



# Ijapc 2018

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*Volume 8 Issue 2*

[www.ijapc.com](http://www.ijapc.com)

*10/3/2018*

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Greentree Group



## An Ayurvedic Approach of Traumatic Wound and its Management: A Critical Review

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### ABSTRACT

*Ayurveda*, being an ancient science of longevity, has mentioned to handle many life threatening conditions in its text. Traumatology is also one of them. Wound has been classified as *nija* and *agantuja vrana*. *Agantuja vrana* is considered as traumatic wound. Description of its management is present in *Sushruta Samhita*, *Ashtang Sangrah* and *Ashtang Hridaya*. A rationale approach of its management can be developed as per their text. Modern day concept can be amalgamated for the promising results. Different authors have given their classification as per their criteria. Trauma of all types of injury is considered to treat on a common line of treatment and special treatment modalities are recommended in body part specific trauma.

### KEYWORDS

*Agantuja Vrana*, Trauma, *Sushruta Samhita*



**Greentree Group**

Received 02/01/18 Accepted 22/01/18 Published 10/03/18



## INTRODUCTION

*Acharya Sushruta*, son of sage *Vishwamitra*—the author of *Sushruta Samhita* and The Father of Surgery, has provided his magnificent contribution to the science of surgery as well as medicine. His concept of traumatic/ accidental wound, management of different types of traumatic wounds according to their characteristic features, methods of removing various types of foreign bodies tactfully and battlefield wound management as well as surgeries were the most appropriate.

## OBJECTIVE

To elaborate, evaluate, discuss the *sadhyo vrana* classification, characteristic features and their management described in our ancient literatures.

## MATERIALS AND METHODS

All the references were collected from the ancient ayurvedic literatures, authentic research journals and various websites related to the topic. Compilation was done and the contradictions regarding their different views upon the topic were critically evaluated.

### Classification of *Vrana*

*Vrana* is classified into *nija* and *aagantuja vrana* according to their origin and

aetiology. *Nija vrana* are caused by vitiation of doshas while *aagantuja vrana* are formed by external factors i.e. lacerations, punctures, incision, excision etc<sup>1</sup>. *Acharya Sushruta* described *vrana* into two kinds: *Sharira* (bodily/ endogenous) and *aagantuja* (external/ exogenous). *Shariravrana* are caused by aggravation of *vata*, *pitta*, *kapha*, *rakta* and *sannipata* while *aagantuja vrana* are caused by assault or injury from human beings, animals, falling from heights, pressing, squeezing, hit/blow, injury by fire, alkalies, poison, strong penetrating drugs, splints of wood, horns of animals arrow, axe and such other weapons. *Sadhyo vrana* are actually *aagantuja vrana* which are caused by weapons with various edges on different parts of the body<sup>2</sup>.

### Shapes of the *Vrana*

Shape may be long having four edges (square), three edges (triangular), round, half moon shaped (semilunar), broad, curved (irregular), some resembling saucer with depression in the centre, others with elevation in the centre<sup>3</sup>. These are different shapes of traumatic or accidental and also of *doshaja* wounds (endogenous wound caused by *doshas*).

### Classification of traumatic wound

*Acharya Sushruta* has classified six types of traumatic wounds which are as follows<sup>4</sup>:



**1. Chinna / Incised wound:** Wound which is oblique or straight, broad which includes falling off of the body parts is known as *chinnavrana*. *Chinna* and *bhinna vrana* are caused by sharp objects (sword, knife, axe etc.)

**2. Bhinna / Punctured wound of viscera:**

Chest and abdominal viscera punctured by the tip of *kunta* (dagger), *sakti* (spear), *rasti* (lance), *khadaga* ( sword), *vishana* ( horns of animals) etc. and exuding little quantity of fluids- are the features of punctured wound of the viscera. When the *kostha* is punctured, it becomes filled with blood; fever, burning sensation develop; blood comes out through urinary tract, anus, mouth and nose; fainting, dyspnoea, thirst, flatulence, lack of desire of food, non-elimination of faeces urine and flatus, sweating, red colour of the eyes, smell of iron coming from the mouth, bad smell of the body, pain in the heart region and flanks are the general symptoms.

If the blood accumulates in the stomach, the person vomits blood, has profound flatulence and excruciating pain. If it is in the *pakwashaya* (large intestine) there will be pain, feeling of heaviness, and coldness of the area below the umbilicus and bleeding through the orifices (anus). Even though these organs are not punctured, the intestine

get filled with water, through small pores in its sides and become heavy.

**3. Viddha / Punctured:** Any part of the body except the hollow viscera, injured by the weapons or foreign bodies through small opening and making the body part bulge up even after the foreign body has come out; such a wound is to be known as *viddha vrana*. (Through weapons having small tip viz. *bhala*)

**4. Ksata / Crushed:** These are caused by stone, wood or any blunt objects. Wound which has neither cut the body part greatly nor the body part is punctured actually, but having the symptoms of both, the wound being irregular in shape and level should be appreciated as *kshata vrana*.

**5. Picchita / Contused:** Any part of the body getting swollen, together with the bone present inside and filled with marrow and blood is known as *picchita vrana*.

**6. Ghrista / Lacerated:** Any part of the body losing its skin, either by assault (by weapon) or otherwise (rubbing on rough and hard surfaces etc.) accompanied with watery exudation is described as *ghrista / lacerated/ abraded* wound.

*Acharya Vagbahta* has divided the traumatic wound into eight categories although the number is unlimited<sup>5</sup>.



1. **Ghrista:** It is caused by minor injury i.e. friction, in which the epithelial layer is removed and burning sensation is there.

2. **Avakrita:** The wound which is deeper than the *ghrista* wound and characterized by bleeding.

3. **Vicchina:** Deeper *avakrita* wound is *vicchina*. It may lead to injury to the internal organs.

4. **Pravilambita:** Injury which is able to cut the skin deep but not the adjacent bone completely.

5. **Patita:** It is similar to *china vrana*, in which body parts falls off from the body.

6. **Vidalita:** It is caused by any injury which causes crushing of the bone and surrounding soft tissues, similar to the *picchita vrana*.

7. **Bhinna:** It is caused by sharp instrument which pierces deep to the organs.

8. **Viddha:** It is produced by weapons with sharp edges which pierce deep to the body except the *koshta*.

In *Astang Sangraha*, *sadhyovrana* is divided into three kinds: *Chinna*, *Viddha*, and *Picchita*. All the three kinds are called *kshata* because of loss of continuity of the skin or other tissues<sup>6</sup>.

a. **Chinna:** It is further divided into five kinds-

1. **Ghrista:** Abrasion of the skin.

2. **Avakrita:** Abrasion of the skin and little muscle also.

3. **Vicchina:** *Avakrita* being broad and long.

4. **Vilambita:** Wound in which very little of bone, tendons etc. remain as residue.

5. **Patita:** The body part getting detached completely from the body.

b. **Viddha:** It is of eight kinds-

1. **Anuviddha:** Wound through which a foreign body has entered into the muscle.

2. **Uttundita:** The foreign body causing a bulging of the skin on the opposite site of the entry.

3. **Atividhha:** The foreign body slightly coming out in the opposite side.

4. **Nirvidhha:** The foreign body coming out completely from the opposite site.

5. **Anubhinna**

6. **Bhinnottundita**

7. **Atibhinna**

8. **Nirbhinna**

*Anubhinna*, *Bhinnottundita*, *Atibhinna* and *Nirbhinna* are formed in the abdomen from assault by weapons with big faces such as *kuntha* etc.

c. **Picchita:** It is of two types-

1. **Savrana picchita:** In this type body part is crushed and blood along with marrow oozes out.



2. *Avrana picchita*: The affected bone is fractured without creating an external wound.

### ***Sadhyo vrana* classification according to different *Acharyas***

| S.No. | Su.Sa.          | A.S.            | A.H.                | Ma.Ni.          | Sh.Sa               |
|-------|-----------------|-----------------|---------------------|-----------------|---------------------|
| 1.    | <i>Chinna</i>   | <i>Chinna</i>   | <i>Ghrith</i>       | <i>Chinna</i>   | <i>Avakritha</i>    |
| 2.    | <i>Bhinna</i>   | <i>Viddha</i>   | <i>Avakritha</i>    | <i>Bhinna</i>   | <i>Vilambita</i>    |
| 3.    | <i>Viddha</i>   | <i>Picchita</i> | <i>Vicchina</i>     | <i>Viddha</i>   | <i>Chinna</i>       |
| 4.    | <i>Kshath</i>   | -               | <i>Pravilambita</i> | <i>Khatha</i>   | <i>Bhinna</i>       |
| 5.    | <i>Picchita</i> | -               | <i>Patita</i>       | <i>Picchita</i> | <i>Parachalitha</i> |
| 6.    | <i>Ghritha</i>  | -               | <i>Vidalita</i>     | -               | <i>Viddha</i>       |
| 7.    | -               | -               | <i>Bhinna</i>       | -               | <i>Nipathitha</i>   |
| 8.    | -               | -               | <i>Viddha</i>       | -               | -                   |

Abbreviations: Su.Sa- Sushruta Samhita, A.S.- Astang Sangraha, A.H.- Astang Hridaya, Ma.Ni.- Madhav Nidan, Sh.Sa.- Sharangdhar Samhita.

#### **General management:**

- When, in any kind of wound whether *chinna*, *bhinna*, *viddha* or *kshta*, bleeding is more, and then vata getting aggravated by loss of blood, produces severe pain. For this, oleation with fat, oil or ghee along with fomentation is beneficial. *Upnaha* (warm poultice) either from *veshavara* or *krishara* added with fat should be applied; fomentation be done using baked or fried paddy applying of unctuous pastes on the part, administration of oil enema, oil being prepared from drugs mitigating *vata*<sup>7</sup>.
- In traumatic wound oleation with ghee prepared from *madhuyasti* paste should be done or in case of intense pain lukewarm *bala* oil should be poured on the wound. To prevent the heat of the injured part, astringent, cold, sweet and unctuous paste can be applied. In broad traumatic wounds for wound approximation ghee and honey is

applied followed by pitta mitigating measures. Wounds with redness and oedema are managed by emesis and purgation. In such type of wounds fasting, proper dietary regimen and continuous bloodletting should be done. *Vidalita* and *ghrista* wounds should be managed by the same method mentioned above because bleeding is less in these wounds hence more chances of suppuration are there<sup>8</sup>.

- In *picchita* and *ghrista* wounds excessive bleeding is not present; because of stasis inside, there is feeling of severe burning sensation and formation of pus. To mitigate the heat of the wound and overcome burning sensation and pus formation, paste of cold drugs should be applied or cold liquids poured on the part<sup>9</sup>.
- Apart from *vidalita* and *ghrista* rest of the wounds bleed more. This blood loss leads to aggravation of *vata*, hence intense pain is



there. To mitigate the aggravated vata, oil intake, pouring of oil, fomentation, poultice, oil enema prepared from vata mitigating drugs should be given<sup>10</sup>.

### Special treatments:

#### *Chinna vrana*

The ear which is displaced should be replaced in its normal site, sutured and anointed with medicated oil; the orifice of the ear should be filled with the medicated oil<sup>11</sup>.

When the cut wound is at the end of the *krikatika* and air is coming out, then it should be placed in its place properly, continuous suture done and bandaged; the area should be bathed with goat's ghee; the patient should be asked eat lying with his face up and sleep well restrained. The wound is situated at the back of the neck up to the middle of the throat in front. Adopting supine position for taking food also helps for easy elimination of urine etc; the patient is immobilised in bed for sleeping. All these are meant to maintain the proper position of the cricoids<sup>12</sup>.

Wounds of the extremities which are cut obliquely and found gaping wide, then it should be sutured after pushing the bone and joints inside, placing them in proper place, then bandaged adopting either *vellitaka* type

or *gophanika* type, whichever is comfortable<sup>13</sup>.

When the wound is on the back, then the person should be placed in supine position (with face upwards) and when it is in the chest, he should be placed in the opposite position. These positions will provide drainage of doshas<sup>14</sup>.

When the extremities have been completely severed (separated from the body), then the wise physician should burn the wound by fire (heated iron rods), then apply oil soaked gauze and apply *kosha* type if bandage and take measures for healing the wound<sup>15</sup>.

#### *Bhinna vrana*

Eye, which has not been punctured, which is not able to do its normal function and which is hanging loose should be placed in its normal place without damaging the *siras* (veins, arteries), then massage with palm keeping petals of lotus in between. Next, *tarpan* should be done to the eye; filling the eye with ghee etc. and the same ghee is also put into the nose<sup>16</sup>.

When the eyeball has gone deep inside due to squeezing of the throat, then inducing vomiting, coughing, sneezing or *pranayam* (withholding breath) should be done, then treatment described for ulcers of the eyes should be adopted<sup>17</sup>.



In case of omentum comes out from the abdomen, sprinkle the *kashaya bhasma* and *krishn mritika* powder over the *medovarti*, and excise it with honey coated red hot *shastra* after ligation. For excision the *shastra* is heated red hot, as heat itself is a sterilizing agent, so helps in minimizing microorganisms load in the wound. For *sandhan karma* and to prevent the further infection and bandage it properly. The patient is given well cooked food and ghee to drink after that. Drinking of ghee is advocated even without following rules of internal oleation and is followed by drinking of milk added with *sharkara*, *madhuyasti*, *laksha*, *gosharu* and *chitra*. This will relieve pain and burning sensation. If excision of *medovarti* is not done, it will lead to flatulence, pain in abdomen and even death<sup>18</sup>.

### **Removing foreign body from the abdomen<sup>19</sup>**

Foreign bodies which have entered the abdomen cutting through the skin, veins etc and lodged inside should be removed either by cutting the abdomen or by other methods. If the person develops internal bleeding, paleness, coldness of hands, feet, and face, cold breath, redness of the eyes and flatulence, then such person should be rejected.

If haemorrhage is in the *aamashaya*, then emesis therapy is beneficial; if in the *pakwashaya*, purgation should be administered without doubting; decoction enema without adding fats prepared from purgative drugs should be given warm. Food prepared from *yava*, *kullatha* and kola or meat soup or *yavagu* added with *saindhav* be given as food. If bleeding has been severe or the organs are ruptured, the person may drink blood.

When faeces, urine and flatus are seen moving in their normal channels, when there are no complications, then the person survives even if the abdominal organs are punctured.

### **Treatment of intestinal protrusion<sup>20</sup>**

When the unruptured intestine has protruded out of the abdomen, it should be pushed back through the same orifice and not allowed otherwise (should not allowed to remain outside for long time). Some others say, these should in water; grass, blood or sand removed and held tight by the heads of big ants and then pushed inside slowly by the physician, who has pare his nails closely and smeared ghee to his hands. Probosis and pincers of bees and ants contain little formic acid which makes the bitten area dry and soft. There is also hint about carefulness of the intestines creating hazards. All these are





clear proofs to the expertise, skill and ingenuity of ancient surgeons of India.

If intestine is dry, it should be bathed in milk and smeared with ghee and then pushed inside. The patient's throat should be squeezed by the fingers, frightened by sprinkling water on his face; strong person should lift him up holding his hands and feet and shake him so as to make the intestine get inside, then the intestine creates disturbances of its own membranes (displaces it while entering).

When the wound is small and intestinal mass big and so difficult to get inside, then the surgeon should incise the abdomen to the required length; after it has placed in its normal position, the wound should be sutured. Intestine which has been improperly placed or twisted, takes kills the patient. Next the abdomen should be wrapped with a band of leather or thick cloth and ghee is poured over it. The person should be made to drink ghee added with oil of eranda comfortably warm for stool softening and vatanulomana. The patient is also advised to follow the proper conduct of wound management up to one year<sup>21</sup>.

In order to soften the faeces and help movement of flatus downward and to help healing of the wound medicated oil (made up of bark of *ashwakarna*, *dhava*, *mocaki*,

*meshshringi*, *shallaki*, *arjuna*, *vidari* etc) should be prepared. This oil heals the wound; the patient should lead life with restraint (avoiding physical activities, copulation etc.) for a period of one year<sup>22</sup>.

### **Prolapse of testes**

When the scrotum has been torn by weapons and testes are protruding out then the testes and the eyes both should be sprinkled with water; testes pushed inside near the scrotal raphe, continuous suturing is done and *gophanika* type of bandaging applied, tying it to round the waist; anointing and pouring liquids over the place should not be done since these creates moistness in the wound. Medicated oil prepared with *agaru* (*Aquilaria agallocha*), *ela* (*Elettaria cardamomum*), *jati* (*Jasminum officinale*), *chanadana* (*Santalum album*), *padmakh* (*Prunus cerasoides*), *darvi*, *amrita* (*Tinospora cordifolia*), *tuttha* (Copper sulphate) and *seasom* (*Sesamum indicum*) oil heals the wound<sup>23</sup>.

### **Foreign body in the skull**

After removing the foreign bodies from the head wicks made from hairs should be inserted into the wound; if such hair wick is not inserted *mastulunga* (brain matter) may flow out through the wound, the vata becoming aggravated will kill the person; hence it should be treated in this manner.



After the wound has healed the wicks of hair should be removed one by one<sup>24</sup>.

### Foreign body in other parts

After removing foreign bodies from other parts of the body, the wound should be cleared of blood and wicks lubricated with fat (oil or ghee) inserted; treatments advocated for traumatic wounds should be adopted here also beneficial. Wounds which are deep and small (with small opening) should be cleared of the blood and filled with *chakra* oil (fresh oil from the mill) with the help of nozzle of tubular instrument (used for washing eyes)<sup>25</sup>.

### Treatment of crushed, contused and lacerated wounds<sup>26</sup>

For *kshataja* (crushed wound) treatment described for *kshata* (internal oleation, pouring of lukewarm oil, poultice etc.) is appreciated. For *picchita* (contused) treatment is same as advocated in the fracture management. For *ghrista* (lacerated) pain is mitigated quickly and the wound treated with dusting powder of drugs.

The person who has displacement of his body parts, who has fallen from height, who has been twisted in his body parts and who has been hit on vital organs, should be made to lie (for some days) in a tub filled with oil and given food along with meat soup. The same treatment should be done even for

emaciated persons and those hit on fatal spots. The physician should do *parisheka* (pouring warm liquids in a stream) for accidental wounds which are painful; with ghee or *bala* oil, which is not in very cold state (made slightly warm). Accidental wounds should be treated for seven days with astringent and sweet drugs, cold and unctuous measures.

In case of *dustavrana* (septic wounds) purification both upwards and downwards (vomiting and purgation), foods which cause thinning of the body and bloodletting should be done first; the wound should be washed with decoction of drugs either *rajvrikshadi gana* or *sursadi gana*, medicated oil prepared from them is good for cleansing the wound; *kshara* or oil prepared with *kshara* may be used for the purpose.

## DISCUSSION AND CONCLUSION

*Acharya Sushruta* has classified *sadyo vrana* into six specific categories. However, a different approach is developed by *Ashtang hridaya* and *Ashtang sangrah*. But these classifications fit into the basic six types of *sadyo vrana* of *Sushruta*. The line of management adopted by *Sushruta* is definitely can't be applied into present scenario. But, his basic concepts are still as



such followed in different conditions. In today's world, there are several situations like natural disasters, war, terrorist attacks, where medical facilities are not easily available and in these conditions ancient context may be helpful. Common people may be trained to handle such a situation on line of *ayurveda* and basic principles of *Sushruta* management of trauma.



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