



Case Study

MANAGEMENT OF INFECTED WOUND WITH *KSHARAPLOTA* DRESSING - A CASE STUDY

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ABSTRACT

Acharya Sushruta the pioneer of Indian surgery described various surgical diseases and its management in detail. In which *Vrana* is utmost important. Acharya Sushruta in his text widely classified the word *Vrana* with its etiology, site, stage, odour and given various rescue modules for its management. Each and every type of wound requires systemic and local care for healthy and early healing. Cleaning and bandaging is important local procedure to expel out unhealthy, vitiated tissue, debris, dead cells and pus and for the generation of newer healthy tissue mass.

The management of lower extremity wound is a difficult task. It is necessary that clinician involved in wound care address both the systemic and local precipitating factors. *Dushta Vrana* defines as the *Vrana* vitiated by aggravation of *Dosha*. *Dushta Vrana* or infected wound has typical character like foul smell, unusual color with abundant discharge, severe pain and greater healing time. Acharya Sushruta has mentioned various dressing materials for wound healing and it includes *Pichu*, *Plota*, *Kawalika*, etc. In these *Plota* is better because of its dual purpose i.e. wound toileting as well as to cover the wound.

Usually patient avoids surgical debridement due to pain, fear and psychological factors. Therefore there is scope for non-surgical debridement modalities which are also known as parasurgical methods.

The Aim of this study is to demonstrate that how a *Ksharaplota* dressing is used to treat an infected wound which was slow healing or can say fails to heal. At the end we have got the desired and satisfactory results of *Ksharaplota* dressing which will definitely encourage us for new research with *Ksharaplota* in near future.

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INTRODUCTION

Traumatic wounds are typically defined as cuts, lacerations or puncture wounds which cause damage to both the skin and underlying healthy tissues.^[1] Progressive type of wound infection, may lead to gangrene and even amputation of the foot.

Because of the severity of traumatic wounds and their vast range of etiopathogenesis, treatment can either be as simple as cleaning and dressing of the wound or it can be more extensive and require surgical intervention for proper healing of the wound and to cure the patient.^[2] General treatment process for infected wound is cleaning by using sterile saline and extraction of exudates, pus,

unhealthy tissue, debris and slough from the wound.^[3] An antibiotic ointment or solution is applied to prevent secondary infection and finally a sterile dressing is applied to cover the wound and keep that clean and protected from any other manifestation.^[4]

There are multiple number of dressing materials given by *Sushruta* e.g, *Pichu*, *Kawalika*, *Plota*. *Vikeshikaor Varti* (among them *Plota* was selected as dressing material which can be used for dressing of infected wound).^[5]

Usually patient avoids surgical intervention and debridement due to fear of pain, discomfort and

psychological issues. Hence there is a need of non surgical debridement modality which is also known as parasurgical procedure.

Sushruta, father of ancient surgery described *Kshara* which will act as an excellent agent for debridement and wound healing properties.^[6,7] Prepared *Kshraplota* was^[8] applied alternate day over the lacerated infected wound (*Dushta Vrana*)^[9] for 11 times and without any other medication to the patient. Obtained observations and results from present case study of has shown that *Ksharaplota* works debridement, *Krimighana* properties^[10] and healing agent in infected wound due to its natural properties.

Case study

A - 58years old male patient named Mr. 'A' onsep 2017 who lived in a rural area, came to OPD regarding a chronic, irregular shaped, infected wound fails to heal along the planter aspect of right foot. The wound has been present from approximately two months. By profession Mr. A was a farmer and he told his wound occurred when he was harvesting in a crop field. Initially patient consulted to general practitioner and took some analgesics, anti-inflammatory and antibiotic and alternate day dressing but the wound fails to heal. As the time passes that acute wound transformed into chronic wound which was going to hamper the daily activity of Mr. 'A' and at present he require a attendant to support him for a normal walking too. On local examination we got to know that wound was still infected with devitalized tissue, slough, unhealthy hyper granulation tissues, tenderness and foul smelling pus discharge.

His past medical history reveals diabetes, hypertension, osteomyelitis, peripheral neuropathy, tuberculosis, Cancer and depression. The past surgical history is non-contributory. He denies alcohol and drug use. A written informed consent was taken from the patient regarding treatment procedure.

General examination and pathological investigation was done. Pathological investigation and blood results were: Haemoglobin 11.8 g/dl, RBC, WBC, DLC, Blood sugar level, Tridot test, HBsAg, sr.creatinine, urine microscopic and urine sugar were within normal range. X-ray of affected area was carried out to exclude underlying bone pathology. Criteria for assessment of infected wound were *Vedana*, *Daha*, *Kandu*, *Vranastrava* (amount of discharge), Consistency of *Strava*, *Gandha*, Wound Floor, Tenderness, Wound Area, Unit Healing Time. Mr. A's wound measure 5 x 3 cm wide, it included sign of infection with mild

inflammation of adjacent area. Base was easily movable from side to side. The floor of the wound was necrosed fascia and there was absence of healthy healing tissue. Margin and edges of the wound shows acute inflammatory condition. There was moderate amount of yellowish pus discharge and haemoserous exudate with slight malodor. Pain was rated as 7/10 with the help of VAS scale and not tolerate by the patient at the time of registration or consultation and Mr. 'A' lost a good quality life due to restricted movement of affected limb. Hence it can conclude that there was no systemic interference except trauma and sign of local infection. Mr. 'A' finally diagnosed as Traumatic Acute infected lacerated wound at planter side of right lower foot and decided for *Ksharaplota* dressing which require change every day. No need of analgesic, anti-inflammatory and antibiotics but it was necessary proper wound care with adequate nursing and nutrition regularly to achieve healthy wound healing process Along with special advice for movement of affected part.

Management Procedure of Dressing

Infected wound was washed by normal saline followed by local application of *Ksharaplota* once in a day and properly bandaged with sterile dressing. On the next day *Ksharaplota* was changed and in this way it was continued till appearance of *Shudhdavrana Lakshanas* (sign of fresh healing wound) and that was recorded up to 11th day. As per criteria of assessment, observations were recorded on alternate day (at every 3rd day).

Duration of treatment

Duration of treatment was up to appearance of *Shudhdavrana Lakshanas* (sign of healing wound) or up to 14 days whichever was earlier but in the present case study it was recorded on 11th day from the first day of treatment.

Follow-up study

On appearance of *Shudhdavrana Lakshanas* (sign of healing wound), the patients were asked to attend the OPD for a period of 1 month for alternate day and normal saline dressing followed by sterile bandaging which was done for a period of one month or complete epithelialization which was earlier. (Complete epithelialization means falling of scar was taken as the end point for complete epithelialization.) Observations were recorded after every 3rd day accordingly.

Observations for the present case study

1st day observation

On 1st day appearance of wound and adjacent area is reddish and bed of wound was having maximum proportion of unhealthy tissue

having malodor with tenderness.

Mr. A' was advised for wound dressing with *Ksharaplota* along with good nutritional diet and immobilization of affected part. His appetite was not good and also patient feel restlessness. There were no systemic sign of infection.

3rd day observation

On the 3rd day reassessment of the wound was done w.s.r. mentioned assessment criteria. After removal of previous dressing gauze which was not adherent to the wound was stained with pus, debris, necrotic tissue, slough and pus with foul smell. The level of exudates and necrotic tissue was medium. The patient was not complaining of any severe pain/irritation/discomfort and was tolerating *Ksharaplota* dressing comfortably and not complaining of any local irritation/complication due to *Ksharaplota* dressing. However, there was still evidence of some necrotic tissue.

5th day observation

On 5th day after removal of previous gauze which was not adherent to the wound we were found moist gauze with little pus and maximum necrotic tissues/slough with mild malodor. Local sign of inflammation was reduced up to a certain limit and there was evidence of healthy tissue generation on the bed of wound with mild tenderness on affected area. There was marked enhancement in mobility of affected part. The patient was not complaining of any severe pain/irritation/ discomfort and was tolerating *Ksharaplota* dressing comfortably and not complaining of any local irritation/complication due to *Ksharaplota* dressing.

7th day observation

On 7th day previous gauze which was not adherent to the wound having small amount of pus and slough with no evidence of malodor. Wound bed having ample amount of healthy tissue which shows signs of healing but edges and margins of wound still had unhealthy tissue. Redness and tenderness to adjacent area was nearly come to the end. Wound area contraction was progressive. Mr. A shows good quality of movement on affected part. The patient was not complaining of any severe pain/irritation/discomfort and was tolerating *Ksharaplota* dressing comfortably and not complaining of any local irritation/complication due to *Ksharaplota* dressing.

9th day observation

On 9th day previous gauze which was not adherent to the wound had scanty pus and slough without malodor, local tenderness of affected site diminished. Wound bed is fully filled with newly

formed red colored with velvety appearance of granulation tissues. Edges and margins show a little amount of unhealthy tissue. Other physical and psychological burdens which were raised due to ongoing wound pathology had subsided. Mr. A shows very good quality of movement on affected part. The patient was not complaining of any severe pain/irritation/discomfort and was tolerating *Ksharaplota* dressing comfortably and not complaining of any local irritation/complication due to *Ksharaplota* dressing.

11th day observation

On 11th day previous gauze was not adherent to the wound was nearly dry with very little stain on it. Wound bed is completely filled. Edges and margins were showing evidence and accumulation of healthy tissues which were slopping in nature. No fresh complain and Mr. A resembles and acts like a healthy person. Unit healing time was marked progressive along with marked progress in contraction of wound area. Wound size was of 3.5 x 2cm patient was not complaining of any severe pain/irritation/ discomfort and was tolerating *Ksharaplota* dressing comfortably and not complaining of any local irritation/complication due to *Ksharaplota* dressing.

At this point Mr. 'A' suggested only for normal saline dressing followed by sterile bandaging on alternate day up to the complete epithelization which was recorded on 25th day from the completion of actual treatment schedule.

DISCUSSION

According to *Sushruta Samahita* infected wound can be correlated with *Dushta Vrana*.^[11] In treatment of *Dushta Vrana* number of parameters are described, out of them *Kshara* is most popular and having power of *Shodhana*, *Lekhana* and *Ropana* properties. *Inkshara* treatment modalities *Snuhi*, *Apamaraga* has *Ksharan* and *Kshanan* properties and *Haridra* powder has *Krimighana* and *Ropana* properties.

CONCLUSION

1. Wound infection is often regarded as a challenging problem for clinicians and a considerable financial burden for patients and relatives. *Ksharaplota* dressing wounds is reassessed daily on initial treatment schedule.
2. The effectiveness of *Ksharaplota* dressing in this case study supposed to use as first choice of treatment for debridement as well as wound healing process for the infected wound.
3. *Ksharaplota* dressing is not adherent.

4. *Ksharaplota* dressing acts as sustained released medication because its ingredient released slowly and available for the longer duration in the wound and so it is well tolerated by patients without any discomfort.
5. *Snuhi* a major component of *Ksharaplota* dressing provide moisture to the wound due to its natural sticky property which enhances epidermal migration and promotes connective tissue synthesis.
6. The advantage of *Ksharaplota* in the same dressing to target two different phases of the wound healing (reduce bacterial infection and also inflammation associated with wound healing) is accepted to help and achieve rapid wound healing.
7. *Ksharaplota* have potential to be used as a wound healing formulation.

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Case Study Photograph



Fig 1: Sterile packed *Ksharaplota*



Fig 2: prepared *Ksharaplota* ready to use



Fig 3: fresh *Ksharaplota* for dressing



Fig 4: Infected Wound B.T



Fig 5: Appearance on 3rd day



Fig 6: Insertion of *Ksharaplota*



Fig 7: Application of *Ksharaplota*



Fig 8: Removal of Gauze



Fig 9: Appearance on 5th day



Fig 10: Appearance on 7th day



Fig 11: Appearance on 9th day



Fig 12: Appearance on 11th day



Fig 13: 7th day after completion of actual *Ksharaplota* dressing



Fig 14: 15th day after completion of actual *Ksharaplota* dressing



Fig 15: 1 Month after completing *Kshara plota* treatment schedule