



Review Article

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## ROLE OF AGNI AND AHARAJA HETU IN THE MANIFESTATION OF PANDU ROGA

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### ABSTRACT

**Background** *Pandu Roga* is described in Ayurveda as a disorder characterized mainly by pallor, weakness, and reduced vitality. It is considered a *Rasa* and *Rakta Dhatu Pradoshaja Vikara* where impaired tissue nourishment plays a key role. Among the fundamental factors responsible for its manifestation, *Agni* and *Aharaja Hetu* hold prime importance. When *Jatharagni* becomes weak, improper digestion leads to the formation of *Ama*, resulting in defective formation of subsequent *Dhatu*, particularly *Rakta Dhatu*. Repeated intake of unwholesome diet further aggravates *Dosha*, ultimately manifesting as *Pandu Roga*. **Aim** To study the role of *Agni* and *Aharaja Hetu* in the manifestation of *Pandu Roga*. **Objectives** To review classical references of *Pandu Roga*. To analyze the importance of *Agni* in *Dhatu Poshana*. To evaluate various *Aharaja Hetu* mentioned in Ayurvedic texts. To understand the pathogenesis of *Pandu Roga* in relation to impaired digestion. **Materials and Methods** This conceptual review was carried out through detailed analysis of classical Ayurvedic texts

including *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya*, along with relevant commentaries. Modern medical literature on anemia was also reviewed to establish correlation. Data were compiled, analyzed, and interpreted in light of Ayurvedic principles.

**Results** The review revealed that diminished *Agni* leads to improper digestion and formation of *Ama*, which obstructs *Srotasa* and disturbs normal *Rakta Dhatu Utpatti*. Continuous exposure to *Aharaja Hetu* such as excessive intake of sour, salty, heavy, incompatible, and improperly processed food further aggravates *Pitta Dosha* and vitiates *Rakta*. This chain of events results in the classical clinical features of *Pandu Roga* including pallor, fatigue, and reduced strength. **Conclusion** The manifestation of *Pandu Roga* is closely linked with impairment of *Agni* and persistent indulgence in faulty dietary habits. Correction of *Agni* and regulation of diet play a fundamental role in both prevention and management. Understanding this relationship provides a strong foundation for addressing *Pandu Roga* through dietary regulation and digestive correction.

**Keywords** *Agni, Aharaja Hetu, Pandu Roga, Rakta Dhatu, Ama, Jatharagni*

## INTRODUCTION

*Pandu Roga* is one of the important disorders described in Ayurveda, mainly characterized by pallor of skin, eyes, nails, and mucosa along with weakness and reduced vitality. The term *Pandu* itself indicates a whitish or yellowish discoloration of the body. Acharyas have explained it under *Raktapradoshaja Vikara*<sup>1</sup>, showing that the primary disturbance lies in *Rakta Dhatu*. However, the pathology does not begin at the level of blood alone. It starts much earlier, at the level of digestion and metabolism, particularly with disturbance of *Agni*.

In Ayurveda, *Agni* is considered the root of life because it governs digestion, absorption, assimilation, and transformation of nutrients into healthy *Dhatu*. When *Jatharagni*<sup>2</sup> functions properly, food is digested efficiently and nourishes *Rasa Dhatu*, which in turn supports the formation of subsequent tissues including *Rakta Dhatu*<sup>3</sup>. But when *Agni* becomes weak or irregular, improper digestion results in the formation of *Ama*. This toxic, undigested material circulates in the body, blocks *Srotasa*<sup>4</sup>, and interferes with proper tissue formation, ultimately leading to disorders like *Pandu Roga*<sup>5</sup>.

Dietary factors, known as *Aharaja Hetu*, play a major role in disturbing *Agni*. Regular consumption of heavy, excessively sour, salty, alkaline, incompatible, or improperly

processed food weakens digestive capacity and aggravates *Pitta Dosha*<sup>6</sup>. Such faulty dietary habits not only impair digestion but also directly vitiate *Rakta Dhatu*. Over time, repeated exposure to these causative factors produces qualitative and quantitative deficiency of blood tissue, resulting in classical symptoms like pallor, fatigue, breathlessness, and reduced strength.

Therefore, the manifestation of *Pandu Roga* can be clearly understood through the interrelationship between *Agni*, *Aharaja Hetu*,<sup>7</sup> and *Dhatu Poshana*<sup>8</sup>. The disease is not merely a blood disorder but a systemic metabolic disturbance rooted in impaired digestion and improper diet. Understanding this sequence helps in focusing not only on symptomatic management but also on correction of *Agni*<sup>9</sup> and regulation of diet for effective prevention and treatment.

## **AIM AND OBJECTIVES**

### **Aim**

To study the role of *Agni* and *Aharaja Hetu* in the manifestation of *Pandu Roga*.

### **Objectives**

- To review classical references of *Pandu Roga*.
- To analyze the importance of *Agni* in *Dhatu Poshana*.
- To evaluate various *Aharaja Hetu* mentioned in Ayurvedic texts.
- To understand the pathogenesis of *Pandu Roga* in relation to impaired digestion.

## **MATERIALS AND METHODS**

This study was conducted as a conceptual literary review based on detailed analysis of classical Ayurvedic texts including *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* along with their commentaries to collect references related to *Pandu Roga*, *Agni*, and *Aharaja Hetu*. Relevant descriptions of *Nidana*, *Samprapti*, and *Dhatu Poshana* were systematically compiled and analyzed. Modern medical literature concerning anemia, digestion, and nutritional metabolism was also reviewed to establish conceptual correlation. The collected data were critically evaluated and interpreted to understand the sequential relationship between impairment of *Agni*, faulty dietary habits, and the manifestation of *Pandu Roga*.

## CONCEPTUAL STUDY

### **PANDU ROGA**

#### **Nirukti**

The word *Pandu* refers to pale, whitish, or yellowish discoloration of the body. In Ayurveda, *Pandu Roga* is a clinical condition in which the skin, eyes, nails, and face lose their natural glow and appear pale. The disease is not limited to change in complexion but reflects deeper disturbance in *Rasa* and *Rakta Dhatu*<sup>10</sup>. It represents a systemic disorder affecting strength, digestion, and vitality.

#### **Nidana of Pandu Roga**

The causative factors include mainly *Aharaja Hetu* such as excessive intake of sour, salty, alkaline, heavy, incompatible, and unwholesome food. Improper dietary habits disturb *Agni* and aggravate *Pitta Dosha*. Apart from diet, excessive physical exertion, stress, suppression of natural urges, and chronic illness may also contribute. Continuous exposure to these factors initiates pathological changes leading to *Pandu*<sup>11</sup>.

#### **Samprapti of Pandu Roga**

The pathogenesis begins with impairment of *Agni*, leading to formation of *Ama*. This disturbs *Rasa Dhatu* formation and vitiates *Pitta Dosha*. Aggravated *Pitta* along with vitiated *Vata*<sup>12</sup> circulates through the body and localizes in the heart and blood channels. Gradually, it affects *Rakta Dhatu*, producing qualitative and quantitative deficiency. Obstruction in *Srotasa* further hampers nourishment. As a result, pallor, weakness, and other classical features appear.

#### **Lakshana of Pandu Roga**

The prominent symptom is pallor of skin, nails, eyes, and mucosa. Other features include fatigue, breathlessness on exertion, reduced appetite, dizziness, body ache, and weakness. Some patients may experience edema, burning sensation, or dryness depending on associated *Dosha*.<sup>12</sup> The overall appearance reflects loss of vitality and diminished tissue strength.

#### **Bheda of Pandu Roga**

Ayurveda describes different types based on predominant *Dosha*.

- *Vataja Pandu*

- *Pittaja Pandu*
- *Kaphaja Pandu*
- *Sannipataja Pandu*
- *Mridbhakshana Janya Pandu*

Each type presents specific variations in symptoms according to the dominant *Dosha*.

### **Dhatu Involvement in *Pandu Roga***

Primarily *Rasa* and *Rakta Dhatu*<sup>13</sup> are affected. Due to defective nourishment, the quality of blood becomes impaired. If the condition persists, subsequent tissues may also suffer depletion. Thus, *Pandu Roga* is not merely a disorder of blood but a metabolic disturbance rooted in impaired digestion and faulty diet.

### **Modern Correlation**

*Pandu Roga* can be broadly correlated with anemia in modern medicine, where there is reduction in hemoglobin or red blood cells leading to pallor and weakness. However, Ayurveda explains it more comprehensively by linking digestive impairment, tissue metabolism, and systemic imbalance as the root cause. *Pandu Roga* is a multifactorial disorder arising mainly from disturbed *Agni* and faulty diet, leading to impaired formation of *Rakta Dhatu* and manifesting as pallor and generalized weakness.

## **AGNI**

### **Definition**

In Ayurveda, *Agni*<sup>14</sup> is the principle responsible for all kinds of transformation inside the body. It is not only the digestive fire in the stomach but the metabolic power present at every cellular level. Acharyas have clearly mentioned that balanced *Agni* maintains life, complexion, strength, enthusiasm, and immunity. When *Agni* functions properly, food gets converted into usable nutrients, and tissues remain healthy. When it becomes disturbed, the entire process of nourishment gets affected. Therefore, *Agni* is considered the root of both health and disease. In the context of *Pandu Roga*, disturbance of *Agni* is the starting point of pathology because improper digestion directly influences the quality of *Rakta Dhatu*.

### **Types of *Agni* and Their Functional Role**

- Ayurveda describes thirteen types of *Agni*. These include one *Jatharagni*,<sup>15</sup> five *Bhutagni*, and seven *Dhatwagni*.

- *Jatharagni* is the main digestive fire located in the gastrointestinal tract. It performs primary digestion and separates the essence from waste. It determines whether food will be properly transformed into nutritive fluid or not. If *Jatharagni* is strong, digestion remains complete and smooth.
- *Bhutagni* acts at a subtle level. After primary digestion, the five elemental components of food are further processed by their respective *Bhutagni*<sup>16</sup> to make them suitable for tissue formation.
- *Dhatwagni* functions at the tissue level. Each *Dhatu* has its own metabolic fire responsible for converting nutrients into that specific tissue. For example, *Rakta Dhatwagni*<sup>17</sup> converts nutrients into healthy blood tissue. If *Dhatwagni* becomes weak, qualitative and quantitative defects arise in that tissue. Thus, all levels of *Agni* work together in a coordinated manner to maintain proper *Dhatu Poshana*.

### States of *Agni* and Their Clinical Significance

- Ayurveda explains four functional states of *Agni*: *Samagni*,<sup>18</sup> *Mandagni*<sup>19</sup>, *Tikshnagni*<sup>20</sup>, and *Vishamagni*<sup>21</sup>.
- *Samagni* is the balanced state where digestion, absorption, and metabolism occur normally. In this state, tissues receive proper nourishment and health is maintained.
- *Mandagni* refers to diminished digestive power. Food digestion becomes slow and incomplete. This leads to heaviness, lethargy, poor appetite, and formation of *Ama*. In *Pandu Roga*, *Mandagni* plays a major role because improper digestion results in poor quality of nutrient essence.
- *Tikshnagni* represents excessive digestive fire, often associated with aggravated *Pitta*. Though digestion appears strong, rapid burning of nutrients may lead to tissue depletion.
- *Vishamagni* is irregular digestion, commonly associated with *Vata*. Sometimes digestion is strong, sometimes weak. This irregularity disturbs tissue nourishment.
- Among these, *Mandagni* is most relevant in the manifestation of *Pandu Roga*.

### Role of *Agni* in *Dhatu Poshana*

- The concept of *Dhatu Poshana*<sup>22</sup> explains how nutrients circulate and nourish tissues sequentially. Properly digested food forms *Ahara Rasa*, which nourishes *Rasa Dhatu*. From *Rasa*, nourishment proceeds to *Rakta Dhatu*, then to subsequent tissues.

- If *Agni* is impaired, the first nutritive product itself becomes defective. When *Rasa Dhatu* is of poor quality, *Rakta Dhatu* formation becomes insufficient. This leads to reduced hemoglobin-like function, decreased vitality, and pallor. Thus, impaired *Agni* indirectly but strongly contributes to defective blood formation.
- Without correction of *Agni*, even good diet or medicines cannot properly nourish tissues because transformation remains faulty.

### **Formation of *Ama* Due to Impaired *Agni***

- When digestion is incomplete due to weak *Agni*, improperly processed food remains in the body in a toxic, sticky form known as *Ama*. *Ama* blocks *Srotasa* and interferes with nutrient transport. It also vitiates *Dosha*, especially *Pitta*, which has a close relationship with blood tissue.
- In *Pandu Roga*, accumulation of *Ama* leads to obstruction at the level of *Rasa* and *Rakta Dhatu*. This obstruction results in poor oxygenation-like features such as weakness, fatigue, and discoloration. Continuous presence of *Ama* further weakens metabolic fire, creating a vicious cycle.

### **Relationship Between *Agni*, *Pitta*, and *Rakta***

- There is a close physiological relationship between *Agni*, *Pitta Dosha*, and *Rakta Dhatu*. *Pitta* is responsible for metabolic and transformational activities in the body, and its normal functioning depends on balanced *Agni*. When diet aggravates *Pitta*, it may initially increase digestive fire but later lead to tissue damage.
- In *Pandu Roga*, aggravated *Pitta* along with weak *Agni* disturbs the quality of *Rakta Dhatu*. Excess heat may cause qualitative deterioration, while weak transformation causes quantitative deficiency. This combined disturbance results in pallor and systemic weakness.

### **Importance of Correcting *Agni* in *Pandu Roga***

- Since *Agni* is the root of tissue formation, its correction becomes the first step in management. Strengthening *Jatharagni*, removing *Ama*, and restoring balanced metabolism help in proper formation of *Rakta Dhatu*. Dietary regulation, use of *Deepana* and *Pachana* substances, and avoidance of causative factors support normalization of digestive fire.

- Thus, from conceptual understanding, it becomes clear that *Agni* is not merely a digestive factor but the fundamental metabolic principle. In *Pandu Roga*, impairment of *Agni* initiates the chain of pathological events leading to defective blood formation and systemic symptoms. Proper understanding of this concept forms the foundation for both preventive and therapeutic strategies.

## **AHARAJA HETU**

### **Concept of Aharaja Hetu**

In Ayurveda, *Ahara* is considered the primary sustaining factor of life. When taken properly according to *Agni*, *Desha*, *Kala*, and individual constitution, it nourishes all *Dhatu*. But when diet is improper in quality, quantity, combination, or timing, it becomes a causative factor of disease. Such dietary causes are termed as *Aharaja Hetu*<sup>23</sup>. In *Pandu Roga*, faulty dietary habits directly disturb *Agni*, vitiate *Pitta*, and impair formation of healthy *Rakta Dhatu*.

### **Excess Intake of Amla and Lavana Rasa**

Regular consumption of excessively sour (*Amla*) and salty (*Lavana*) foods aggravates *Pitta Dosh*. Since *Pitta* has close association with *Rakta Dhatu*, its aggravation leads to qualitative defects in blood tissue. Over time, this results in discoloration, burning sensation, weakness, and classical features of *Pandu*. Continuous intake of fermented, pickled, and highly salted food weakens digestive balance and disturbs metabolic harmony.

### **Intake of Guru and Abhishyandi Ahara**

Heavy (*Guru*) and channel-blocking (*Abhishyandi*) foods such as excessive dairy, oily, fried, and dense preparations impair *Jatharagni*. Weak digestion leads to incomplete transformation of food and formation of *Ama*. This obstructs *Srotasa* and hampers proper nourishment of *Rasa* and *Rakta Dhatu*. Gradually, nutritional deficiency-like features develop, contributing to pallor and fatigue.

### **Habitual Use of Viruddha Ahara**

Incompatible food combinations known as *Viruddha Ahara* disturb both *Agni* and *Dosha*. Examples include improper mixing of milk with sour or salty substances, reheated food, or contradictory dietary habits. Such combinations produce metabolic toxins and vitiate *Pitta* and *Rakta*<sup>24</sup>. Repeated indulgence weakens tissue metabolism and predisposes the individual to *Pandu Roga*.

### **Deficient and Inadequate Diet**

Insufficient intake of wholesome, nutritious food also acts as an important *Aharaja Hetu*. When diet lacks essential nourishment, *Rasa Dhatu* becomes weak, and subsequent tissues including *Rakta Dhatu* suffer deficiency. Prolonged intake of poor-quality or low-nutrient food leads to gradual depletion of strength and vitality, manifesting as pallor and generalized weakness.

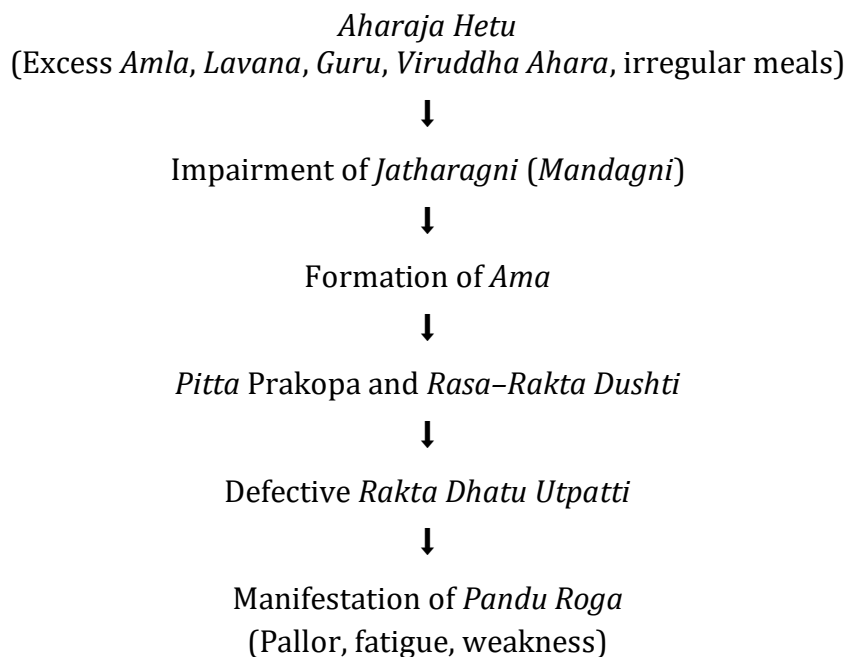
### **Irregular Eating Habits**

Eating at improper times, overeating, fasting excessively, or eating before the previous meal is digested disturbs the rhythm of *Agni*. Such irregular patterns produce *Mandagni* or *Vishmagni*, leading to improper digestion and poor tissue nourishment. Over time, this contributes to defective blood formation and features of *Pandu*.

### **Pathogenetic Link Between *Aharaja Hetu* and *Pandu Roga***

The sequence begins with faulty diet disturbing *Agni*. Impaired digestion produces *Ama* and vitiates *Pitta*. Disturbed *Pitta* affects *Rakta Dhatu* formation and quality. Simultaneously, obstruction of *Srotasa* interferes with nutrient circulation. This combined effect results in pallor, weakness, reduced strength, and other classical symptoms of *Pandu Roga*. Thus, *Aharaja Hetu* play a central role in the manifestation of *Pandu Roga*. Proper dietary regulation and correction of digestive impairment are essential for both prevention and effective management.

#### **Role of *Agni* and *Aharaja Hetu* in *Pandu Roga***



## RESULTS AND FINDINGS

- Impairment of *Jatharagni* was identified as the primary initiating factor in the manifestation of *Pandu Roga*.
- Repeated exposure to *Aharaja Hetu* such as excessive intake of *Amla*, *Lavana*, *Guru*, and *Viruddha Ahara* showed a direct relationship with disturbance of digestive fire.
- Weak *Agni* led to formation of *Ama*, which caused obstruction of *Srotasa* and impaired nutrient circulation.
- Vitiating of *Pitta Dosha* was found to have a strong association with qualitative defects in *Rakta Dhatu*.
- Defective transformation of *Rasa Dhatu* resulted in inadequate nourishment of *Rakta Dhatu*, leading to pallor and reduced vitality.
- The sequence from impaired digestion to tissue depletion confirmed that *Pandu Roga* is a metabolic disorder rather than a localized blood disease.
- Clinical features such as pallor, fatigue, weakness, and breathlessness were consistent with the described disturbance in *Agni* and *Dhatu Poshana*.
- Correction of *Agni* and regulation of diet were found to be fundamental principles for prevention and management of *Pandu Roga*.

## DISCUSSION

*Pandu Roga* is not merely a disorder of pallor but a reflection of deeper metabolic imbalance rooted in disturbed *Agni*. The conceptual analysis clearly shows that the pathology begins at the level of digestion. When *Jatharagni* becomes weak due to faulty dietary habits, proper transformation of food does not occur. As a result, the primary nutritive essence formed is of poor quality. Since every *Dhatu* depends upon the proper formation of the previous one, any defect at the beginning of this chain affects subsequent tissues, especially *Rakta Dhatu*.<sup>25</sup>

The role of *Aharaja Hetu* becomes central in this discussion. Continuous consumption of heavy, sour, salty, incompatible, or nutritionally deficient food directly weakens digestive power and aggravates *Pitta Dosha*. *Pitta* has a close physiological relationship with blood tissue, and its vitiation leads to qualitative deterioration of *Rakta*. In addition, formation of *Ama* due to incomplete digestion blocks microchannels and hampers proper circulation of nutrients. This dual effect of poor production and poor distribution ultimately results in pallor and systemic weakness.<sup>26</sup>

From a metabolic perspective, the disturbance of *Agni* explains both qualitative and quantitative deficiency of blood tissue. Weak transformation at the level of *Rasa* leads to inadequate nourishment of *Rakta*, producing signs comparable to anemia. The classical symptoms such as loss of complexion, fatigue, breathlessness, and reduced strength support

this understanding. Thus, *Pandu Roga* can be viewed as a systemic metabolic disorder where impaired digestion and dietary errors play a major etiological role.<sup>27</sup>

Therefore, management should not focus only on symptomatic correction but must aim at restoring *Agni* and regulating diet. Strengthening digestive fire, removing *Ama*, and avoiding causative dietary factors are essential steps in breaking the pathogenic chain. Understanding the interconnected role of *Agni* and *Aharaja Hetu* provides a clear conceptual framework for both prevention and treatment of *Pandu Roga*.<sup>28</sup>

## CONCLUSION

The manifestation of *Pandu Roga* is closely linked to impairment of *Agni* and persistent indulgence in faulty dietary habits described as *Aharaja Hetu*. Disturbance of *Jatharagni* leads to formation of *Ama*, vitiation of *Pitta*, and defective nourishment of *Rasa* and *Rakta Dhatu*, resulting in pallor, weakness, and reduced vitality. Thus, *Pandu Roga* should be understood as a metabolic disorder originating from digestive dysfunction rather than merely a blood deficiency. Correction of *Agni* and proper regulation of diet remain the fundamental principles for its prevention and effective management.

## CONFLICT OF INTEREST -NIL

## SOURCE OF SUPPORT -NONE

## REFERENCES

1. Agnivesha. *Charaka Samhita*. Revised by Charaka and Dridhabala. Nidana Sthana, Pandu Nidana Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
2. Agnivesha. *Charaka Samhita*. Sutra Sthana, Grahani Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
3. Agnivesha. *Charaka Samhita*. Chikitsa Sthana, Pandu Chikitsa Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
4. Agnivesha. *Charaka Samhita*. Sutra Sthana, Srotovimana Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
5. Sushruta. *Sushruta Samhita*. Uttara Tantra, Pandu Roga Pratishedha. In: Shastri AD, editor. Varanasi: Chaukhamba Sanskrit Sansthan; Reprint 2018.
6. Vagbhata. *Ashtanga Hridaya*. Nidana Sthana, Pandu Nidana. In: Murthy KRS, editor. Varanasi: Chaukhamba Krishnadas Academy; Reprint 2017.
7. Vagbhata. *Ashtanga Hridaya*. Sutra Sthana, Doshabhediya Adhyaya. In: Murthy KRS, editor. Varanasi: Chaukhamba Krishnadas Academy; Reprint 2017.
8. Agnivesha. *Charaka Samhita*. Sutra Sthana, Annapanavidhi Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
9. Agnivesha. *Charaka Samhita*. Sutra Sthana, Agnivesha Pratipatti Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.

10. Sushruta. *Sushruta Samhita*. Sutra Sthana, Doshadhatu Mala Vijnaniya Adhyaya. In: Shastri AD, editor. Varanasi: Chaukhamba Sanskrit Sansthan; Reprint 2018.
11. Agnivesha. *Charaka Samhita*. Nidana Sthana, Pandu Nidana. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
12. Vagbhata. *Ashtanga Hridaya*. Nidana Sthana, Doshaja Vikara. In: Murthy KRS, editor. Varanasi: Chaukhamba Krishnadas Academy; Reprint 2017.
13. Agnivesha. *Charaka Samhita*. Sutra Sthana, Dhatu Pradoshaja Vikara Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
14. Agnivesha. *Charaka Samhita*. Sutra Sthana, Agni Vijnana. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
15. Sushruta. *Sushruta Samhita*. Sutra Sthana, Agni Visheshha Vijnana. In: Shastri AD, editor. Varanasi: Chaukhamba Sanskrit Sansthan; Reprint 2018.
16. Vagbhata. *Ashtanga Hridaya*. Sutra Sthana, Agni Bheda. In: Murthy KRS, editor. Varanasi: Chaukhamba Krishnadas Academy; Reprint 2017.
17. Agnivesha. *Charaka Samhita*. Chikitsa Sthana, Raktapitta Chikitsa. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
18. Agnivesha. *Charaka Samhita*. Sutra Sthana, Trividha Kukshi Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
19. Sushruta. *Sushruta Samhita*. Sutra Sthana, Mandagni Lakshana. In: Shastri AD, editor. Varanasi: Chaukhamba Sanskrit Sansthan; Reprint 2018.
20. Vagbhata. *Ashtanga Hridaya*. Sutra Sthana, Tikshnagni Varnana. In: Murthy KRS, editor. Varanasi: Chaukhamba Krishnadas Academy; Reprint 2017.
21. Vagbhata. *Ashtanga Hridaya*. Sutra Sthana, Vishamagni Varnana. In: Murthy KRS, editor. Varanasi: Chaukhamba Krishnadas Academy; Reprint 2017.
22. Agnivesha. *Charaka Samhita*. Sutra Sthana, Dhatu Poshana Nyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
23. Agnivesha. *Charaka Samhita*. Sutra Sthana, Ahara Vidhi Vidhana Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
24. Agnivesha. *Charaka Samhita*. Sutra Sthana, Viruddha Ahara Adhyaya. In: Shastri RD, editor. Varanasi: Chaukhamba Bharati Academy; Reprint 2019.
25. Kumar V, Abbas AK, Aster JC. *Robbins and Cotran Pathologic Basis of Disease*. 10th ed. Philadelphia: Elsevier; 2021.
26. Guyton AC, Hall JE. *Textbook of Medical Physiology*. 14th ed. Philadelphia: Elsevier; 2021.
27. World Health Organization. Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity. Geneva: WHO; 2011.
28. Hoffbrand AV, Moss PAH. *Essential Haematology*. 7th ed. Oxford: Wiley-Blackwell; 2016.