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A Study on Diagnostic Values of Peripheral Blood Smear in Different Types of Doshaja Pandu

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Abstract
Loss in the normal colour or discoloration of the body is called Panduta. Along with loss of normal color or discoloration, abnormalities are seen in the texture and luster of the body. Panduroga has been regarded as Agnimandhyakrita rasa dushtijanya pitta pradhanavyadhi (Acharya, 1997), characterized by Panduvaivarnayatai eketakidhulisamanavarna (Sashtri, 2012). Pandu Roga is included under the heading of the Varnopalakshita Roga, i.e., varnapradhanyavyadhi (Chakrapanidatta, 2012). Pitta is responsible for normal body color, but when vitiated, it leads to loss of complexion or panduta. Panduroga is referred to as Vilohita, Harima, and Halima in Vedas, and Susruta named it Panaki, Langaraka, and Kumbawayo (Shastri, 2010). Lakshana (signs and symptoms) are crucial for diagnosis. Samanya lakshana (general symptoms) and vishista lakshana (specific symptoms) indicate dosha involvement. In ancient times, without modern technology, Acharyas relied on keen observation of lakshana. With advancements like peripheral blood smear, changes in RBC morphology can be observed. Though numerous studies exist on Pandu, none have explored morphological changes in different types of Doshaja Pandu Roga. This study aims to find the relevance of morphological changes in peripheral blood smear and observe the scientific basis in various types of Panduroga.

Keywords: Pandu, Doshaja, Roga, Blood, Peripheral smear, Morphology

Introduction
"Rogaaha sarve pi mande agnow" as said by Vagbhata; Mandagni is a major factor in the pathogenesis of Pandu (Sashtri, 2012). The resultant effect of Mandagni is Rasa dushti, and Rasa is the Pradhanadhatu involved in Panduroga. So Acharya Charaka as well as Sushruta have included Panduroga in Rasapradoshaja vyadhi (Chakrapanidatta, 2012; Acharya, 1997). In Panduroga, there is loss of normal body color, as Ranjaka pitta with its ushmaguna gives Ragata to the Raktaposhaka sarabhaga of Rasa, produces Raktha, and imparts color. To observe morphological changes in Panduroga, peripheral blood smear is ideal. Though many studies compare Panduroga with types of anemia, this attempt diagnoses Panduroga based on samanya and vishista lakshanas from classics and finds relevance of morphological changes in RBCs via peripheral blood smear (Prasad, n.d.).

Methods
Materials
Thirty healthy individuals were selected based on prakruti assessment and inclusion criteria. Consent was obtained after explaining the study type and purpose.

Study Design
Random sampling method. Thirty subjects with Lakshanas of Pandu were selected. This was an observational and comparative study on diagnostic values of peripheral blood smear in different types of Doshaja Pandu. As part of a UG short-term research study, it was approved by the Institutional Ethics Committee of BLDEA's AVS Ayurveda Mahavidyalaya.

Inclusion Criteria
Patients aged 16–60 years suffering from Panduroga, irrespective of caste, gender, occupation, or education.

Exclusion Criteria

Patients with infectious diseases like malaria, diabetes; children; pregnant individuals; drug-induced anemia; recent blood donation; acute/chronic illness; and alcoholics. Pariksha were used for prakruti assessment, and darshana pariksha correlated variables with investigations (e.g., color, quantity).

Results

Table 1. Distribution of Subjects According to Age

Age (Years)	No. of Patients	Percentage
<20	2	6.7
20–29	16	53.3
30–39	5	16.7
40–49	6	20.0
50+	1	3.3
Total	30	100.0

The majority belonged to 20–29 years (53%), followed by 18–20 years (6.7%).

Table 2. Distribution of Subjects According to Gender

Gender	No. of Patients	Percentage
Female	27	90.0
Male	3	10.0
Total	30	100.0

Highest incidence in females (90%).

Table 3. Morphology of RBC

Morphology of RBC	No. of Patients	Percentage
Microcytic Hypochromic Anemia	15	50.0
Mild Macrocytic Blood Smear	1	3.3
Mild Microcytic Hypochromic Anemia	1	3.3
Normocytic Hypochromic Anemia	13	43.3
Total	30	100.0

50% showed Microcytic Hypochromic Anemia; 43.3% Normocytic Hypochromic Anemia.

Discussion

Discussion is the logical reasoning of observations, helping draw proper conclusions. This diagnostic study on Panduroga used samanya and vishista lakshanas, observing RBC morphology in peripheral blood smear. Majority patients aged 18–52 years, possibly due to physical strain, pre-menopausal issues, food habits, and lifestyle. 90% females, as menstruating women need more iron. Socio-economic: Upper middle class predominant (students); lack of nutrition knowledge, worms, lifestyle factors. Religion: More Hindus. Locality: Urban > rural, due to time constraints. Education: Students/housewives, from stress and poor diet. Habits: Tea/coffee intake hampers iron absorption. Sleep: Excessive daytime sleep aggravates Kapha dosha. Work: Sedentary leads to agnimandya. Diet: Vegetarians with low-calorie, junk food; non-heme iron poorly absorbed. Exercise: Minimal. Bowel: Mostly soft. Built: Poorly built/nourished prone to Panduroga. Menstrual: Irregular/heavy flow causes blood loss.

Aharaja (e.g., atilavana, masha), viharaja (diwaswapna, shrama), and manasika (chinta, krodha) nidanas contribute. These vitiate doshas, leading to agnimandya, rasa kshaya, and dhatu deficiency.

Kaphaja Pandu lakshanas predominant (e.g., gourava, alasya), due to Kapha prakopa from nidanas. Vataja (angamarda) and Pittaja (daha) also seen. Mixed types like Vata-pradhana Pittaja observed.

Majority showed microcytic hypochromic RBCs (50%), linked to Kapha-induced strotosangha and dhatukshaya. Normocytic hypochromic (43.3%) indicates partial sangha. Anisocytosis in some Kaphaja cases reflects abnormal dhatuposhana. RBCs as dhatus sustain tissues via dharana karma. Vataja/Pittaja showed mild macrocytic changes.

Conclusion

Kaphaja Pandu common due to sedentary lifestyle/irregular habits. Predominant lakshanas: Gourava (Kapha), Trishna (Pitta), Angamarda (Vata). Blood smears: Microcytic hypochromic for Kaphaja; macrocytic for others. Consider mixed types based on lakshanas. Recommend larger sample for confirmation.

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Author Contributions
Both the authors conceived the concept, wrote and approved the manuscript.

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