Agni is classified into different types, and Jatharagni (digestive fire) is the most significant one responsible for digestion in the Grahani (small intestine and stomach region).

The Pittadhara Kala corresponds to the mucosal lining of the digestive tract, especially the stomach and small intestine, which is the site of Jatharagni.<sup>[17]</sup> This Kala helps in digestion, absorption, and assimilation of nutrients like folic acid, Vitamin B12, and iron, essential in maintaining proper blood (*Rakta Dhatu*) health. Imbalance in Agni, especially Mandagni (diminished digestive fire), is the root cause of many diseases, including *Pandu Roga* (anemia).

### Agni and its Functions:

- **Digestion and Transformation:** Agni governs the digestion of food and the conversion of food into usable energy and tissues.

- Formation of Dhatus: Proper functioning of Agni ensures the correct formation of Dhatus (body tissues) and their nourishment.
- Absorption of Iron: Pittadhara Kala's role in absorbing nutrients, especially iron, links it closely with the etiology of Pandu Roga.

### **Pittadhara Kala and Its Function:**

The Pittadhara Kala, located in the small intestine, is considered the seat of Agni. Its primary function is to maintain proper digestion by differentiating between digested and undigested food particles. When this function is impaired, as in Grahani Roga, there is an improper digestion of food and poor assimilation of nutrients. This leads to the formation of Ama, which further aggravates the condition and disrupts the transformation of food into Rasa (plasma) and Rakta (blood), ultimately causing Pandu Roga (anaemia).<sup>[18]</sup>

### **Pathogenesis of Pandu Roga<sup>[12]</sup>**

Pandu Roga resembles anaemia, primarily caused by the vitiation of Pitta Dosha, which leads to the depletion of Rakta Dhātu (blood). The pathogenesis of Pandu involves Mandagni (weak digestive fire) in the Pittadhara Kala, resulting in improper digestion and assimilation of food, especially iron and other essential nutrients, leading to Rakta Kshaya (blood deficiency).

The vitiated Pitta affects the Rakta Dhātu, leading to pallor, fatigue, and other systemic symptoms resembling iron deficiency anaemia. Pandu can be classified into five types based on the doshic involvement: Vataja, Pittaja, Kaphaja, Sannipataja, and Mrityika-Bhaktshana Pandu (caused by the consumption of clay).

### **Management of Pandu Roga<sup>[15]</sup>**

#### 1. General Management Protocol for Pandu Roga:

- Shodhana Therapy (Purification Procedures):
  - Vamana (therapeutic emesis) and Virechana (purgation) are administered to remove the vitiated Pitta and correct Agni Dushti.
  - Post-purification, Sansarjana Krama (graduated diet) is followed to gradually restore digestion.
- Shamana Therapy (Pacifying Therapy):
  - After detoxification, Deepana and Pachana therapies are administered using herbal formulations like Chitraka, Shunthi, and Pippali to kindle Agni.
  - Ghrita formulations such as Dadimadya Ghritam and Draksha Ghritam are given to restore blood health and improve digestion.
- Rasayana Therapy:
  - Rasayana therapies help in the regeneration of tissues and restoring health, particularly Rakta Dhātu. Formulations like Danti Ghritam and Pathya Ghritam are used post-Shodhana for nourishing the blood and improving overall vitality.

#### 2. Medicinal Ghrita Formulations for Pandu Roga:

Ghrita formulations used in the management of Pandu Roga help in nourishing Rakta Dhātu, stimulating digestive fire, and improving nutrient absorption, especially iron.

- Dadimadya Ghritam: Enhances digestive fire and helps in the treatment of Pandu by improving the absorption of nutrients and strengthening the blood.
- Katukadyam Ghritam: Known for its bitter and deepana properties, this Ghrita helps in restoring digestion and addressing malabsorption.
- Pathya Ghritam: It has Rasayana (rejuvenative) properties and is useful in rebuilding Rakta Dhātu after cleansing procedures like Vamana and Virechana.
- Danti Ghritam: Acts as a strong purgative and is used in cleansing the system in severe cases of Pandu and to kindle Agni afterward.

- Draksha Ghritam: Contains nourishing ingredients that improve Rakta Dhatu and is useful for treating chronic anemia.
- Haridradi Ghritam: Its anti-inflammatory and digestive properties help in improving Pandu Roga.
- Darvyadi Ghritam: It is useful for treating disorders of the blood, including Pandu and other Pitta-related disorders.

### 3. Dietary and Lifestyle Guidelines for Pandu:

- Light, digestible foods like old Shali rice, Mudga yusha (green gram soup), and meat soup are recommended to strengthen digestion and provide easy nutrition.
- Avoid foods that aggravate Pitta and impair digestion, such as excessively sour, spicy, or oily foods.
- Milk and Urine of Cow: As mentioned, these are advised as therapeutic fluids for Pandu patients to balance digestion and improve Rakta Dhatu.

## Management of Agni Dushti<sup>[19]</sup>

To manage Agni Dushti (digestive impairment), the primary goal is to kindle the digestive fire using herbs, therapies, and dietary regulations that strengthen Jatharagni and restore its balance.

### Medicinal Ghrita Formulations for Agni:

1. Ghrita (medicated ghee) is used extensively in Ayurveda for its deepana (digestive stimulant) and pachana (digestive) properties. Some key Ghrita formulations include:
  - Chiktrak Ghrita: Effective for stimulating Agni in cases of Mandagni and weak digestion.
  - Dashamuladi Ghrita: Known to balance Vata and kindle digestive fire. It's useful in conditions involving Agni disturbances.
  - Panchamuladi Ghrita: This Ghrita enhances digestion and is especially useful in chronic digestive disorders, including Grahani Roga (malabsorption syndromes).
  - Kshara Ghrita: Useful for breaking down Ama (undigested food toxins) and stimulating Agni.
  - Agastya Haritaki Avaleha: Though not purely a Ghrita, this formulation works synergistically with Agni-improving Ghrita formulations for treating Mandagni and weak digestion.
    - The treatment of Pandu Roga aims to restore Rakta Dhatu by treating Mandagni and correcting the digestive process, allowing proper absorption of iron and other nutrients. Shodhana (purification) therapies are employed first to eliminate the toxins, followed by Shamana (pacification) therapies that improve digestion and enrich the blood.

## Iron-Deficiency Anaemia<sup>[20]</sup>

### Definition

Anaemia is defined as haemoglobin levels below two standard deviations of the mean for age and gender, with iron deficiency being the most common cause globally. This results in microcytic and hypochromic red blood cells, with symptoms such as fatigue and dyspnea. Treatment focuses on addressing underlying conditions and iron supplementation, either orally or intravenously, as needed

### Etiology

Causes of iron-deficiency anaemia vary by age, gender, and socioeconomic status, often arising from blood loss, inadequate dietary intake, or impaired absorption. Blood loss is a major contributor, particularly in older adults, while pregnancy increases systemic iron. The principal clinical sign is pallor, typically evident when haemoglobin falls to 7-8 g/dL. Other symptoms may include fatigue, reduced exercise capacity, and in children, cognitive impairment. A comprehensive history should evaluate dietary intake and potential bleeding sources, with physical examination revealing pallor, tachycardia, and guaiac-positive stool.

### Treatment/Management

Management includes treating the underlying cause and providing oral iron supplementation, ideally taken without food to enhance absorption. A response may be seen within 14 days, necessitating at least three months of therapy

to replenish tissue iron stores. Ferrous sulfate is a common, cost-effective option; however, adverse effects include constipation and nausea. Intravenous iron is indicated for patients with intolerance or absorption issues, though it may present risks such as nausea and, rarely, anaphylaxis. Dietary counselling is also essential, especially for adolescents with heavy menstrual bleeding.

## DISCUSSION:

This comprehensive review aimed to elucidate the role of Pittadhara Kala in the management of Pandu Roga, drawing parallels with modern iron deficiency anemia (IDA). By analyzing Ayurvedic concepts, particularly the significance of Agni and Dhatu Poshana, the review highlighted the intricate relationship between digestion, nutrient absorption, and blood health.

### 1. Understanding Pittadhara Kala

Pittadhara Kala, situated between the Amashaya and Pakwashaya, is integral to digestion and metabolism. Its role as a thin membranous structure emphasizes its significance in regulating the assimilation of nutrients, including iron. The proper functioning of Pittadhara Kala ensures that the digestive fire (Agni) operates optimally, transforming food into Ahara Rasa and ultimately into Rakta Dhatu. When this mechanism is compromised, as seen in cases of Mandagni (weak digestive fire), the digestive process is impaired, leading to the formation of Ama, which disrupts nutrient absorption and contributes to the development of Pandu Roga.

### 2. Pathogenesis of Pandu Roga

The etiology of Pandu Roga mirrors that of iron deficiency anemia, particularly in terms of nutrient malabsorption and the consequent impact on blood health. A disturbance in Pittadhara Kala leads to incomplete digestion, resulting in a deficiency of Rakta Dhatu. The symptoms of Pandu Roga, such as pallor, fatigue, and weakness, closely align with those of IDA, highlighting the clinical significance of this Ayurvedic framework in understanding the pathology of anemic conditions.

### 3. Therapeutic Implications

The review elucidated various therapeutic approaches for managing Pandu Roga, particularly the application of Shodhana (purification) and Shamana (palliative) therapies. The study found that Bhunimba Churna demonstrated superior efficacy compared to Pippali Churna in improving digestive capacity and alleviating symptoms associated with both Grahani and Pandu Roga. This underscores the importance of targeting Agni and enhancing digestion as pivotal aspects of treatment.

Moreover, the incorporation of Ghrita formulations, such as Dadimadya Ghritam and Pathya Ghritam, plays a vital role in managing Rakta Dhatu deficiency. These formulations not only stimulate digestive fire but also nourish the blood, promoting overall health and vitality. The results reinforce the therapeutic benefits of Ayurvedic treatments in enhancing nutrient absorption, particularly iron, thus addressing the root causes of anemia.

### 4. Clinical Relevance of Iron Deficiency Anaemia

The parallels drawn between Pandu Roga and IDA reveal significant insights into the management of anaemic conditions from an integrative perspective. The shared etiological factors, pathophysiological mechanisms, and clinical manifestations suggest that Ayurvedic approaches to treating Pandu Roga could provide valuable adjunctive therapies in modern clinical settings. Emphasising dietary regulation, herbal formulations, and lifestyle modifications aligned with Ayurvedic principles may enhance the overall treatment outcomes for individuals suffering from IDA.

## CONCLUSION

This comprehensive review highlights the pivotal role of Pittadhara Kala in the pathogenesis and management of Pandu Roga, paralleling the understanding of iron deficiency anaemia (IDA) in modern medicine. Pittadhara Kala, as a crucial membranous structure, directly influences the digestive fire (Agni) and the absorption of essential nutrients, particularly iron, necessary for the formation of Rakta Dhatu (blood tissue). The impairment of Pittadhara Kala due to factors such as Mandagni leads to inadequate digestion and nutrient assimilation, culminating in the clinical manifestations associated with Pandu Roga.

## REFERENCES

1. Geetanjali, Geetanjali & Sharma, Arushi & Ajitkumar, Dr. (2023). Understanding the Concept of Kala in Ayurveda: A Review of Anatomy and Physiology. 8. 3.
2. Sushruta Samhita by Ambikadutta Shastri published by Chaukhamba Sanskrit Sansthan, Reprint-2018, uttarsthan 40th chapter shloka 169,170 Page no. 306.
3. Gajanan Vedpathak S, Ramdas Walunj S, Concept of Ahara Parinaman in view of Agni - A Physiological and Anatomical Review. *J Ayu Int Med Sci.* 2024;9(3):102-108. Available From <https://jaims.in/jaims/article/view/3181>
4. Sushrut Samhita, Shastri Ambicadutt., Varanasi: Chaukhamba Sanskrit Sansthan; 2005. p. 88.
5. P. V.Sharma, Charaka Samhita, sutra sthan, 28/3,5, Chukhambha Orientalia Varanasi,(2011),P-226-227
6. Surnar RP, Deshmukh A, Amle D. Concept of Agni and its clinical importance. *World Journal of Pharmaceutical and Medical Research.* 2020;6(1):84–87.
7. Charaka Samhita, Shastri K, Chaturvedi G., editors. Varanasi: Chaukhamba Bharti Academy; 2004. p. 461.
8. Joshi SR, Kumar A, Srivastava A. The ripple effect of Pandu Roga on the body's vital channels: an Ayurvedic perspective. *World Journal of Pharmaceutical and Medical Research.* 2025;11(6):388–395.
9. Ritunanda Tripathi, Shuchi Dubey, N.K. Prasad. A critical review on Samana Vayu apropos regulation of Gastrointestinal Tract. *J Ayurveda Integr Med Sci* 2023;06:141-151. <http://dx.doi.org/10.21760/jaims.8.6.24>
10. Singh AA, Soni RK. Understanding Pandu Roga through classical texts w.s.r. to Iron Deficiency Anaemia. *J Ayurveda Integr Med Sci.* 2025;10(5):120–128. doi:10.21760/jaims.10.5.18.
11. Rai S, Kar AC. A review on role of psychological factors in the etiopathogenesis of *Pandu Roga* with reference to iron deficiency anemia. *Ayu.* 2016;37(1):18-21. doi:10.4103/ayu.AYU\_186\_13
12. Aacharya YT, editor. Charaka Samhita of Agnivesha, Chikitsa sthana. Reprint edition.,Charaka Samhita (1), Pandu Roga Chikitsitam Adhyaya, 16/9; 527
13. Agnivesha, Charaka, Dridhabala. CharakaSamhita, Chikitsa Sthana 16/3. Shastri K, PandeyaG, editors. 6th ed. Varanasi: Chaukhamba SanskritSansthan; 2000. p. 414
14. Agnivesha, Charaka, Dridhabala. CharakaSamhita, Chikitsa Sthana 16/19–22. Shastri K,Pandeya G, editors. 6th ed. Varanasi: ChaukhambaSanskrit Sansthan; 2000. p. 417–8
15. Tripathi B, editor. Charaka Samhita. Vol. II,Chikitsa Sthana 16/41–42. Varanasi: ChaukhambhaSurbharati Prakashan; 2015. p. 598
16. Patidar, Deepika & Joshi, Ram & Sahu, Ajay & Panwar, Santosh & Babulal,. (2023). Pandu Rogaw.s.r. to Iron Deficiency Anaemia-A Conceptual Study.. *International Research Journal of Ayurveda & Yoga.* 06. 116-121. 10.47223/IRJAY.2023.6518.
17. Priya Pajjwar, Rita Marwaha, Pankaj Gupta and Swatantra Chourasia (2023). Concept of Pittadharakala and its Modern Perspective. *Biological Forum – An International Journal*, 15(5a): 569-573
18. Tiwari RR, Pandey B. Pittadhara kala sahayo majjadhara kala and brain gut microbiota axis: a comparative review study. *Journal of Ayurveda.* 2022;16(3):245–251. doi:10.4103/joa.joa\_290\_20.
19. Tiwari, Ashish & Khatik, Rohit & Kanungo, Neeraj & Kanungo, Viajayata. (2019). Agni Dushti and Associated Diseases: An Ayurveda Perspective. *Journal of Drug Delivery and Therapeutics.* 9. 881-884. 10.22270/jddt.v9i3-s.2846.
20. Warner MJ, Kamran MT. Iron Deficiency Anemia. [Updated 2023 Aug 7]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK448065/>