

A Comprehensive Clinical and Conceptual Review on *Pandu Roga* with Special Reference to Iron Deficiency Anaemia

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Abstract:

Background: Iron Deficiency Anaemia (IDA) is the most prevalent nutritional deficiency disorder globally, particularly affecting women of childbearing age and children. In modern medicine, oral iron supplementation is the standard of care but is frequently associated with gastrointestinal side effects like constipation and nausea, leading to poor compliance. In Ayurveda, IDA closely mimics the clinical presentation of *Pandu Roga*, a disease characterized by pallor of the body due to a quantitative and qualitative deficiency of *Rakta Dhatu* (blood tissue). **Aim:** To review the etiopathogenesis, clinical features, and management of *Pandu Roga* (IDA) according to classical Ayurvedic texts and contemporary research. **Materials and Methods:** Classical Ayurvedic treatises like *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* were extensively reviewed. Furthermore, contemporary electronic databases including PubMed, Google Scholar, and AYUSH portal were searched for published research works related to *Pandu Roga* and Ayurvedic herbomineral formulations for IDA. **Results & Discussion:** Ayurveda views *Pandu* not merely as a blood deficiency but as a metabolic disorder (*Agnimandya*) where vitiated *Pitta Dosha* impairs the transformation of *Rasa Dhatu* into *Rakta Dhatu*. Management focuses on correcting digestion (*Agni*), liver stimulation, and administering bioavailable iron (*Lauha Kalpas*) processed with digestive herbs, ensuring better absorption and fewer side effects. **Conclusion:** Ayurvedic management of *Pandu Roga* provides a holistic, safe, and highly effective alternative to conventional iron therapy by treating the root metabolic cause of the deficiency.

Keywords: *Pandu Roga*, Iron Deficiency Anaemia, *Rakta Dhatu*, *Lauha Bhasma*, *Agnimandya*, Ayurveda.

1. Introduction

Anaemia is a major global public health problem affecting both developing and developed countries, with major consequences for human health as well as social and economic development. According to the World Health Organization (WHO), Iron Deficiency Anaemia (IDA) accounts for approximately 50% of all anaemia cases [1]. It results in fatigue, reduced cognitive performance, and decreased work productivity.

In Ayurveda, the condition simulating IDA is described under the heading of *Pandu Roga*. The word *Pandu* signifies a pale yellowish-white color. It is a disease where the patient suffers from a loss of complexion, primarily due to the vitiation of *Pitta dosha* which subsequent leads to the depletion of *Rasa* (plasma), *Rakta* (blood), and *Ojas* (vital essence) [2]. While modern medicine focuses on replacing elemental iron,

Ayurveda emphasizes correcting the bio-fire (*Agni*) and the micro-channels (*Srotas*) responsible for blood formation (*Raktavaha Srotas*).

2. Materials and Methods

The literary material for this conceptual review was compiled from the *brihatrayee* (major classical texts): *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya*, along with their respective commentaries.

3. Review of Literature: Ayurvedic Perspective of Pandu Roga

3.1. Etiology (*Nidana*)

Acharya Charaka extensively detailed the causative factors of *Pandu Roga*, which can be categorized into dietary (*Aharaja*) and lifestyle (*Viharaja*) factors [3]:

क्षारमल्लवणत्युष्णविरुद्धासात्म्यभोजनात् |

निष्पावमाषपिण्याकतिलतैलनिषेवणात् || (*Charaka Samhita Chikitsa Sthana 16/7*)

- **Aharaja Nidana (Dietary factors):** Excessive intake of *Kshara* (alkaline), *Amla* (sour), *Lavan* (salty), and *Ushna* (hot) foods. Consumption of mutually contradictory foods (*Viruddha Ahara*) and excessive intake of black gram, sesame, and mustard.
- **Viharaja Nidana (Lifestyle factors):** Excessive exercise, sleeping during the day (*Divaswapna*), suppression of natural urges (*Vegadharana*), and excessive sexual indulgence.
- **Manasika Nidana (Psychological factors):** *Kama* (lust), *Chinta* (worry), *Bhaya* (fear), and *Krodha* (anger).
- **Vishishta Nidana:** *Mrudbhakshana* (eating earth/clay) is mentioned as a specific cause, directly correlating with the modern concept of Pica seen in IDA [4].

3.2. Pathogenesis (*Samprapti*)

समुदीर्णं यदा पित्तं हृदये समवस्थितम् |

वायुना बलिना क्षिप्तं संप्राप्य धमनीर्दश ||

त्वङ्मांसान्तरमाश्रित्य प्रदुष्य कफमारुतौ |

त्वचो वर्णान् विवर्णानि करोति बहुविस्तरान् || (*Charaka Samhita Chikitsa Sthana 16/9-10*)

Pandu Roga is a *Pitta pradhana* (Pitta-dominant) disease. The pathogenesis begins with the indulgence in etiological factors which vitiate *Pitta dosha*, specifically the *Sadhaka* and *Ranjaka Pitta* located in the *Hridaya* (heart) and *Yakrut/Pleeha* (liver and spleen) respectively. The aggravated *Vata dosha* forces this vitiated *Pitta* into the ten vessels attached to the heart, circulating it throughout the body. It gets localized between the skin and muscle tissues, vitiating the *Kapha*, *Vata*, *Rakta*, *Twak*, and *Mamsa*. This results in the characteristic pallor (*Pandu varna*) of the skin [5]. The core pathological event is *Agnimandya* (diminished digestive fire), leading to the improper formation of *Rasa Dhatu*, which sequentially starves the *Rakta Dhatu*, resulting in quantitative and qualitative anemia [6].

3.3. Classification (*Bheda*)

According to classical texts, *Pandu Roga* is classified into five types:

1. **Vataja Pandu:** Predominance of dryness, blackish discoloration, body ache, and tremors.
2. **Pittaja Pandu:** Yellowish discoloration, fever, thirst, and excessive sweating.

3. **Kaphaja Pandu:** Whitish discoloration, heaviness, drowsiness, and edema.
4. **Sannipataja Pandu:** Mixed symptoms of all three doshas; often considered difficult to cure (*Krichhrasadhya*).
5. **Mrittikabhakshanajanya Pandu:** Earth-eating blocks the channels (*Srotorodha*), causing a specific type of anemia characterized by swelling under the eyes, chin, and feet [7].

3.4. Clinical Features (*Lakshana*)

तस्याल्परक्तमेदस्को निःसारः शिथिलेन्द्रियः ।

वैवर्ण्यं भजते तस्य हेतुं शृणु सलक्षणम् ॥ (*Charaka Samhita Chikitsa Sthana 16/12*)

The symptomatology of *Pandu Roga* aligns perfectly with the modern signs and symptoms of IDA:

- *Panduta* (Pallor of skin, nails, and conjunctiva)
- *Daurbalya* (Generalized weakness)
- *Shrama* (Fatigue on mild exertion)
- *Bhrama* (Dizziness/Vertigo)
- *Arochaka* (Anorexia)
- *Pindikodweshtana* (Calf muscle cramps)
- *Gatra shoola* (Body ache)
- *Shwasa* (Dyspnea) [8].

4. Ayurvedic Management (*Chikitsa*)

तत्र पाण्ड्वामयी स्निग्धस्तीक्ष्णैरूर्ध्वानुलोमिकैः । सं

शोध्यो मृदुभिस्तिक्तैः कामली तु विरेचनैः ॥ (*Charaka Samhita Chikitsa Sthana 16/40*)

The principle of treating *Pandu Roga* is not merely supplementing blood but clearing the blocked channels, restoring the digestive fire, and providing highly bioavailable nutrients.

A patient suffering from *Pandu Roga* should first be administered *Snehana* (oleation therapy with medicated ghee). Once properly oleated, they should be subjected to *Shodhana* (bio-purification) using *Tikshna* (sharp/potent) drugs for *Urdhva* (upward purification/*Vamana* or emesis) and *Anulomika* (downward purification/*Virechana* or purgation). (*Note: The second line specifies that if the patient has Kamala/Jaundice, they should be given mild, bitter purgatives*).

Clinical Relevance: Administering iron supplements in a body with compromised digestion (*Agnimandya*) leads to poor absorption and gastrointestinal distress (a common issue with modern ferrous sulfate). This purificatory approach ensures the gut is cleansed and metabolic pathways are reset to absorb the herbomineral iron formulations efficiently.

4.1. *Nidana Parivarjana* (Avoidance of causative factors)

The first line of treatment is the removal of the root cause, including correcting dietary errors, managing stress, and treating conditions like helminthiasis (*Krimi*), which often co-exist with IDA.

4.2. *Shodhana Chikitsa* (Purificatory Therapies)

Since *Pandu Roga* involves tissue-level accumulation of toxins (*Ama*) and doshas, mild internal purification is recommended before administering palliative medicines:

- **Snehana:** Oleation therapy using medicated ghee (e.g., *Kalyanaka Ghrita* or *Panchagavya Ghrita*).
- **Vamana & Virechana:** Mild emesis or purgation using drugs with sharp (*Tikshna*) properties to eliminate the excess vitiated *Pitta* from the body [9].

4.3. Shamana Chikitsa (Palliative Therapy / Formulations)

Following purification, various herbomineral formulations are prescribed. These contain *Lauha* (iron) processed with herbs that enhance absorption and prevent gastric irritation:

- **Navayasa Lauha:** A classic formulation containing nine herbs (including Triphala, Trikatu, and Musta) mixed with one part of *Lauha Bhasma* (calcined iron). The herbs act as *Deepana* (digestive) and *Pachana* (carminative), ensuring the iron is fully absorbed without causing constipation [10].
- **Punarnavadi Mandura:** Highly effective when *Pandu* is associated with *Shotha* (edema). It contains *Mandura Bhasma* (iron oxide) and herbs that are hepatoprotective and diuretic [11].
- **Dhatri Lauha:** Contains *Amla* (*Emblica officinalis*), *Guduchi* (*Tinospora cordifolia*), and *Lauha Bhasma*. *Amla* is a rich source of Vitamin C, which is scientifically proven to enhance the absorption of non-heme iron by reducing ferric iron to the more absorbable ferrous state [12].

4.4. Pathya - Apathya (Diet and Lifestyle modifications)

- **Pathya (Wholesome):** Old rice, barley, moong dal (green gram), meat soup (*Mamsa rasa*), *Amla*, pomegranate, grapes, buttermilk, and food cooked in iron vessels.
- **Apathya (Unwholesome):** Spicy, sour, and overly salty foods, excessive physical exertion, daytime sleep, and suppression of urges.

5. Discussion

The modern pharmacological approach to IDA primarily involves oral administration of ferrous sulfate, ferrous fumarate, or ferrous ascorbate. While these elevate hemoglobin rapidly, they leave behind unabsorbed iron in the gut, which causes oxidative stress and irritation to the gastric mucosa, leading to constipation, black stools, and nausea [13].

Ayurveda addresses this through the pharmaceutical processing of iron known as *Shodhana* (purification) and *Marana* (incineration). The resulting *Bhasma* is a biologically compatible nanoparticle. Furthermore, in formulations like *Navayasa Lauha* and *Dhatri Lauha*, the iron is co-administered with *Trikatu* (bio-enhancers like piperine) and *Triphala* (rich in Vitamin C and antioxidants).

- **Piperine** (from Trikatu) increases the bioavailability of iron by altering the membrane dynamics of the gut [14].
- **Vitamin C** (from Amalaki/Triphala) maintains iron in its ferrous form, promoting absorption.
- The overall formulation rectifies *Ranjaka Pitta* (hepatic function), ensuring that the absorbed iron is effectively utilized for erythropoiesis (red blood cell production) rather than just elevating serum iron levels temporarily.

6. Conclusion

Pandu Roga in Ayurveda provides a profound, systemic understanding of Iron Deficiency Anaemia. It highlights that supplying raw iron is insufficient if the body's metabolic pathways (*Agni* and *Srotas*) are blocked. Ayurvedic herbomineral formulations offer a synergistic approach—they provide highly

bioavailable, nano-particle iron (*Lauha Bhasma*) while simultaneously protecting the gut, stimulating the liver, and enhancing cellular metabolism. This makes Ayurvedic management a highly effective, safe, and well-tolerated therapy for the long-term eradication of IDA.

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