

Blood as Rakta Dhatu: Surgical Importance from Ayurvedic and Modern Perspectives

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ABSTRACT

Blood, referred to as “Rakta Dhatu” in Ayurveda, is central to life and vitality. Ayurveda classifies Rakta as one of the seven essential dhatus (tissues) responsible for nourishment, growth, and health. Similarly, modern medicine emphasizes the crucial role of blood in oxygen transport, nutrient delivery, and immune function. This article examines the surgical importance of blood through both Ayurvedic and contemporary medical perspectives. Classical Ayurvedic texts such as Sushruta Samhita, Ashtanga Sangraha, and Ashtanga Hridaya offer insights into Rakta’s formation, functions, and role in maintaining homeostasis. Modern medicine complements these principles with advanced surgical techniques and transfusion sciences to manage blood loss and optimize patient outcomes. The integration of Ayurvedic and modern approaches underscores the timeless significance of blood in health and surgery.

KEYWORDS: Rakta Dhatu, Ayurvedic Hematology, Ayurvedic Pathology, Rakta Pradoshaja Vyadhi, Dosh-Dhatu Mala Concept, Rakta Mokshana, Panchakarma, Rakta Dushti, Ayurvedic Pharmacology

INTRODUCTION

Blood serves as the foundation of life in both Ayurveda and modern medicine. In Ayurveda, Rakta Dhatu is synonymous with life itself, performing roles that range from nourishing tissues to supporting sensory and motor functions. Acharya Sushruta’s surgical treatises highlight the management of Rakta Dhatu during surgical interventions, emphasizing its purity and balance for effective healing. Modern medicine, while rooted in biochemical and physiological principles, shares this reverence for blood’s critical role in survival and recovery. This article explores the parallels and intersections of Ayurvedic and modern perspectives, particularly focusing on the surgical implications of Rakta Dhatu.

Ayurvedic Perspective on Rakta Dhatu Formation and Properties

Rakta is formed when Rasa Dhatu (the nutrient fluid) is metabolized with the help of Ranjaka Pitta, primarily in the liver and spleen. Ayurvedic texts emphasize that Rakta Dhatu governs thermal regulation, immunity, and mental clarity. Dalhana, a renowned commentator, highlights Rakta’s link to

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Ojas (vital essence), asserting that its depletion directly impacts vitality.

Functions of Rakta Dhatu in Ayurveda

The primary functions of Rakta Dhatu as outlined in Ayurvedic texts include:

1. Jeevana (Sustenance): Rakta is described as the carrier of life force (prana), ensuring the proper functioning of all bodily systems.
2. (Complexion): Imparting a healthy glow to the skin and reflecting overall health.
3. Poshana (Nourishment): Providing nutrition to deeper tissues such as muscle (mamsa), fat (meda), and bone (asthi).
4. Shodhana (Purification): Facilitating the elimination of toxins through bloodletting techniques such as Raktamokshana.

Rakta Dhatu and Shalya Tantra

Diseases involving Rakta Dhatu often require surgical intervention and are in the ambit of Shalya Tantra.

According to Ayurveda, any imbalance in Rakta Dhatu can manifest as inflammatory conditions, infections, or excessive bleeding disorders, all of which demand careful surgical management.

Key Diseases Related to Rakta Dhatu in Shalya Tantra

1. Vidradhi (Abscess):

- A localized swelling caused by the vitiation of Rakta Dhatu along with other doshas.
- Acharya Sushruta describes the stages of abscess formation, from inflammation (shotha) to suppuration and rupture. Surgical procedures like incision and drainage are recommended for its management.

2. Arsha (Hemorrhoids):

- Caused by stagnation and vitiation of Rakta Dhatu in the anal region.
- Sushruta recommends bloodletting and surgical excision for chronic cases.

3. Bhagandara (Fistula-in-Ano):

- Results from the vitiation of Rakta Dhatu in combination with Kapha and Pitta doshas.
- Detailed surgical procedures, including Ksharasutra therapy, are described in the management of fistula.

4. Rakta Arsha (Bleeding Hemorrhoids):

- Excessive bleeding due to vitiated Rakta Dhatu is managed by Rakta Shodhana (blood purification) and Agnikarma (cauterization).

5. Shotha (Swelling/Inflammation):

- Inflammation caused by vitiation of Rakta Dhatu, leading to redness, heat, and pain.
- Management includes Raktamokshana (bloodletting) to relieve local congestion and systemic purification.

6. Vranas (Wounds/Ulcers):

- Poor healing due to vitiated Rakta Dhatu is a common challenge.
- Sushruta emphasizes the role of blood in wound healing and describes various surgical methods for cleaning, suturing, and dressing wounds.

7. Rakta Pitta (Hemorrhagic Disorders):

- A systemic condition caused by Pitta dosha's vitiation in Rakta Dhatu, leading to spontaneous bleeding.
- Treatment involves both internal medications for Pitta pacification and external therapies like Raktamokshana.

Surgical Management of Rakta-Related Disorders

1. Raktamokshana (Bloodletting):

- Considered a primary therapy for diseases caused by vitiated Rakta Dhatu.

- Techniques include leech therapy (Jalaukavacharana), venesection (Siravedha), cupping (Shringa), and scarification (Alabu). These methods are employed to remove impure blood, alleviate congestion, and restore balance.

2. Agnikarma (Cauterization):

- Utilized to manage bleeding and prevent infection in surgical wounds.
- Especially effective in conditions like bleeding hemorrhoids and non-healing ulcers.

3. Shodhana (Detoxification):

- Procedures like Virechana (purgation) and Panchakarma therapies are prescribed to eliminate toxins and purify Rakta Dhatu.

4. Surgical Techniques for Hemostasis:

- Sushruta describes various methods to control bleeding, such as ligation (bandhana), pressure (sandhana), and application of styptics (kashaya and sheeta dravyas).

5. Post-Surgical Care:

- Use of medicated oils (Jatyadi Taila) and herbal formulations to promote wound healing and prevent infections.

Rakta Dhatu and Dosha Interaction in Shalya Vyadhi

The interplay of Rakta Dhatu with doshas (Vata, Pitta, and Kapha) is crucial in the manifestation of surgical diseases:

1. Rakta-Pitta Disorders: Manifest as inflammatory and hemorrhagic conditions requiring immediate intervention.
2. Rakta-Vata Disorders: Associated with pain and delayed healing of wounds or ulcers.
3. Rakta-Kapha Disorders: Lead to suppuration and chronicity, such as in fistula or abscess formation.

The doshic assessment guides the choice of surgical techniques and adjuvant therapies, ensuring a comprehensive approach to treatment.

Modern Perspective on Blood

Modern science identifies blood as a dynamic connective tissue essential for physiological processes. Its components—red blood cells, white blood cells, platelets, and plasma—perform critical functions:

- Oxygen Transport: Hemoglobin in red blood cells carries oxygen to tissues.
- Immunity: White blood cells combat infections.
- Coagulation: Platelets and clotting factors prevent excessive blood loss.

Surgical Significance

In modern surgical practice, meticulous blood management is indispensable. Key strategies include:

- Hemostasis Techniques: Cauterization, ligation, and topical hemostatic agents.
- Transfusion Science: Administration of blood products to compensate for significant losses.
- Blood Conservation: Techniques such as autologous blood transfusion and controlled hypotension to minimize intraoperative blood loss.

Integration of Ayurvedic Principles in Modern Surgery

Ayurveda's understanding of Rakta Dhatu offers valuable insights into surgical practice:

1. Preventive Care: Emphasis on purifying Rakta Dhatu through dietary and lifestyle modifications to prevent disease.
2. Wound Healing: Ayurvedic formulations like Madhu (honey), Ghrita (ghee), and Haridra (turmeric) are increasingly being incorporated into modern wound care.
3. Bloodletting Techniques: Comparable to therapeutic phlebotomy, Ayurvedic bloodletting is gaining recognition for managing specific conditions like varicose veins and polycythemia.

Discussion

The Ayurvedic and modern perspectives on blood converge in their recognition of its pivotal role in health and surgery. Ayurveda's holistic approach, emphasizing balance and purification of Rakta Dhatu, aligns with modern principles of blood conservation and transfusion. The ancient practice of Raktamokshana is analogous to therapeutic phlebotomy used in conditions like hemochromatosis and polycythemia. Similarly, Sushruta's emphasis on hemostasis finds its parallel in contemporary surgical practices to control bleeding.

Both systems highlight the importance of maintaining the quality and quantity of blood to optimize surgical outcomes. However, Ayurveda adds a preventive dimension, advocating for dietary and lifestyle interventions to preserve Rakta Dhatu's integrity. Incorporating these principles into modern surgical care can offer a more holistic approach to patient management.

Conclusion

Rakta Dhatu, as described in Ayurveda, and blood, as understood in modern medicine, are central to life and health. The surgical importance of blood is universally acknowledged, with both Ayurvedic and modern systems offering unique insights into its

management. Ayurveda's emphasis on the purity, balance, and nourishment of Rakta complements modern techniques of blood transfusion, conservation, and hemostasis. Together, these approaches can enhance surgical outcomes and promote overall well-being, bridging ancient wisdom with contemporary science. Future research into integrating these paradigms may provide new dimensions to surgical care and blood management.

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