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THE RIPPLE EFFECT OF PANDU ROGA ON THE BODY'S VITAL CHANNELS: AN AYURVEDIC PERSPECTIVE

Joshi Sonal Ram[1]*, Avadhesh Kumar[2] and Anubha Srivastava[3]

[1]JR-2, PG Department of Roga Nidan Evum Vikriti Vigyan, Government Ayuveda College and Hospital, Varanasi.
[2]Profrssor and Head, PG Department of Roga Nidan Evum Vikriti Vigyan, Government Ayuveda College and Hospital, Varanasi.
[3]Assistant Professor Department of Rachana Sharir, Government Ayuveda College and Hospital, Varanasi.

***Corresponding Author: Dr. Joshi Sonal Ram**

JR-2, PG Department of Roga Nidan Evum Vikriti Vigyan, Government Ayuveda College and Hospital, Varanasi.

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ABSTRACT

Pandu Roga affects practically all *Srotas* in addition to blood, much like anemia does. Weakness and pallor are the initial symptoms caused by *Rasavaha* and *Raktavaha Srotas*. *Mamsavaha, Medovaha, Asthivaha, Majjavaha* and *Shukravaha Srotas* are gradually disrupted, resulting in decreased fertility, poor memory, muscle loss, weak bones and fat.*Manovaha Srotas* are also implicated, leading to poor focus, low mood, and mental exhaustion. Additional channels that are impacted include *Annavaha, Mutravaha, Purishavaha, Swedavaha,* and *Pranavaha Srotas*. These can cause bowel and urine changes, digestive problems, sweating problems, and dyspnea.Therefore, *Pandu Roga* requires holistic *Ayurvedic* therapy because it causes multi-*Srotas Dushti*, which affects the body and mind.

KEYWORDS: *Pandu Roga, Srotas Dushti, Dhatu Kshaya, Agnimandya, Sharirika and Manasika Vyadhi, Srotoshodhana, Dhatu Poshana.*

INTRODUCTION

निरुक्ति : "पाण्डुः" – पा (पोषण/व्याप्ति) + णु = यः गौरवर्णतया शरीरं व्याप्नोति।

"रोगः" – रुज्यते अनेन इति रोगः।

"स्रोतांसि" – स्रवणशीलानि मार्गाणि।

चरक संहिता, सूत्रस्थान 30/12

परिभाषा:

पाण्डुरोगः पित्तप्रधानः, रस–रक्तक्षयजन्यः, अग्निमान्द्ययुक्तः व्याधिः अस्ति।

एषः रोगः केवलं रक्तविकारः न, अपि तु रसवहात् मनोवहपर्यन्तं सर्वस्रोतसां दूषणम् करोति।

चरक संहिता चि. 16, अष्टाङ्गहृदयम् सू.[11]

Anemia affects several organ systems and is characterized by low hemoglobin or red blood cells. Health according to *Ayurveda* depends on *srotas* that are balanced and free of obstructions that carry *Dosha, dhatus and mala. Pandu Roga,* which results from the *dusti* of these *Srotas* particularly *Rasavaha* and *Raktavaha* causes systemic degeneration because of inadequate tissue nourishment.

रसे क्षीणे ह्यधः सर्वं शुष्यते नैव पुष्यति।

1. Effect of *rasavaha srotas* in development of *samprapti* in *pandu roga*

Pandu roga* as a *rasavaha srotas dushti

As *Agni Mandya* weakens the formation of *Rasa Dhatu*, *Pandu Roga* results from inadequate support for *Rakta Dhatu*, which is reflected in *Rasavaha Srotas Dushti*, particularly iron-deficiency and nutritional types.

तस्मात् सर्वाधिको रसो धातूनां पोषणं स्मृतः॥
चरक संहिता, चि.स्थान १६/९

Samprapti

ततो दूष्यो रसं पश्यन्पर्येति पुरुषोऽल्पधीः।
रक्तं दूष्यति तस्माच्च पाण्डुरोगोऽस्य जायते॥
चरक संहिता, चि.स्थान १६/६
रसदुष्टि → रक्तक्षय → पाण्डुरोग

Rasavaha Srotas plays a crucial role in anemia and if left untreated, vitiated *Rasa* causes *Rakta* vitiation, which results in *Pandu Roga.* Pitta predominance, particularly *Ranjaka Pitta*, hinders the formation of *Rakta; Vata* agitation results in *Shoshana* of *Rasa* and *Kapha* obstruction impedes the proper circulation of *Rasa.*

Modern correlation of these symptoms

Rasavaha srotas dushti lakshana	**Modern equivalent symptom**	**Pathophysiological basis**
Aruchi	Anorexia	Cytokine-mediated appetite suppression in chronic disease anemia
Daurbalya	Generalized weakness	Reduced oxygen delivery to tissues
Shrama	Fatigue	Low ATP production in hypoxic muscle cells
Gatra sadana	Muscular tiredness	Hypoxia-induced metabolic slowdown in myocytes
Mukhshosha	Dry mouth	Dehydration and autonomic imbalance
Klama	Lethargy	Mitochondrial dysfunction due to chronic anemia
Alpa bala	Poor exercise tolerance	Decreased hemoglobin and cardiac output
Twak vaivarnya	Pallor	Reduced hemoglobin under skin capillaries
Shabda asahishnuta	Auditory hypersensitivity	Iron-deficiency impacting neurotransmitter function
Aruchi	Anorexia	Cytokine-mediated appetite suppression in chronic disease anemia

Systemic effects of *rasavaha srotas dushti* due to pandu roga

Rasavaha Srotas dushti, which is characterized by impaired *Rasa Dhatu* formation and flow, is the main manifestation of anemia. This results in symptoms like dry skin, low immunity, poor digestion, tachycardia and brain fog. Modern pallor and exhaustion are correlated with *Ayurvedic* symptoms such as *Daurbalya* and *Twak Vaivarnya*. With holistic therapies like *Agni-Pachana*, *Srotoshodhana*, and *Rasayana* therapies, anemia's systemic effects can be addressed when viewed through the lens of *Rasavaha Srotas.*

2. **Effect of *raktvaha srotas* in development of *samprapti* in *pandu roga***

Systemic effects of pandu roga through the lens of *raktavaha srotas dushti*

Ayurvedic symptom	**Modern equivalent**	**Explanation**
Twak vaivarnya	Skin pallor	Reduced hemoglobin impairs oxygenation and skin tone
Daha	Palmar/plantar burning (esp. B12 def.)	Pitta-aggravation and nerve dysfunction due to megaloblastic anemia
Bhrama	Dizziness, lightheadedness	Due to reduced cerebral oxygen delivery
Raktasrava	Menorrhagia, epistaxis, GI bleeding	Platelet dysfunction or coagulopathies in anemia
Daurbalya and Shrama	Generalized weakness, muscle fatigue	Poor oxygen supply to muscles and tissues
Mukhapaka	Glossitis, oral ulcers (esp. iron/B12 deficiency)	Poor tissue regeneration due to low rakta dhatu

Role of *doshas* in *raktavaha srotas dushti* (Specific to Anemia)

Dosha	**Action**
Pitta	Vitiated *Pitta* burns and depletes *Rakta*, leading to *Daha, Twak Vaivarnya*
Vata	*Vyana Vata* contributes to circulation but, when disturbed, causes *Bhrama, Shrama*
Kapha	If aggravated, it may cause *Sanga* , reducing *Rakta* movement

रक्तदुष्टे स्यात्पाण्डु: कामला अर्शोऽतिसारक:।
वातरक्तं विसर्पश्च रक्तपित्तं तथैव च॥
चरक संहिता, सूत्रस्थान २४/११

Srotas Dushti, Dosha imbalance, and *Dhatukshaya* provide a thorough and focused *Ayurvedic* approach to anemia. Anemia is not only defined as low hemoglobin, according to *Ayurveda*, but also as a malfunction of *Raktavaha Srotas*, in which the depletion of *Rakta Dhatu* affects several organs and results in symptoms like pallor, exhaustion, burning, lightheadedness, and bleeding.

3. Effect of pandu roga on *mansavaha srotas*

Ayurvedic* pathophysiology: How pandu roga affects *mansavaha srotas

Rasavaha-Raktavaha Srotas, Agnimandya and *Dushti* are the primary causes of *Pandu Roga*, which in turn causes *Rakta Kshaya*. *Mansa* underdevelopment results from impaired *Rakta* formation because *Mansa Dhatu* is dependent on *Rakta*. *Kapha-Rakta Dushti* and blocked *Srotas* further impair muscle tone and formation. Tissue flabbiness brought on by *Mansvaha Srotas* involvement causes tremors, weakness, emaciation, and a lack of muscle endurance.

Lakshanas* in anemia related to *mansavaha srotas

Mansa shosha (Muscle wasting), *Gatra saithilya* (Flaccidity), *Shrama* (Fatigue), *Daurbalya* (Weakness), *Spandana* (Muscle twitching) and *Mamsa kshaya* (Muscle loss) are examples of *Ayurvedic* signs that correlate to contemporary clinical features like weight loss in chronic anemia, muscle atrophy, reduced muscle tone, easy fatigue, weak grip and fasciculations. Poor dhatu nutrition, insufficient oxygen and protein delivery, electrolyte imbalance, cellular hypoxia and chronic catabolism are the causes of these.

Modern Clinical Conditions Reflecting *Mansavaha Srotas Dushti* in *Pandu Roga*

Sarcopenia (Muscle loss and weakness) is caused by iron-deficiency anemia, neuromuscular problems are caused by megaloblastic anemia, muscle fatigue and wasting are caused by chronic disease anemia, which is also observed in cachexia from diseases like TB or cancer. Anemia causes weakness and dhatu kshaya by compromising the muscles' ability to receive nutrients and oxygen, which upsets *Mansavaha Srotas.* Modern diagnostics and an understanding of *Srotas Dushti* and *Dosha-Dhatu* interactions allow for early treatment and successful muscle health restoration.

4. Medovaha Srotas and Its relevance in *pandu roga*

मेदः पूर्तिक्रम – पाण्डु में सम्बंध
रसात् रक्तं ततः मांसं
मांसान्मेदः... ||
चरक संहिता, चि.स्थान १५/१७

Rasa, Rakta, Mansa and *Meda* Dhatus gradually diminish in chronic anemia, resulting in symptoms such as emaciation, dryness, exhaustion and loss of fat reserves. These symptoms are similar to the malnourishment and exhaustion associated with iron or B12 deficiency. In *Ayurveda,* poor *Rasa* formation from *Agni Mandya* hinders nourishment through *Rasa* to *Rakta* to *Mansa* and finally *Meda Dhatu.* As a result, *Meda Kshaya* can show up as laxity (*Shaithilya*), obesity with *Ama (Sthoulya)* or thinness *(Karshya).* In certain cases of anemia, weakness and decreased mobility can also result from *Meda's* obstruction *(Avarana)* of *Vata.*

Modern correlation: Effects of Anemia on Adipose and Fat Metabolism

In contemporary medicine, lipid metabolism and energy balance are impacted by chronic anemia, particularly iron-deficiency or megaloblastic forms. This results in poor insulation or hypothermia *(Meda-Kleda Dushti),* fatigue *(Shaithilya, Agni Mandya),* muscle wasting and weakness *(Mansa-Meda Kshaya),* loss of subcutaneous fat *(Meda Kshaya),* and occasionally adrenal dysfunction *(Vrikka Sthana Dushti).* Modified lipid profiles are indicative of impaired *Dhatu Agni* and *Meda Dushti* brought on by *Ama*. Research demonstrating the effects of iron deficiency on fat formation and adipocyte function is consistent with the *Ayurvedic* understanding of disturbed *Meda* metabolism.

Clinical Observations

Meda Dhatu Kshaya is brought on by chronic anemia and manifests as flaccid muscles, poor skin tone, and fat loss. *Ama*-related *Meda Dushti*, which manifests as fever, lightheadedness, and exhaustion, can be seen in inflammatory anemias. Depletion of *Meda Dhatu* has a major effect on *Medovaha Srotas*, resulting in symptoms like *Karshya, Shaithilya* and *Daurbalya,* which correspond with contemporary indicators of exhaustion and weight loss. A comprehensive diagnosis and individualized, successful therapy for chronic anemia are supported by an understanding of *Medovaha Srotas Dushti.*

5. Effect of pandu roga on *asthivaha srotas*

When *Rasa-Rakta dhatu* is depleted, *Pandu Roga* starts, upsetting *Dhatu Parinama* and influencing subsequent tissues. *Asthivaha Srotas Dushti*, which causes bone weakness, is caused by chronic anemia because *Asthi Dhatu* is the fifth in the sequence *(Rasa → Rakta → Mamsa → Meda → Asthi)*. Bone brittleness or degeneration and poor nutrition flow are the results of this cascade's impairment of *Asthi Dhatu Agni.*

Modern correlation of *asthivaha srotas* dysfunction in *pandu roga*

रक्ते क्षीणेऽस्थि मारुतश्च व्यथते॥
सुश्रुत संहिता, सूत्रस्थान १४/१४

Bone-related problems like *Asthi Shosha* (Osteopenia, osteoporosis), *Danta Bhanga* (Weak teeth, enamel defects), *Sandhi Shoola* (Bone pain in severe anemia), *Kesha Loma Nakha* (Hair thinning), *Majja Kshaya* (Bone marrow failure) and *Shithila Sandhi* (Ligament laxity in malnutrition) are brought on by chronic anemia, particularly in iron deficiency, megaloblastic anemia and marrow failure.

Pathophysiology of bone weakness in anemia (Modern view)

Reduced bone density results from impaired collagen and bone matrix production caused by iron deficiency. Children who are deficient in folate and vitamin B12 experience bone pain and marrow expansion as a result of the disruption of bone marrow DNA synthesis. Secondary osteoporosis is a result of chronic disease anemia's impact on bone metabolism through inflammatory cytokines. Bone abnormalities, particularly in the long and facial bones, are caused by bone marrow hyperplasia, which is present in thalassemia and chronic hemolytic anemias.

6. Effect of *pandu roga* on *majjavaha srotas*

In *Majjavaha Srotas*, the pathophysiology of anemia starts with *Agnimandya*, which impairs *Rasa Dhatu* and ultimately results in *Rakta Dhatu Kshaya*. *Majja Dhatu* is subsequently impacted, leading to inadequate nourishment and *Majjavaha Srotas Dushti. Vata dominance,* which rapidly deteriorates in *Dhatu* depletion, is the primary *Doshic* involvement. *Rakta Kshaya* causes *Pitta* to rise, which results in burning feelings and disorientation, while *Kapha* decrease causes dryness and mental apathy.

Modern Correlation: How Anemia Affects Nervous System and Bone Marrow

Neurological Manifestations *(Majjavaha Srotas* - Nerves & Brain)

Ayurvedic symptoms such as *Anga Shunyata* in anemia are indicative of peripheral neuropathy, which is brought on by a B12 deficiency and results in nerve damage. Due to brain hypoxia and neurodegeneration, *Smritibhramsha* represents memory loss and cognitive decline. Due to a decreased oxygen supply to the brain, symptoms like dizziness, fainting, and exhaustion are common in *Bhrama* and *Murchha. Moha* identifies reduced cerebral perfusion in iron-deficiency anemia as a cause of disorientation and inattention. Overall, Daurbalya is a representation of general neuromuscular weakness brought on by hypoxic energy deficits in the muscles and nerves.

Bone Marrow Involvement (*Majja* - Marrow Tissue)

In *Ayurveda, Majja Dhatu Kshaya* is equivalent to hypoplastic or aplastic anemia in contemporary medicine, which occurs when the bone marrow is unable to produce enough blood cells. *Dhatu Agni Mandya* makes this condition worse by impairing metabolic activity, which results in ineffective hematopoiesis because nutritional deficiencies prevent appropriate cell maturation. Similar to osteoporosis, *Snigdhata Hani,* or loss of natural lubrication and nourishment, also shows up as dry joints and bone fragility, which are indicative of weakened bone marrow and *Meda* tissues.

Conditions where *majjavaha srotas* is involved in pandu roga

Because of its function in the formation of myelin sheaths and the health of the spinal cord, pernicious anemia (B12 deficiency) manifests as *Ayurvedic* symptoms such as *Moha, Anga Shunyata, Smritibhramsha* and *Daurbalya. Bhrama, Murchha, Smriti daurbalya,* and *Moha* are brought on by iron deficiency anemia because it lowers brain oxygenation, which results in exhaustion and cognitive problems. *Majja Dhatu Kshaya* and *Majjavaha Srotorodha* are associated with aplastic anemia, which results in pancytopenia and a higher risk of infection due to marrow failure. *Majjavaha Srotas* suffers greatly from anemia due to *Rasa-Rakta* depletion and marrow suppression. By balancing *dhatus* and removing srotas blockages, a customized *Ayurvedic* therapy that restores neurological and hematological health is made possible by acknowledging these correlations.

7. **Effect of pandu roga on *shukravaha srotas***

रसेन जीवनं रक्तं मांसं मेदोऽस्थि मज्जाश्च शुक्रम् ।
शुक्रेण गर्भः – सप्तधातुक्रमेणोत्पत्तिः ॥

Ashtanga Hridaya, Sutra Sthana 11/1

Shukra, the last essence facilitating reproduction, is the seventh dhatus to form in succession. The quantity and strength of *Shukra Kshaya* are diminished when earlier *dhatus* are depleted. *Agni Mandya* blocks *Srotas*, including *Shukravaha Srotas*, by causing *Ama* formation. The inability of weak upstream *Dhatus* and *Srotorodha* to nourish the *Shukra* leads to infertility, low sperm count, early ejaculation and a decrease in sexual drive. Fatigue, mental weakness, fear and a loss of sexual desire are all symptoms of chronic anemia, which depletes *Ojas*, which is derived from *Shukra*. This demonstrates the close connection between vitality, reproductive health and *Shukra*.

शुक्रं त्वन्यदोजःस्थानं तत्राप्यभिव्यक्तलक्षणं,
तदव्यापन्नं च क्लैब्यमनुत्थानं च जनयेत्।

Charaka Samhita, Sutra Sthana 17/74

***Ayurvedic lakshanas* of *shukravaha srotas dushti* in pandu roga**

Impotence *(Klaibya*) brought on by *Dhatu* depletion, decreased sperm count and volume of semen (*Shukra Alpata*) and foul-smelling semen (*Shukra Durgandha*) as a result of ama are all signs of *Shukra* dysfunction. Incapacity to enjoy sexual activity (*Maithuna Asahishnuta)* and complete loss of reproductive ability *(Shukra Naashana)* also occur. Ojas depletion causes general and sexual weakness *(Daurbalya)*, excessive post-sex fatigue *(Shramat Pravritti)* and insomnia *(Aswapna). Shukra-Ojas* loss is associated with psychological problems such as anger, anxiety and confusion *(Krodha, Chinta, Moha).*

Modern Correlation: Anemia and Reproductive Health

Untreated or chronic anemia impairs vitality, fertility and sexual health in addition to weakening the blood system and causing *Shukra Dhatu Kshaya*. Depletion or dysfunction of *Shukra* and related *Dhatus*, brought on by poor *Rasa-Rakta-Majja* nourishment and *Srotodushti*, is associated with conditions such as oligospermia, erectile dysfunction, loss of libido, infertility, hypogonadism and irregular menstruation. A major contributor to this systemic deterioration is the *Shukravaha Srotas*. In order to restore reproductive health and vitality, an integrative Ayurvedic approach that emphasizes nourishing *Rasa*, *Rakta* and *Majja dhatus*, supporting *Shukra* and clearing the *Srotas* is necessary for effective therapy.

8. **Effect of pandu roga on *annavaha srotas***

In anemia, the predominant *Dosha* involved is *Pitta*, especially *Ranjaka* and *Pachaka*, with *Vata* and *Kapha* becoming involved later. The primary affected *Dhatus* are *Rasa* and *Rakta*, with indirect impact on *Mansa* and *Ojas. Ayurvedic* pathophysiology links *Pandu Roga* to *Agnimandya*, causing weak digestion and decreased nutrient absorption, comparable to hypochlorhydria in modern terms. This leads to *Ama* formation, which corresponds to the buildup of inflammatory cytokines that suppress erythropoiesis. *Rasa Dushti* reflects poor plasma quality and malabsorption of essential nutrients like iron, B12, and folate. *Pitta Dushti* impairs digestive enzymes and erythropoietin production, disrupting blood formation. Additionally, *Annavaha Srotorodha*, seen as mucosal damage and villous atrophy, parallels malabsorption syndromes such as celiac disease, further contributing to anemia.

Ayurvedic lakshanas* related to pandu roga via *annavaha srotas

Anemia presents with several symptoms linked to *Dhatu* imbalances specially to *Rakta Dhatu*. *Aruchi* (anorexia) arises from *Agnimandya* and *Ama*, causing loss of appetite due to inflammation. *Mandagni*, or weak digestive fire, reflects low *Pitta* and reduced digestive enzymes, leading to hypochlorhydria. *Ajeerna* (indigestion) results from *Ama* and *Vata-Kapha i*mbalance, causing bloating and dyspepsia. Fatigue *(Klama)* and weakness *(Daurbalya)* stem from *Rasa-Rakta* and *Dhatu Kshaya*, leading to tissue hypoxia and muscular fatigue. Pallor *(Pandu Varnata)* is due to *Pitta dushti* in *Rakta*, indicating low hemoglobin. *Gourava* (heaviness) reflects *Kapha* and *Ama* buildup, causing lethargy and sluggish digestion. *Hriddrava* (palpitations) occur from *Vata* depletion combined with *Rasa-Rakta* deficiency, leading to compensatory tachycardia. Nausea or vomiting *(Chardi)* is caused by *Ama* and aggravated *Pitta*, often seen in iron-deficiency or pregnancy-related anemia.

Clinical conditions connecting pandu roga with *annavaha srotas*

Iron Deficiency Anemia (IDA) results from poor nutrition or absorption, linked to *Rasa*, *Apakwa Ahara*, *Agnimandya*, and *Rakta Dushti*. Megaloblastic anemia arises from B12/folate deficiency due to digestive issues. Anemia of chronic inflammation involves systemic *Ama*, low *Agni*, and *Srotodushti*, where inflammation blocks iron metabolism and erythropoiesis. Conditions like celiac disease cause *Srotorodha* and *Dhatu Kshaya* at *Annavaha* and *Rasavaha* levels, impairing nutrient absorption. *Ayurveda* views anemia as a deeper *Agni*, *Rasa-Rakta Dhatu*, and *Annavaha Srotas* dysfunction, reflected in systemic and digestive symptoms. Modern medicine links this to gut inflammation and absorption defects. Holistic treatment balances *Agni*, clears Srotas, and restores *Dhatus* for lasting recovery.

9. The effect of pandu roga on *pranavaha srotas*

***Ayurvedic lakshanas* of *pranavaha srotas dushti* due to anemia**

In *Pāṇḍu Roga*, various *Ayurvedic Lakṣaṇas* reflect modern clinical manifestations. *Shwasa* (breathlessness)

and *Kāsa* (weak cough) correspond to exertional dyspnea and respiratory muscle weakness from hypoxia. *Hriddrava* (palpitations) aligns with tachycardia due to compensatory mechanisms. *Shiroruja* and *Bhrama* represent headaches and dizziness caused by cerebral hypoxia and vasodilation, while *Mūrchā* signifies syncope in severe anemia due to reduced perfusion. *Daurbalya* and *Klama* show systemic weakness and fatigue from poor oxygenation and ATP depletion. *Shukla Nayanatā* mirrors conjunctival pallor, a classical sign. *Nidrānasha* indicates sleep disturbances linked to hypoxia and restlessness and *Urahśūla* reflects chest discomfort, often seen in advanced anemia due to myocardial hypoxia.

Anemia disrupts *Pranavaha Srotas* through *Rakta Dhatu* depletion, causing poor oxygen and nutrient distribution, low *Agni*, and *Vata* imbalance (especially *Prana* and *Vyana Vata)*, leading to *Ojas Kshya* and systemic symptoms. Modern medicine explains this as reduced hemoglobin causing hypoxia, compensatory increased heart and respiratory rates, lactic acidosis and organ fatigue. Both *Ayurveda* and modern physiology recognize how anemia's effects on oxygen transport cause symptoms like breathlessness, dizziness, and weakness. Effective treatment must integrate *Prana Vata* balance, tissue nourishment and digestive fire support.

10. The effect of pandu roga on *udakavaha srotas*

Anemia, understood as *Pāṇḍu Roga* in Ayurveda, leads to *Udakavaha Srotas Duṣṭi*, affecting the body's fluid balance and hydration. Symptoms like *Trishna* (excessive thirst) and *Talu/Kantashosha* (dry mouth) arise due to hypoxia and mucosal dryness caused by impaired *Rasa* and *Rakta Dhatu* formation. *Moorchha* and *Bhrama* (fainting, dizziness) result from reduced cerebral oxygenation. *Daha* (burning sensation) is linked to tissue hypoxia and lactic acidosis. *Shrama/Klama* (fatigue) reflects poor oxygen supply to muscles due to *Rakta* depletion, which weakens *Prana* and *Ojas*. *Jwara* (low-grade fever) indicates systemic inflammation often seen in chronic anemia, correlating with *Pitta* involvement and disturbed *Srotas*. This illustrates how anemia disrupts both fluid regulation and systemic vitality in Ayurveda and modern medicine alike.

Anemia affects the *Udakavaha Srotas* through impaired formation of *Rasa* and *Rakta Dhatu* due to *Ahara-Rasa Dushti*. *Rasa Kshaya* disturbs fluid balance, while *Rakta Kshaya* leads to *Pitta* aggravation and hypoxia. *Agnimandya* and *Pitta Dushti* create *Ama*, causing *Srotorodha*, especially in *Udakavaha Srotas*. *Pitta* is the main dosha in *Pandu* and *Daha* symptoms, while *Vata* rises due to dryness (*talu/kantashosha*) and *Kapha* diminishes due to lack of unctuousness. Clinically, this manifests as unrelieved thirst, dry mouth, sore throat, dizziness, fatigue, burning sensations, and, in chronic cases, emaciation.

11. The effect of anemia on *purishvaha srotas*

Anemia significantly affects the *Pūriṣavaha Srotas* due to interconnected *Srotodūṣṭi* involving *Rasavaha* and *Raktavaha Srotas*. Impaired *Rasa* and *Rakta Dhatu* lead to poor nourishment of intestinal mucosa, weakening peristalsis and stool formation (*Malanirmāṇa Vighāta*). This results in symptoms like constipation, dry hard stools, or at times diarrhea due to mucosal irritation. Anemia also causes *Agnimāndya* and *Ama* accumulation in the colon (*Pakwashaya*), further disrupting digestion and excretion. *Vāta* aggravation, especially *Apāna Vāta*, causes bloating, colicky pain and altered bowel habits. *Pitta* association in *Pāṇḍu* worsens inflammation in the gut. Classical signs include weak digestion, nutrient deficiency and systemic involvement. Modern parallels include anorexia, cheilitis, glossitis, diarrhea or constipation and mucosal atrophy in iron or B12 deficiency anemia. Overall, anemia exemplifies a chain reaction: *Rasa-Rakta Kṣaya* leads to *Vāta* disturbance, which in turn affects *Pūriṣavaha Srotas*, demonstrating Ayurveda's holistic view of interconnected *Srotodūṣṭi*.

पक्वाशयोऽन्तःपुरं चैव, पायुश्च पुरीषवहः ।
तेषु दोषाः समुत्पन्नाः, शूलं विबन्धमानीयुः ॥
सुश्रुत संहिता, शरीर स्थानम् ९.१२

12. The effect of anemia on *mutravaha srotas*

***Ayurvedic* pathophysiology**

1. ***Rasavaha & Raktavaha Dushti:*** Impaired *Rasa* and *Rakta Dhatu* reduce nourishment to later *Dhatus* like *Mamsa* and *Meda*, affecting kidney structure and urine (*Mutra*) formation.
2. ***Pitta dushti****:* Vitiated *Ranjaka* and *Pachaka Pitta* disturb blood and urine quality, leading to *Pandu*, yellow urine and burning micturition.
3. ***Vata dushti:*** Disturbed *Apana Vata* causes issues like low urine output, painful urination and bladder dysfunction.
4. ***Srotorodha:*** Obstructed *Srotas* from vitiated *Doshas* leads to *Dhatu Kshaya*, oliguria and dysuria.
5. ***Mandagni:*** Weak digestion causes *Ama* formation, affecting urine quality and kidney health.

Mutravaha srotodushti lakshana

Different types of *Srotas Dushti* affect urinary function in anemia. *Atipravritti* leads to *Prabhuta Mutrata* (excessive urination), often seen in anemia-related metabolic acidosis or renal tubular defects. *Sanga* causes *Mutra Nigrah* (urine retention), commonly associated with advanced renal dysfunction in chronic anemia. *Vimarga Gamana*, or abnormal urine discharge through

alternate routes, can occur in severe infections or fistula formation. *Mutra Varna Vikriti* presents as yellow or reddish urine (*Peetata*, *Aruna*), correlating with conditions like hematuria or bilirubinemia.

Modern Correlation: How anemia affects urinary system

In chronic anemia, reduced oxygen supply leads to decreased renal perfusion and lowered glomerular filtration rate (GFR), affecting urine output. Anemia, particularly iron-deficiency or hemolytic types, can impair renal tubules, causing electrolyte imbalance and proteinuria. The kidneys respond to anemia by increasing erythropoietin (EPO) production, which may strain renal function over time. Hematuria and proteinuria can occur in hemolytic or autoimmune conditions. Low immunity in anemia raises the risk of urinary tract infections (UTIs). Autoimmune anemias, like in SLE, often involve nephritic or nephrotic complications. Severe anemia may also lead to metabolic acidosis, altering urine pH and volume.

Clinical manifestations to note (*Ayurveda* + Modern)

Ayurveda

- *Mutradaha* (Burning micturition)
- *Alpamutrata* (Oliguria)
- *Mutra Peetata* (Yellow-colored urine)
- *Kricchramutrata* (Painful urination)
- *Dourbalya*, *Shwasa*, *Panduta* (general signs of *Pandu*)

Modern

- Proteinuria
- Hematuria
- Oliguria
- Urinary frequency (Compensatory mechanism)
- Elevated creatinine in long-standing anemia

13. Effect of anemia on *swedavaha srotas*

Anemia and Its impact on swedavaha srotas

In anemia, the functioning of *Swedavaha Srotas* is significantly affected due to reduced red blood cells and hemoglobin, impacting oxygen and nutrient delivery:

"संग्राहिणं रक्तं च त्वक्प्रदाहं च पश्यति।
यथा च त्वग्भिन्नं कासार्द्रं शीतान्निर्वयेत्॥"

Charaka Samhita, Sutrasthana 12.44

1. **Impaired transport:** *Rasa* and *Rakta Dhatu Kshaya* reduce nourishment and oxygenation, weakening *Swedavaha Srotas*. This leads to irregular sweating and poor thermoregulation, aligning with modern signs like fatigue and abnormal sweating.
2. **Kapha-Pitta Imbalance:** Anemia disturbs *Kapha* (moisture) and *Pitta* (heat), disrupting sweat and temperature control seen as either excessive or reduced sweating.
3. **Reduced detoxification:** Poor *Rakta Dhatu* weakens sweat-based toxin elimination, causing *ama* buildup, skin dullness, and sluggishness similar to reduced sweating and toxin clearance in modern terms.
4. **Skin health decline:** Deficient *Rasa* and *Rakta* affect skin nourishment, causing *Tvak Dourbalya*, pallor, and cold touch paralleling anemic symptoms like pale, cold skin.
5. **Heat regulation issues:** Weak *Rakta* and *Pitta* impair heat balance, causing excessive or insufficient sweating matching modern signs of poor thermoregulation in anemia (hyper- or hypohidrosis).

***Ayurvedic lakshanas* of *swedavaha srotas* dysfunction in anemia**

1. **Pallor and Cold Skin** – Poor circulation and low oxygen cause loss of skin color and warmth.
2. **Sweating imbalance** – Disturbed Pitta or weak function leads to excessive or reduced sweating.
3. **Dry skin (*Tvak dourbalya*)** – Lack of nourishment results in dryness and flakiness.
4. **Low vitality** – Fatigue and heaviness arise from poor detoxification and metabolism.
5. **Dull skin** – Inadequate *Rakta Dhatu* and *Swedavaha Srotas Dushti* cause pale, lifeless skin.

CONCLUSION

Anemia impairs *Swedavaha Srotas* by disrupting blood quality, leading to issues in sweating, thermoregulation, and detoxification. *Ayurveda* explains this through *Rakta Dhatu Kshaya* and *Srotas Dushti*, affecting skin health and vitality. Modern insights on oxygen and nutrient deficits align with these concepts, showing the body's systemic interconnectedness.

14. Effect of anemia on *manovaha strotas*

Anemia affects the *Manovaha Srotas*, which govern thoughts, emotions and cognition. In Ayurveda, *Rasa Dhatu Kshaya* leads to poor nourishment of the mind, disrupting mental clarity and emotional balance, highlighting the link between body and mind.

Effect on *manovaha srotas*

The transmission of ideas, feelings, and sensory information from the mind to the body is handled by the *Manovaha Srotas*. Both psychological and physiological manifestations can be used to understand the *Lakshanas* of *Manovaha Srotas Dushti* brought on by anemia. *Rasa Dhatu* depletion, which results in insufficient nutrition and impaired brain function, is most likely the cause of these symptoms.

Ayurvedic lakshanas

***Dhyana Vikrti* (Impaired Concentration):** Because anemia prevents enough nutrients from getting to the brain, it can make it difficult to stay focused or concentrate. This may show up as difficulty focusing on *tasks* or *Bhrama* (confusion).

***Vimanas* (Mental sluggishness):** Insufficient *Rasa* reaching the *Manovaha Srotas* is the cause of the mental sluggishness associated with anemia. *Tandra*, or drowsiness or lethargy, and poor cognitive function are the outcomes. ***Manasika vikara* (Psychological disturbances):** When *Rasa Dhatu* does not flow sufficiently to the mind, it can lead to anxiety, irritability, and depression. Because the body cannot balance its internal systems, this can show up as *Ashanti* (restlessness), *Shoka* (grief), or even *Chinta* (worry).

Unstable Thoughts *(Chanchalata):* Mental instability can worsen as a result of anemia. Rapid, erratic thoughts or feelings could be experienced by the person, which is indicative of disturbed *Manovaha Srotas.*

Modern correlation with *ayurvedic* pathophysiology

In modern medicine, anemia is characterized by low hemoglobin, leading to reduced oxygen delivery and tissue hypoxia. This affects brain function, causing psychological symptoms due to impaired neural activity. *Ayurveda* correlates this with *Manovaha Srotas Dushti* following *Rasa Dhatu Kshaya*, where depleted *Rasa* disrupts both mental and physical health. Symptoms like cognitive dysfunction (*Dhyana Vikrti*), mood disturbances (*Manasika Vikara*), and fatigue (*Tandra*, *Vimanas*) reflect this mind-body imbalance, emphasizing *Ayurveda's* holistic approach.

CONCLUSION

Despite being a *Rakta Dhatu* disorder first and foremost, anemia affects all Srotas in a cascade manner, resulting in systemic dysfunction. A deeper comprehension of the disease's effects is made possible by the holistic and *Dhatu*-centric *Ayurvedic* perspective. For therapy to be effective and long-lasting, early diagnosis and management that targets the underlying causes—*Agni*, *Rasa-Rakta Dushti*, and *Srotas* integrity—are crucial. *Pandu Roga* is a systemic illness that involves *Dushti* of several *Srotas*, both mental and physical, rather than a localized condition. Its effect on the health of both *Sharirika* and *Manasika* is evident as it progressively alters the strength, nourishment, and function of deeper tissues and channels, including *Manovaha Srotas*, beginning with *Rasavaha* and *Raktavaha Srotas*. Accurate diagnosis and effective *Ayurvedic chikitsa*, which should concentrate on *Agni deepana*, *Dhatu poshana*, *Srotoshodhana*, and *Manasika Balavriddhi* for full and lasting healing, depend on an understanding of the multi-*Srotas* involved.

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