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Role of *Rakta* in Poisoning W.R.T. Dermatological Manifestation- An Ayurvedic Perspective



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ABSTRACT

In Ayurvedic texts, the normal characters of blood have been described as sweet, little salty, neither too hot nor too cold (*Na ati ushna sheet*), red in colour like *Indragopa* and *Hema*. The blood is generally vitiated by *pitta* and *kapha*. As the attributes of Poison are very close to the *pitta* e.g. both are *ushna* and *teekshna*. Therefore poison also plays key role to vitiate the *Rakta*. In day to day life, knowingly or unknowingly we are constantly exposing lots of chemicals /toxins to our body in various forms which cause different type of systemic disease. In Ayurveda, the concept of poison or toxin is very deep rooted which encompasses vegetable poison, metallic poison, *Dushi visha*, *Garavisha*, *Vairodhik Ahara* (incompatible diet) etc. As per *Acharya Vagbhata*, the poison first vitiates *Rakta* followed by *Tridosha* after getting entered in human body. **विषं हि देहं सम्प्राप्य प्राग्दूषयति शोणितम्। कफपित्तानिलांशुानु समदोषं सहाशयान्॥ अं सं उ. ४०/१७** The vitiation of *Rakta* causes various dermatological manifestation e.g. papular urticaria, rashes, horripilation, excessive sweating, itching *Visarpa* discolouration of skin etc. Aims & objectives- To establish the relation between vitiated *rakta* and dermatological manifestation in poisoning cases. To explain the probable mode of action of vitiated *rakta* in manifesting the skin disease. Material & methods- A systemic and thorough classical review of Ayurvedic literatures in the manifestation of skin disease in poisoning cases is done. The characteristics of *rakta vriddhi* and *rakta Kshya*, the *Rakta Pradoshaja Vikara* (C. S. Su 28) has been compiled, studied and critically analysed in relation to dermatological manifestation caused by vitiated *Rakta* in poisoning cases. Result and conclusion- It has been concluded that Poison exists in any form like *Dushi visha*, *gara visha*, *vairodhika Ahara*, *ama*, inanimate or animate and being *ushna* and *teekshna* in quality vitiates *pitta* as well as *rakta* on the ground of *Sarvada Sarva Bhavanam Samanyam Vriddhikarnam*. In this paper, all the dermatological manifestation due to vitiation of *Rakta* in poisoning cases will be discussed in elaborative way.

INTRODUCTION

Rakta (Blood) is the root cause of life.¹ It is very important entity as a *dhatu* in context to maintain internal environment constant i.e. homeostasis and sustains the life. *Susruta* described the *Raktadhatu* (blood) as fourth *Dosha* (body humours). As *Dosha* (body humours) are responsible for the creation of living body, fourth entity named as *Raktadhatu* (blood) also takes part in origin, sustaining and is responsible for the death. In Ayurveda, the term *Rakta* encompasses blood tissue along with its functional entities. Being one of the seven *dhatu*, it is present in entire part of the body.

The *Raktavaha srotas* takes up respective nutrients from the *rasa* and by the action of *ranjaka pitta* and *Raktagni* red colour, *Rakta* is formed. Blood is cause for skin complexion, strength, immunity in the body and helps in nourishment of *mansa dhatu*.²

Rakta belongs to class *pitta* and its increase or decrease leads to increase or decrease in *pitta* respectively and vice versa.

Rakta is sweet, slightly salty, little cold and hot (*kinchitsheetoshna*), not compact (*asamhat-not coagulated or coagulopathy*). It is red like the blood of sheep, rabbit, and like lotus, *indragopa* insect and *hema* (*manjishtha* not gold as per Hemadri).³

Rakta dushti nidan-⁴

Diet- Unwholesome hot and sharp, spicy food and wine, food intake in excess amount, consuming exceedingly saline, alkaline, acidic and pungent food items, *kulatha* (*Dolichos biflorus*), *Masha* (Black Gram), *Nishpava* (*Sesamum*), *Til tail*, *Pindalu*, all green eatables, Radish

Meat of *jalaja* and *anoop* (aquatic marshy) and *prasah* types animals (which catch food by teeth, tear and eat) *bileshaya* animals (dwelling in holes and burrows) Curd vinegar wine *sauviraka*

Lifestyle and activities- excessive anger, excessive exposure to sun and fire, work, injury, *ajirna adhyashana*, *Sharad ritu*

It is noteworthy that *Visarpa* is skin disorder and *Visha* is one aetiology of all.⁵

It has been inferred on observation that the aetiology of *Kushtha*⁶ along with *Visarpa*⁷ and *Rakta dushti* are similar to great extent

Aetiology-

<i>Rakta Dushti</i>	<i>Kushtha</i>	<i>Visarpa</i>
<i>Viruddhanamupklinnaputinam bhakshnen cha</i>	<i>Virodhi anna pan</i>	<i>Virodhi annapan</i>
<i>Drava snigdha guruni cha</i>	<i>Drava snigdha guruni cha</i>	-
<i>Chhardi vega pratighata</i>	<i>Chhardi vega pratighata</i>	-
<i>Shrama abhighata santap</i>	<i>Gharmashramabhaya artanam</i>	-
<i>Ajirna adhyashana</i>	<i>Ajirna adhyashana</i>	<i>Ajirna adhyashana</i>
<i>Ati lavana kshara amla katu</i>	<i>Ati lavan amla</i>	<i>Ati Lavana amla katu ushna</i>
-	-	<i>Visha</i>
<i>Haritanam cha</i>	- 	<i>Shakanam haritanam</i>
<i>Pradushtateekshnaushnamadya</i>	-	<i>Vikrita madya</i>

Mode of action of poison to vitiate Rakta-

Poison is *pavakopamam* (characteristic similar to fire).⁸ The term *Visha* encompasses poison, *vairodhika ahara*, *ama vish* and *dushi visha* etc. *Visha* vitiates the *Rakta dhatu* and manifests various skin diseases.

Pitta is *samanguna bhuishta* (similar in nature) to *Rakta dhatu*. Therefore it is vitiates more due to *pitta* vitiation resulting malfunctioning of *ranjan karma*. *Dushta Rakta* circulates all over the body including *uttan sira* (superficial blood vessels) and manifests skin disease.

The poison vitiates *Rakta* and *pitta* primarily and mainly because of its attributes like *ushna* and *teekshna* properties. Poison can penetrate the various channels due to *sukshma* property and vitiates *pitta* and *Rakta* due to its *ushna* property.⁹

Rakta, *pitta* and poison being same in attributes to great extent are inter-related.¹⁰

1. Vitiates of *Rakta* by *vata*-

Frothy reddish black, rough or non slimmy (*Vishada*) thin (*tanu*) fast moving non-coagulant

1. *Rakta* vitiation by *pitta*-

Blue yellow green blackening with fishy odour, disliked by ant and flies delayed coagulation because of inherent heat of *pitta*.

2. *Rakta* vitiation by *kapha*-

Red ochre liquid, unctuous cold thick (*ghana*) with delayed bleeding and muscle like colour (*manspeshiprabham*).

As per Ayurveda, the poison first vitiates *Rakta* followed by *Tridosha* after getting entered in human body.¹¹ When poison enters the blood *dhatu*, following clinical features are appeared tingling or pricking sensation all over the body, red colour patches on the body, sweating, horripilation, feeling of the ants crawling over the body (tactile hallucination), severe body ache, yawning, desire or liking for foodstuffs having cold potency.¹²

As per *Acharva charak* when poison enters its second impulse i.e. in *Rakta dhatu*, the following feature appears- discolouration of skin, giddiness, trembling, fainting, yawning, tingling sensation and dyspnoea. The clinical feature of third impulse (vitiating of *mansa*) is circular eruptions, excessive itching, oedema, and urticarial reactions.¹³ Hence it is observed that there is dermatological manifestation occurs in the second and third impulse (*Rakta* and *mansa dhatu*) of *visha vega*.

Acharya charak has described the toxic feature of *dushi visha* following vitiation of *Rakta* as a completely dermatological manifestation like *aru* (eczema), *kitibha* (psoriasis), *kotha* (urticarial) etc.¹⁴ As per *Acharya sushruta* and *Vagbhatta* the clinical feature of *dushi visha* gets augmented after vitiation of blood are- diarrhoea, discoloration of skin, morbid thirst, anorexia, fainting, vomiting, stammering speech, delusions, and accompanied with symptoms of *dushyodar*.¹⁵

Intake of *visha* → increase of *pitta* → vitiation of *rakta* → manifestation of *rakta pradoshaja vikara* including skin disorders

The blood vitiation is involved in high *pitta* condition, *kushtha* (skin disease), *visarpa* and bleeding disorders. It is quite obvious that both *kushtha* (skin disease) and *visarpa* involves vitiated *tridosha*, *twacha*, *Rakta*, *mansa*, and *ambu* (*Lasika*).

Disease caused due to vitiation of blood¹⁶ -

Stomatitis, conjunctivitis, rhinitis, halitosis, abdominal tumour, *visarpa*, bleeding disorders, bleeding through ear nose oral cavity, anus urethra, menorrhagia

Excessive drowsiness, abscess, hematuria, gout, carbuncle, pallor/discolouration of skin, indigestion, excessive thirst, heaviness of the body, burning sensation, excessive weakness, anorexia, ringworm, headache, bitter or sour eructation, tiredness, inflammation followed by suppuration, excessive anger, bewilderments, oral ulcers, saline taste in mouth, excessive sweating, intoxication, splenomegaly, *neelika* (blue moles/freckles), leucoderma, pruritus, skin eruptions urticarial, pimples scaling frequent attack of fainting.

Besides these, *Rakta vridhhi* causes redness of skin, eye, urine and fullness of blood vessels whereas *Rakta kshaya* (Diminution) causes rough, dry and cracked skin, desire for eating, cold and sour substances, feeling of emptying in blood vessels.

Modern aspect- The various dermatological manifestations are the outcome of allergic response on exposure of allergens which may be unwholesome diet, *dushi visha*, *gara visha*.

Common food allergens are the substance that causes allergic reactions in food and drinks is called an allergen. In case of food, all allergens are proteins. The most common allergenic food is big 8 (egg, fish, nuts from tree almond, peanuts, shellfish, soya, wheat). Toxins cause skin rashes like enterotoxins released in viral fever chicken guinea. The entire irritant poisons corrosive poisons causes mild to severe inflammation and even ulceration.

The allergic response manifested on exposure to allergen is the result of complex orchestrated interaction of various immune cells and immunoglobulin.¹⁷

1. Antigen presenting cells derives from myeloid of the bone marrow
2. Monocytes/ macrophages cells secrete interleukins and activate T and B lymphocytes
3. Granulocytes
4. Mast cells distributed at cutaneous and mucosal surfaces and are characterised by the presence of vesicle granules. These granules contain histamine.

Action of histamine-¹⁸

Red spot: due to intense capillary dilatation.

Wheal: due to exudation of fluid from

Flare: capillaries and venules. i.e. redness in the surrounding area due to arteriolar dilatation mediated by axon reflex.

Histamine is causative in urticaria, angioedema, bronchoconstriction and anaphylactic shock.

Inflammation-Histamine has been implicated as a mediator of vasodilatation and other changes that occur during inflammation. It promotes adhesion of leukocytes to vascular endothelium by expressing adhesion molecule P-selectin on endothelial cell surface, sequestering leukocytes at the inflammatory site.

A variety of mechanical, chemical and immunological stimuli are capable of releasing histamine from mast cells.

1. Tissue damage: trauma, stings and venoms, proteolytic enzymes, phospholipase A.
2. Antigen: antibody reaction involving IgE antibodies.
3. Polymers like dextran, polyvinyl pyrrolidone (PVP).
4. Some basic drugs- morphine, atropine, stilb amidine, polymyxin B, vancomycin and even some antihistaminics directly release histamine without an immunological reaction.
5. Cytokines are soluble proteins and involved in the regulation of growth and activation of immune system.

Some common skin disorders¹⁹-

Pruritus- it is unpleasant sensation of itch leading to the desire to scratch. Pruritus originates within the skin free nerve endings; it is carried by small myelinated type C nerve fibres to the dorsal horn of the spinal cord. The chemical causing pruritus is histamine, serotonin and cytokinins.

Substance bradykinin and bile salts locally act to stimulate the itch sensation. Opioids also produce pruritus in a number of patients. Pruritus is often exacerbated by skin inflammation.

Itching → desire to scratch → increased inflammation stimulate nerve endings → more itching → scratching undesirable changes in skin. → →

Vasodilators tend to increase itching therefore cold application may provide relief. anti-itching agents are sheet (cold) like menthol and camphor.

Dry skin or xerosis- It is dehydration of layer stratum corneum of skin. Anticholinergic agents also causes dry skin.

Dry skin → rough and scaly → scratching → cracking fissuring →

Urticaria or hives- it is characterised by the development of oedematous wheal accompanied by intense itching. Lesion is raised pink or red areas surrounded by a pale halo. Angioedema can occur alone or with urticaria and it is characterised by nonpitting, non-pruritic and well defined oedematous swelling.

Histamine from mast cells → increased permeability of microvessels of skin → oedema and wheal formation

The use of shirish as vishghna dravya, *Rakta shodhak* dravya justifies the involvement of *Rakta* in poison augmented skin diseases. It is well established fact that shirish has antihistaminic property and effective in poisoning.

DISCUSSION AND CONCLUSION



The causative factor of skin disease (kushtha), visarpa and *Rakta* vitiation are almost similar. The unwholesome diet, dushi visha and visha are one of all the causative factors to vitiate *Rakta*. As *Rakta* and pitta both possess the same character like ushna and teekshna. The visha is pavakopamam (like fire) and vitiates the *Rakta* / pitta at first /utmost by virtue of its teekshna, ushna and sukshma attributes. Due to vitiation of *Rakta*, various dermatological manifestations appear as a *Rakta* pradoshaja vikara like kushtha, visarpa, pidika, raktapitta, rakta pradar, gud-medhra pak, pliha vridhhi, gulma, vidradhhi, neelika, kamla, vyanga, pipalu, tilkalak, dadru, charmdal, shvitra, pama, kotha, rakta mandal.

In today's scenario the unwholesome diet, dushi visha are in fact allergen causing allergic reaction and get manifested in the form of skin disorders like pruritus, urticarial, wheal etc. therefore it is quite obvious that we must adopt the concept of Ayurveda i.e. nidana parivarjan shaman and shodhan chikitsa. The one should avoid the nidana which vitiates the *Rakta*. Secondly, the *Rakta* shodhak medicine and vishghna medicine must be used like shirish,

haridra, sariva. Cold therapy being contrary nature to visha also antagonizes the effect of visha.

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