

Concept of Infected Wound (Dushta Vrana) in Ayurveda

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Abstract

Man is the superior most creature of God, having a sufficient intellectual mind to discover new things and concurrently overcome the existing problems. So from very ancient time different methods of wound care have been described. Wound is a separation or break in continuity of skin, mucous membrane or tissue caused by physical, chemical or biological insult. Wound infections continue to represent a major medical problem, both in terms of how they affect the outcome of surgical procedures and for their impact on the length of hospital stay and medical costs. In Ayurveda, an infected wound may be co-related with dushta vrana. Sushruta has explained that “vrana” (wound) is so called as it covers the site and the scar and even after healing, does not disappear till the person lives. Proper wound care is necessary to prevent infection and to promote healing of the wound. In this paper, emphasis has been given to dushta vrana and its management description according to Samhita and an attempt has been made to explain the infected wound according to modern concept.

Keywords: Vrana, Infected wound, Dushta vrana

Introduction

A wound is a break in the integrity of the skin or tissue often, which may be associated with disruption of the structure and function.¹ Wound healing is the body response to injury in an attempt to restore normal structure and function. The wound healing process can be divided into three phases: 1. Inflammatory (reactive) phase. 2. Proliferative (reparative phase). 3. Maturation (remodeling) phase. Wound healing is a dynamic process and all the three phases may occur simultaneously.² It may be divided as: according to length of time 1. Acute – <6 weeks and 2. Chronic wound >6 weeks.³ Majority of skin lesions are called wounds and primarily are divided into acute and chronic, the difference being the time period during which they have been in existence and/or their tendency to heal properly or not.⁴

Vrana

“*Vrana Gatravichurne, Vranayateti Vranah*” (Su.S. Chi.1/6)

“*Gatra*” means body (body tissue or part of body). “*Vichurnane*” means destruction, break, rupture and discontinuity (of the body or tissue). “The destruction/break/rupture/discontinuity of body/tissue/part of body, is called “*vrana*.”⁵

Sushruta has explained that “the scars of a wound never disappear even after complete healing and its imprint persists lifelong and it is called *vrana* by the wise.”⁶ Vagbhat gave a beautiful definition of *vrana*, i.e., *vrana* makes the person pray (to God) till his life exists” or “that which exposes the interior of the body.”⁷ It is of two types: 1. *Nija* (Organic) – is

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born from the *doshas* and *agantu* (Traumatic) – caused by sharp weapons, implements, stone, baton, nails, teeth, horns, poisons, *aruskara*, etc. Even this (*agantu vrana*) when gets vitiated by *vata* and other *dosha* becomes a *nija vrana*. Again, he described types of *vrana* are of two kinds: *duhsta* (vitiating) and *suddha* (non-vitiating); *dushta* means getting vitiating by the *doshas*.

Infected Chronic Wound

These chronic wounds may also be considered infectious. Chronic wounds are those which do not respond to treatment and/or demands of treatment are beyond the patient’s health, tolerance or stamina or alternatively any wound lasting for more than 6 weeks.⁸

A biofilm is an aggregate of multiple microorganisms (polymicrobial), adherent to each other on a surface and embedded within a self-produced carbohydrate and protein matrix of extracellular polymeric substance or exopolysaccharide. Biofilms account for more than 80% of all microbial infections of the human body. In context of human infection, biofilms are an integral part of chronic wounds, but are uncommon in acute wounds. They have

been identified as one of the main variables responsible for resistant infection or recurrence of a seemingly cured infection. The site of attachment and formation of the biofilm includes wound surface, dressings, sutures, etc. Some of the important surgical site infections and chronic soft tissue infections, etc. The protective nature of the biofilm structure makes the bacteria embedded within them remarkably difficult to treat with antimicrobials.⁹ The effect of bacteria in a wound is often described as a continuum, which extends from contamination (the presence of bacteria without problems), to colonization (the presence of multiplying bacteria), to infection with tissue invasion. Infection may be localized to the wound, spread into nearby tissues, or cause systemic illness such as systemic inflammatory response syndrome (SIRS) or multiple organ dysfunction (MODS). The classical signs of local infection are pain, heat, swelling, redness and loss of function, and may be accompanied by purulent discharge, pyrexia and malodor. However in chronic wounds, the patient often has comorbidities that suppress the signs of inflammation. As a result, identifying infection in chronic wounds may be difficult and clinicians need to rely on other signs and symptoms (Table 1).¹⁰

Table 1. Signs and Symptoms of Localized, Spreading and Systemic Infection in Wounds

Localized Infection	Spreading infection
Acute Wounds, e.g., surgical or traumatic wounds, burns	
Classical signs and symptoms: New or increasing pain Erythema Local warmth Swelling Purulent discharge Pyrexia Delayed or stalled healing Abscess Malodor	As for localized infection, plus Further extension of erythema Lymphangitis Crepitus in soft tissues Wound dehiscence
Chronic wounds, e.g., diabetic foot ulcers, venous leg ulcers, arterial leg/foot ulcers, pressure ulcers	
New, increased or altered pain Delayed (or stalled) healing Periwound edema Bleeding or friable granulation tissue Distinctive malodor or change in odor Wound bed discoloration Increased, altered or purulent exudates Induration Pocketing or bridging	As for localized chronic infection, plus: Wound dehiscence Erythema extending from the wound edge Crepitus, warmth, induration or discoloration spreading into periwound area Lymphangitis Malaise or non-specific deterioration in the patient’s general condition
Systemic Infection	
Sepsis: Documented infection with pyrexia or hypothermia, tachycardia, tachypnea, raised or depressed white blood cell count Severe Sepsis: sepsis and multiple organ dysfunctions.	

Dushta Vrana

The word *dushta* literally means a putrefied ulcer – the wound that has got vitiating.¹¹ The muscular tissues are

afflicted with sensitization (*praharsha*) and scatteredness/disintegration of the blood (*rudhiramvikira*) basically cause severe kind of *dushta vrana*.¹²

According to Charaka, *vrana* which produces foul smell, has lost its normal color, produces excessive discharge with excessive pain is *dushta vrana*. According to Acharya Madhava, *dushta vrana* is chronic in nature, elevated from the surface, discharges pus and impure blood with foul smell and has opposite characters of *suddha vrana*.¹³

Causes of Dushta Vrana

- Improper dressing
- Infected ward or dressing material
- Intake of contraindicated diet such as new paddy, pea, green leafy vegetables, yoghurt, milk, butter milk
- Intake of alcohol
- Flies
- Contact of *vrana* with draughts, hot sun, dust, smoke, dew, etc

- Improper nutrition
- Contact with ‘harmful organisms’ due to unhygienic conditions.¹⁴

Types of Dushta Vrana

Sushruta classified *dushta vrana* on the basis of involvement of *doshas*. He mentioned that on the basis of severity of *doshas*, *dushta vrana* is divided into six types¹⁵ – *vataja*, *pittaja*, *kaphaja*, *raktaja*, *sannipataja*, and *agantuja*. According to Bhela Samhita, there are twelve blemishes of the wounds; their examination is of six kinds and the procedures for treatment thirty-six as far as they are determined for the purposes of surgical treatment.¹⁶ Apart from this, Charaka classified *dushta vrana* on the basis of clinical features into 12 categories mentioned in Table 2.¹⁷

Table 2.Types of Dushta Vrana

S. No.	Type	Clinical Feature
1	Shweta	Paleness of ulcer
2	Avasanna vartma	Depressed margin of ulcer
3	Ati sthula vartma	Thick margins of ulcer
4	Ati pinjara	Very reddish yellow mixed coloration of ulcer
5	Nila	Blue coloration of ulcer
6	Shyava	Blackish brown color floor
7	Ati pidika	Excessive blisters on and around vrana
8	Rakta	Red colored floor
9	Krishna	Black colored floor
10	Ati putika	Excessive putrifaction
11	Ropya	Recurrence due to deep seated vitiated doshas
12	Kumbhimukha	Vrana with narrow external opening and wide base like a jar

Clinical Features of Dushta Vrana

Sushruta described about *dushta vrana* in detail. According to him, excessively narrow or wide mouth, too hard or too soft *vrana*, elevation of floor or depressed floor, too cold or too hot, having one of the colors – black, red, yellow, white – frightful, full of fetid pus, muscles, vessels, ligaments, etc., discharging fetid pus, moving in oblique track, having deep base, with ugly sight and foul smell, severely painful; associates with heat, suppuration, redness, itching, swelling and boils, excessively discharging vitiated blood and long lasting – these are features of a vitiated ulcer.¹⁸

Factors Responsible for Healing of Wounds according to Ayurveda

Sushruta described about factors, i.e., wounds are easily curable in patients who are youthful, strong, full of vitality and with tolerant psyche or in a single person who has all these four qualities, the wounds are curable in the easiest way. There, in youthful persons due to fresh (developing) tissues, wounds heal up rapidly; in strong persons, because of firm and profuse musculature, applied sharp instruments do not touch vessels, ligaments etc.; in those having

high vitality pin, injury, dietetic restrictions, etc., do not produce malaise and in those having high vitality pain, injury, dietetic restrictions, etc., do not produce malaise and in those having tolerant psyche no pain is felt even by harsh operations. Hence in such persons, wounds are easily curable.¹⁹ Wounds of those suffering from leprosy, poison, consumption and diabetes are cured with difficulty and also of those who have wounds over wounds.²⁰

Management

Although much progress has been made in management of wounds in the past few years, management of *vrana* has been remaining significant health-related issue ever since the period of Sushruta. He described even about wounded person that should live in a house architecturally commendable, clean, and free from the sun and wind.²¹

Again, Sushruta described about precautions which should be taken like – one should avoid disturbing agents like excessive exposure to wind, the sun, dust, smoke, dew, excessive eating, undesirable food, sound and sight; envy, wrath, fear, grief, anxiety, awaking in night, irregular eating and sleeping, fasting, speaking, exercise, standing, walking,

cold wind, incompatible food, eating when previous meal is not digested, indigestion, flies, etc.²² There are a number of procedures performed for various steps of healing of vrana. Among these, shuddha vrana has been treated by ropana remedies, whereas dushta vrana is managed on the basis of involvement of vitiated doshas, site of vrana, excessive putrefaction, and inflammatory changes. Sushruta described sixty different types of management of vrana in general. Of them, decoction, wick, paste, ghee, oil, semisolid extract and dusting powder are both for cleansing and healing procedures described by Sushruta.^[23]

Conclusion

In this way, vrana is an important issue of shalya tantra due to its involvement in many surgical conditions and Ayurveda gives message how to check disease causative factors and what should be done when a person becomes diseased too. Sushruta, the father of Indian surgery, has scientifically classified in a systemic manner a wealth of clinical material and the principles of management which are valid even today. Description of vrana is one of the very important area covered by him, for which only he has dedicated eight chapters in his Samhita Grantha. A broad classification of vrana, shuddha vrana, nadi vrana, sadhya vrana, dagdha vrana, etc., and their management in the form of sixty upakramas which are from apatarpana to rakshavidhana are given in the text. There are many factors which are responsible for resulting in delayed wound healing like diabetes, anemia and the infection is one of these. So, infection in wound delays the healing of wound stages and produces a chronic wound. Infected wound may be correlated to dushta vrana. In ancient time Sushruta, Charak, Vagbhat, etc., provided a lot of knowledge related to dushta vrana. They also described detailed knowledge about management of dushta vrana. They described preventive measures for wounds and described dos and don'ts for a wounded patient too. So, there is huge description in Ayurveda to describe dushta vrana (infected wound). Now it is our skill to learn from our Samhita and utilize it to manage dushta vrana accordingly.

Conflict of Interest: None

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