

6.3. Anuvanshika raktavikara

Unit 6.3 — Anuvāṁśika Raktavikāra, Raktakarka, Haemolytic Anaemia, Thrombocytopenia

(*Thalassemia, Hemoglobinopathies, Sickle Cell Anaemia; Leukaemia; Haemolytic anaemia; Thrombocytopenia*)

Core idea for Ayurvedic correlation

These disorders are best understood as **Rasa-Rakta dhātu pradoṣa**, **Raktavaha srotas duṣṭi**, and in hereditary conditions as **bīja/anuvāṁśa sambandha** (congenital/hereditary causation). Since exact modern entities are not named in the Saṁhitā, the clinical application is through **Anukta-roga nyāya** and **doṣa-duṣya-srotas vivecana**.

A) Anuvāṁśika Raktavikāra

1. Thalassemia (thal trait/thal major), Hemoglobinopathies, Sickle Cell Anaemia

1) Etiopathogenesis (Modern + Ayurvedic lens)

Modern

- **Thalassemia:** reduced synthesis of α or β globin chains → chronic microcytic anaemia; in severe forms ineffective erythropoiesis, marrow expansion, splenomegaly, transfusion dependence, iron overload.
- **Sickle Cell Disease (SCD):** HbS polymerization under stress (deoxygenation, dehydration, cold, infection) → vaso-occlusive crises, haemolysis, chronic anaemia, end-organ damage.
- **Other hemoglobinopathies:** structural Hb variants or combined states (HbE, HbD etc.) with variable haemolysis/anaemia.

Ayurvedic correlation (conceptual)

- **Bīja/anuvāṁśa doṣa:** congenital predisposition manifests early and persists lifelong; symptoms intensify with triggers.
- **Rasa-Rakta kṣaya + Rakta duṣṭi:** pallor, daurbalya, bhrama, hṛtspandana, śvāsa on exertion; jaundice features when haemolysis is prominent.
- **Pliha involvement (splenomegaly):** chronic raktadhātu pathology commonly shows enlargement of pliha and yakrt.
- **Ojas kṣaya tendency:** recurrent infections, low stamina, delayed recovery.

2) Clinical features

- Early-onset pallor, fatigue, poor growth (children)
- Recurrent jaundice, dark urine (haemolysis)
- Splenomegaly/hepatomegaly
- Bone pains, facial bone changes (thal major)
- In SCD: severe episodic pain (bone/abdomen/chest), precipitated by cold/dehydration/infection; history of repeated hospital visits.

3) Diagnosis (stepwise)

Step 1 — CBC and RBC indices

- Thalassemia/hemoglobinopathy often shows **low MCV** with **relatively higher RBC count** (especially trait).
- Nutritional IDA often shows low MCV with **low/normal RBC count** and iron deficiency pattern.

Step 2 — Peripheral smear

- Target cells, anisopoikilocytosis; sickle cells in SCD; polychromasia if haemolysis.

Step 3 — Confirmatory tests

- **Hb electrophoresis / HPLC** (HbA2, HbF, HbS pattern)
- Iron studies (ferritin, transferrin saturation) to distinguish IDA vs trait/combined states.

Step 4 — Baseline complication assessment

- Bilirubin/LFT, renal function, ferritin (especially transfused patients), ultrasound for spleen/gallstones; specialist-directed organ assessment in transfusion-dependent cases.

4) Management principles (integrated, without delaying definitive care)

A) Thalassemia

1. **Thalassemia trait (minor):** usually no transfusion; counselling; avoid unnecessary iron unless proven deficiency.
2. **Thalassemia major (transfusion-dependent):**
 - Regular transfusion program as per hematology plan
 - Iron overload monitoring and chelation as indicated
 - Management of splenomegaly, endocrine/bone complications, infections.

Ayurvedic supportive plan (adjunctive, individualized)

- Aim: stabilize **agni**, support **bala/ojas**, maintain nutrition, reduce symptom burden (fatigue, anorexia, recurrent infections).
- **Avoid iron-containing Ayurvedic formulations** in transfusion-dependent thalassemia unless iron deficiency is confirmed and coordinated with hematology, because iron overload is a major disease determinant.

Pathya-oriented care

- Warm, easily digestible, nourishing foods; adequate protein; hydration; avoid constipation; avoid cold exposure and overexertion.
- Maintain sleep hygiene, stress reduction (SCD/haemolysis exacerbation triggers).

B) Sickle Cell Disease

- Acute crisis needs prompt medical management (hydration, analgesia, oxygen if needed, infection control).
- Preventive measures: hydration discipline, avoiding cold exposure, treating infections early, specialist disease-modifying therapy as indicated.

Ayurvedic supportive plan

- Target: **vāta śamana** during pain episodes, **pitta-rakta śamana** when burning/jaundice features dominate, and **ojas/bala support** chronically.
- Diet: warm, unctuous, regular meals; strict hydration; avoid fasting, dehydration, cold drinks, cold wind exposure.
- Lifestyle: gentle strengthening, avoid strenuous bursts; seasonal protection in cold/dry weather.

B) Raktakarka (Leukaemia)

1) Etiopathogenesis (Modern + Ayurvedic lens)

Modern

- Malignant clonal proliferation of hematopoietic cells → marrow failure → anaemia, infections (neutropenia/dysfunction), bleeding (thrombocytopenia), organ infiltration (liver/spleen/lymph nodes).

Ayurvedic correlation

- Severe, progressive involvement of **raktadhātu** with marked **ojas kṣaya**, **srotorodha**, and systemic dhātu kṣaya features.
- Symptoms often resemble advanced **rasa-rakta-māṃsa dhātu pradoṣa** with rapid bala-hrāsa.

2) Clinical presentation

- Persistent fever, repeated infections
- Marked fatigue, pallor
- Bleeding gums, petechiae, ecchymosis
- Bone pain
- Lymphadenopathy, hepatosplenomegaly
- Weight loss, night sweats

3) Diagnosis

- CBC with differential
- Peripheral smear (blasts/abnormal cells)
- Bone marrow aspiration/biopsy, immunophenotyping, and cytogenetic/molecular work-up (specialist).

4) Management (integrative boundaries)

- Urgent hematology referral when suspected.
- Supportive: infection precautions, transfusion support, nutritional support.
- Ayurveda role is supportive (appetite, strength, mucositis support, sleep/anxiety support) and must be coordinated with oncology/hematology; avoid any regimen that delays or conflicts with protocol-based care.

C) Haemolytic Anaemia

1) Etiopathogenesis

Modern

- Increased RBC destruction: immune (autoimmune haemolysis), enzymatic (G6PD), membrane defects, microangiopathic processes, infections, drugs.
- Can be intravascular or extravascular.

Ayurvedic correlation

- Rakta duṣṭi with prominent **pitta** features (pītata, dāha, trṣṇā) and **rasa-rakta kṣaya** (daurbalya, śrama).
- If recurrent, indicates deeper dhātu involvement and chronic ojas stress.

2) Clinical features

- Pallor + jaundice, dark urine (intravascular)
- Splenomegaly (extravascular)
- Fatigue, tachycardia, exertional dyspnoea
- Episodic worsening after infections/drugs (G6PD).

3) Diagnosis (pattern-based)

- Anaemia with **raised reticulocyte count**
- Raised LDH, indirect bilirubin; low haptoglobin (as per modern interpretation)
- Peripheral smear clues (spherocytes, schistocytes, bite cells)
- Direct antiglobulin test when immune haemolysis suspected

4) Samprāpti vighaṭana (Ayurvedic application)

- Break triggers and stabilize agni (remove nidāna, correct digestion)
- Pitta-rakta śamana when burning/jaundice dominates
- Brīhāna and rasāyana once acute phase settles and digestion is stable
- Maintain hydration and rest to reduce crisis recurrence

D) Thrombocytopenia

1) Etiopathogenesis (classification)

- **Decreased production:** marrow suppression/failure, malignancy, drugs
- **Increased destruction:** immune thrombocytopenia, drug-induced
- **Consumption:** DIC/sepsis-related consumption syndromes
- **Sequestration:** hypersplenism
- **Dilution:** massive transfusion contexts

2) Clinical features

- Petechiae, purpura, ecchymosis
- Epistaxis, gum bleeding, menorrhagia
- Hematuria/GI bleed in severe cases
- Intracranial bleed risk in very low platelets with warning symptoms

3) Ayurvedic correlation (bleeding-dominant presentation)

Bleeding disorders align with **Raktapitta** understanding (pitta-driven rakta pravṛtti). In thrombocytopenia, the clinical picture resembles **raktapitta lakṣaṇa-samuccaya**, while the causal pathway is evaluated using doṣa-duṣya-srotas.

Classical reference (prognostic emphasis in severe bleeding)

‘लोहितं छुर्दयेद्यस्तु बहुशो लोहितेक्षणः ।
रक्तानां च दिशां द्रष्टा रक्तपित्ती विनश्यति ॥२४ ॥’

Ref: Suśruta Saṃhitā, Sūtra-sthāna 33/24

Meaning (clinical sense): repeated blood vomiting/bleeding with systemic involvement suggests grave condition and

demands urgent management.

4) Management (integrative)

- First ensure modern triage (severity of bleeding, platelet count trend, associated fever/sepsis, suspected malignancy).
- Supportive measures: avoid NSAIDs/antiplatelet agents unless specifically prescribed; bleeding precautions; address underlying cause.
- Ayurvedic adjuncts focus on pitta-śamana diet, rest, avoidance of heat/tikṣṇa āhāra-vihāra, and restoring digestion and strength—only after acute safety is secured.

Structured Case Record (De-identified)

Case 1: Sickle Cell-like phenotype (pain crisis pattern)

History: 19-year-old, recurrent severe limb and back pain episodes since childhood, triggered by cold exposure and dehydration; past episodes with jaundice; family history positive.

Exam: pallor, mild icterus, tenderness over long bones.

Investigations: CBC shows anaemia; smear suggests sickling; Hb electrophoresis confirms HbS pattern.

Chikitsā yojanā (integrated)

- Immediate: hydration, pain control, infection screening/treatment as needed
- Supportive Ayurveda: vāta śamana diet-lifestyle (warm, unctuous, hydration discipline), agni support, rasāyana-bala measures once stable.

Case 2: Suspected leukaemia

History: 42-year-old, fever for 3 weeks, marked fatigue, gum bleeding, bruises.

Exam: pallor, petechiae, lymph nodes palpable, spleen enlarged.

Investigations: CBC shows pancytopenia; smear suspicious for blasts.

Chikitsā yojanā

- Immediate referral for marrow evaluation
- Supportive measures: infection precautions, transfusion support as advised
- Ayurveda: only supportive measures (diet, strength, mental support) with oncology coordination.

Pathyā-Apathyā (common across these disorders)

Pathyā

- Warm, freshly cooked meals; adequate protein; ghee in moderation if digestion supports
- Regular hydration (especially SCD/haemolysis patterns)
- Sleep regularity; gentle activity; protection from cold wind

Apathyā

- Fasting, dehydration, cold exposure, excessive exertion
- Alcohol, very spicy/tikṣṇa foods during bleeding/jaundice states
- Unsupervised iron supplementation in thalassemia contexts



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