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"EVALUATION OF SHODHAN AND ROPAN EFFECT OF KUTAJ GHRITA IN DUSHTA VRANA(INFECTED WOUND):A PILOT RANDOMISED CONTROLLED TRIAL"

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ABSTRACT

An ulcer is a break in the continuity of the covering epithelium skin or mucous membrane. It may either follow molecular death of the surface epithelium or its traumatic removal[1.]

The Vrana (ulcer) is defined as a structural deformity in the skin and the deeper structure (Gaatra Avachurnana), which is associated with Ruja (pain) and Srava (discharge), etc., caused by vitiation of Doshas or the Abhighata (injury). Aacharya Sushruta has mentioned two types of Vrana, i.e., Shuddha Vrana (acute ulcer) and Dushta Vrana (chronic ulcer)[2]. Dushta Vrana are Dirghakalanubandhi and non-responsive to treatment, mostly. Total 15 patients enrolled in this study were suffering from dushta vrana.The ulcer was painful, with pus discharge, foul smell, and itching. The patient undergoes daily dressing on an OPD basis, and Ayurvedic management.

The prescribed medicine that is Kutaj grita local application has Dahashamak,Vranaropak,Vranshodhak,Vranaropan Krimighna, Shulhar, lekhan[3]. In this case, Ayurvedic treatment is proven effective, safe, and superior for the healing of Dushta vrana, which not only facilitated the faster recovery but also minimized the complications. A case report of 15 patients, who presented an open ulcer associated with pain, discharge, slough and foul smell has been presented here.

Key words: Dushta Vrana, Shodhana & Ropana,Kutaj ghrita.

Introduction:-

In Ayurveda, particularly Sushruta has mentioned various types of Vrana and their management, which is of prime importance in any surgical practice / procedure. In recent past, brilliant progress of surgery in various fields has immensely reduced the incidence. of wound infection by decreasing the impediments associated with wound healing to certain limits. Still wound management continues to be a matter of speculation. Healing of Vrana is a natural process but due to the interference of vitiated Doshas, Vrana becomes Dushta and normal healing process gets delayed. Achieving better wound healing with minimal scar and controlling pain effectively are the prime motto of every surgeon.

Wound infection is one of the most important factors which delays healing and is also responsible for the formation of Dushta Vrana. In order to accomplish satisfactory healing of Dushta Vrana, it is necessary to get rid of infection. Sushruta was well aware about this type of complications. In the sixty procedures of Vrana management (Shashti Upakramas), he has explained various procedures for Vrana Shodhana and Vrana Ropana[4].

In the concept of wound management, all efforts have been made to keep the wound clean during the various stages of healing. Such cleaning process is called Vrana Shodhana. An ideal debridingagent should not damage to surrounding healthy tissue of a contaminated wound, should not have any undesirable effect and at the same time should be capable of performing debridement effectively. Lepana and Vrana bandhana are one among the Shasti Upakrama.

Different forms of external applications are described for the convenience of treatment of different diseases like Lepa Kalpana[4], Upanaha, Malahara kalpana etc. Lepa Kalpana is the herbo-mineral preparation used for external use. In Ayurveda, Lepa Kalpana is mainly described in Sharangadhara Samhita, Sushruta Samhita and Vaghbhata Samhita. The main basic concept of Lepa is that, wet drugs are pounded into fine paste form and dry drugs are pounded to fine powder form and mixed with any of the liquid media like Swarasa, Kwatha, Ghrita, Taila, Godugdha, Gomutra, Jala etc. according to demands of particular disease condition or needKutaj grita local application has Dahashamak,Vranaropak,Vranshodhak,Vranaropan Krimighna, Shulhar, lekhan.

The amount of research works done using Ghrita as Upakrama are very effective,economic and hence the need for this study.

METHODOLOGY

DRUG SOURCE:-

1. Raw Kutaj twak will be collected from government approved GMP certified pharmacy.
2. Authentication will be done in Rasashastra and bhaishajya kalpana department.
3. Kutajghrita will be prepared as per standard norms explained in sharangdhar samhita.

KUTAJ GHRITA INGREDIENTS

Case Report:-

Age group	Frequency	Percent (%)
30 to 39	05	31.25%
40 to 49	06	37.50%
50 to 59	05	31.25%
Total	**16**	**100.00%**

SR NO.	DRUG NAME	LT NAME	RASA	GUNA	VIRYA	VIPAK	PRABHAV	KARMA
1	Gaughrita[6]	Cow Ghrita	Madhura,	Snigdha, Laghu, Sheeta	Sheeta	Madhura	Vata-pitta prashaman/ Yogvahi	Dahashamak,Vranaropak,
2	Kutaj[7]	Holarrhenaantidyscendrica	Tikta ,Kashay	Laghu, Ruksha	Sheet	Katu	-	Vranshodhak, Vranaropan Krimighna, Shulhar, lekhan

Total 16 patient presented with the complaints of a non- healing ulcer. Before 2 months he was accidently injured the wound is formed over the dorsum of Right foot. He was treated with Antibiotic ointment (Povidine iodine) by a local doctor but it failed to respond. After few days ulcer become infected with freely flowing pus.

Patient having sign and symptoms of dushta vrana as per ayurvedic literature. Patient of irrespective of gender, caste, religion, sex, occupation are taken.Patient aged between 18-60 years. The floor was covered by slough, edges were inflamed. Wound area upto 36 cm2 irrespective of length and breadth will be selected for study with purulent discharge and irregular margin. Tenderness was also present with surrounding indurations and local rise in temperature. Local lymph nodes were not involved. There is no any immunological disorder. Routine haematology and urine investigations were within normal limits. Wound with known case of systemic disorders like HIV, Hepatitis B, known cases of diabetes mellitus or any other systemic infection,Vrana (wound) very near to vital organs,Ulcer secondary to any malignancy ,Patients suffering from wounds like tubercular ulcers, Venous ,arterial ulcers,leprotic ulcers, ulcers with Gangrenous changes ,Burn wound,Osteomyelitis, fracture wounds, bed sore are excluded.

METHOD OF APPLICATION:-

PURVA KARMA:-

1. All the Patient will be explained about the procedure. Informed written consent will be obtained.
2. Vrana prakshalana will be done with Normal Saline.
3. Dead tissue will be remove.

PRADHAN KARMA:-

1. The Kutaj ghrita and Yashtimadhu ghrita will be applied over the wound surface .

PASCHATKARMA:-

1. Gauze piece will be placed over the wound and thorough dressing will be done.

Follow up: On 18thand 21th day.

ASSESSMENT CRITERIA[5]:-

SUBJECTIVE PARAMETER:-

A) Vrana Vedana (Pain)
B) Vrana Gandha (Smell)
C) Vrana Daha (Burning sensation)
D) Vrana Kandu (Itching)

OBJECTIVE PARAMETERS:-

A) Vrana Praman(Size)
B) Vrana Strav(Discharge)
C) Vrana Oshthashotha(Wound margins)
D) Vrana Varna (Colour)
E) Vran tala (Granulation tissue)

Demographic Information:

Table No 1: Age Distribution:

The table indicates that the majority of respondents (37.50%) were in the 40–49 years age group. Respondents aged 30–39 years and those recorded as 50–59 years each accounted for 31.25% of the total sample. Thus, the age distribution was relatively balanced, with the 40–49-year group representing the highest proportion of respondents.

Graph No. 01:

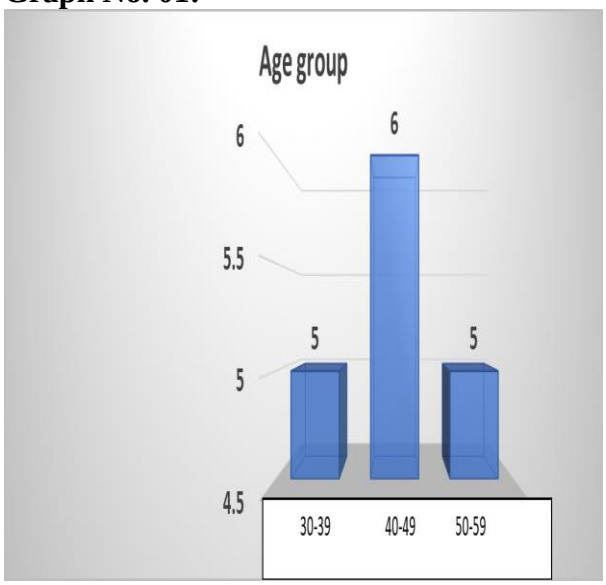


Table No 02:

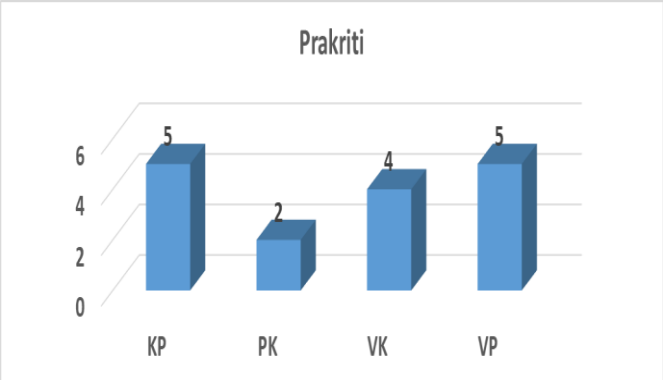
Prakriti wise distribution of patients:

KP	05	31.25%
PK	02	12.50%
VK	04	25.00%
VP	05	31.25%
Total	**16**	**100%**

The table presents the distribution of Prakriti among the 16 respondents. The KP and VP Prakriti types were the most common, with 5 respondents each (31.25%). This was followed by the VK type, which included 4 respondents (25%). The PK type was the least common, with only 2 respondents (12.50%).

Overall, the findings indicate that KP and VP Prakriti were equally predominant among the respondents, while PK Prakriti had the lowest representatio

Graph No. 02:



3. Gender: All 16 male & female patients were belonging to from male category.

4. Marital Status: All 16 (i.e. 100% patients were married.)

5. Occupation: All patients were form middle-class Socio-Economic Status. All patients were doing job.

6.Diet: All patients were from mixed diet pattern.

Statistical Analysis of different parameters:

For ordinal assessment parameter "Wilcoxon Signed Rank Test" is used for intra-group comparison. (I.e. before and after treatment of a group) while. Similarly, for quantitative parameters "paired t test" is used.

We have tested hypothesis for each parameter and result is represented accordingly, the level of significance is kept at 0.05. Proper summary statistics like contingency tables, percentages are provided along with graphs & diagrams.

1.VRANA VEDANA (PAIN):

Table No. 03:

Pain parameter shows that mean score before treatment was 2.00 which reduced to 0.06 on 21th day, there was 96.67% of improvement in the symptom, with test statistic value 13.12 the result was statistically significant ($p<0.05$)

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VRANA VEDANA	
Mean score, B.T.	2.00
Mean score, A.T.	0.06
S.D. (±), B.T.	0.00
S.D. (±), A.T.	0.25
S.E. (±), B.T.	0.00
S.E. (±), A.T.	0.06
Sample size (n)	16
W (Test statistic value)	13.12
P value	<0.05
Result	**Significant**

VRANA GANDHA	
Mean score, B.T.	1.75
Mean score, A.T.	0.00
S.D. (±), B.T.	0.45
S.D. (±), A.T.	0.00
S.E. (±), B.T.	0.11
S.E. (±), A.T.	0.00
Sample size (n)	16
W (Test statistic value)	15.65
P value	<0.05
Result	**Significant**

2.VRANA GANDHA (SMELL):

Table No. 04:

Pain parameter shows that mean score before treatment was 1.75 which reduced to 0.00 on 21th day, there was 100% of improvement in the symptom, with test statistic value 15.65 the result was statistically significant ($p<0.05$).

5.VRANA DAHA (BURNING SENSATION):

Table No. 05:

VRANA DAHA	
Mean score, B.T.	2.06
Mean score, A.T.	0.00
S.D. (±), B.T.	0.25
S.D. (±), A.T.	0.00
S.E. (±), B.T.	0.06
S.E. (±), A.T.	0.00
Sample size (n)	16
W (Test statistic value)	33.00
P value	<0.05
Result	**Significant**

Vrana Daha (Burning sensation) parameter shows that mean score before treatment was 2.06 which reduced to 0.00 on 21th day, there was 100% of improvement in the symptom, with test statistic value 33 the result was statistically significant ($p<0.05$).

6.VRANA KANDU (ITCHING):

Table No. 06:

VRANA PRAMAN (WOUND SIZE)	
Mean score, B.T.	1.88
Mean score, A.T.	0.50
S.D. (±), B.T.	0.81
S.D. (±), A.T.	0.52
S.E. (±), B.T.	0.20
S.E. (±), A.T.	0.13
Sample size (n)	16
W (Test statistic value)	06.82
P value	<0.05
Result	**Significant**

Itching parameter shows that mean score before treatment was 2.00 which reduced to 0.19 on 21th day, there was 90.63% of improvement in the symptom, with test statistic value 17.99 the result was statistically significant (p<0.05).

5.VRANA PRAMAN (WOUND SIZE):
Table No. 07:

Itching parameter shows that mean score before treatment was 1.88 which reduced to 0.50 on 21th day, there was 73.96% of improvement in the symptom, with test statistic value 06.82 the result was statistically significant (p<0.05).

6.VRANA SRAVA (WOUND DISCHARGE):
Table No. 08:

VRANA SRAVA (WOUND DISCHARGE)	
Mean score, B.T.	1.81
Mean score, A.T.	0.00
S.D. (±), B.T.	0.83
S.D. (±), A.T.	0.00
S.E. (±), B.T.	0.21
S.E. (±), A.T.	0.00
Sample size (n)	16
W (Test statistic value)	08.69
P value	<0.05
Result	**Significant**

Wound Discharge parameter shows that mean score before treatment was 1.81 which reduced to 0.00 on 21th day, there was 100% of improvement in the symptom, with test statistic value 08.69 the result was statistically significant (p<0.05).

7.VRANA OSHTHASHOTHA (WOUND MARGINS):
Table No. 09:

VRANA OSHTHASHOTHA (WOUND MARGINS)	
Mean score, B.T.	2.00
Mean score, A.T.	0.00
S.D. (±), B.T.	0.00
S.D. (±), A.T.	0.00
S.E. (±), B.T.	0.00
S.E. (±), A.T.	0.00
Sample size (n)	16
W (Test statistic value)	15.00
P value	<0.05
Result	**Significant**

VRANA TALA (GRANULATION TISSUE)	
Mean score, B.T.	2.69
Mean score, A.T.	0.00
S.D. (±), B.T.	0.48
S.D. (±), A.T.	0.00
S.E. (±), B.T.	0.12
S.E. (±), A.T.	0.00
Sample size (n)	16
W (Test statistic value)	22.46
P value	<0.05
Result	**Significant**

Wound Margins parameter shows that mean score before treatment was 2.00 which reduced to 0.00 on 21th day, there was 100% of improvement in the symptom, with test statistic value 15.00 the result was statistically significant (p<0.05).

8.VRANA VARNA (COLOUR
Table No. 10:

VRANA VARNA (COLOUR)	
Mean score, B.T.	2.56
Mean score, A.T.	0.00
S.D. (±), B.T.	0.51
S.D. (±), A.T.	0.00
S.E. (±), B.T.	0.13
S.E. (±), A.T.	0.00
Sample size (n)	16
W (Test statistic value)	20.00
P value	<0.05
Result	**Significant**

Vrana Varana parameter shows that mean score before treatment was 2.56 which reduced to 0.00 on 21th day, there was 100% of improvement in the symptom, with test statistic value 20.00 the result was statistically significant (p<0.05).

9.VRANA TALA (GRANULATION TISSUE):
Table No. 11:

Vrana Tala parameter shows that mean score before treatment was 2.69 which reduced to 0.00 on 21th day, there was 100% of improvement in the symptom, with test statistic value 20.00 the result was statistically significant (p<0.05).

Table No. 12:
Overall summary of Result:

The total effect of therapy is evaluated by taking

Parameter	Group
VRANA VEDANA (PAIN)	Significant
VRANA GANDHA (SMELL)	Significant
VRANA DAHA (BURNING SENSATION)	Significant
VRANA KANDU (ITCHING)	Significant
VRANA PRAMAN (WOUND SIZE)	Significant
VRANA STRAV (DISCHARGE)	Significant
VRANA OSHTHASHOTHA (WOUND MARGINE)	Significant
VRANA VARNA (COLOUR)	Significant
VRANA TALA (GRANULATION TISSUE)	Significant

relief in percentage of each patient. all 16 patients (i.e. 100%) realized marked improvement**.**

Discussion on Observation:
The demographic findings show that the study included a total of 16 patients. Regarding age, the highest proportion of patients (37.50%) belonged to the 40–49 years age group, while 31.25% each were in the 30–39 years and 50–59 years groups. Thus, the patients were distributed fairly evenly across the age groups, with a slightly higher representation of middle-aged patients.
With respect to Prakriti, KP and VP Prakriti were equally predominant, comprising 31.25% of patients each. VK Prakriti accounted for 25%,

Overall effect	Count	%
Moderate Improvement	00	0.00%
Mild Improvement	00	0.00%
Unchanged	00	0.00%
Total	**16**	**100.00%**

whereas PK Prakriti was least represented (12.50%). This indicates a greater representation of KP and VP Prakriti in the study population.
All 16 patients (100%) were male and married. Similarly, all patients belonged to the middle socio-economic class, were employed, and followed a mixed dietary pattern. Therefore, the demographic characteristics of the study population were relatively homogeneous, particularly with respect to gender, marital status, socio-economic status, occupation, and diet. These factors may have reduced demographic variation within the study sample and provided a more uniform population for assessment of the study outcomes**.**

Table No. 13:
Mean percent improvement in various Assessment parameters:

Parameters	Mean % Improvement
VRANA VEDANA (PAIN)	96.67%
VRANA GANDHA (SMELL)	100.00%
VRANA DAHA (BURNING SENSATION)	100.00%
VRANA KANDU (ITCHING)	90.63%
VRANA PRAMAN (WOUND SIZE)	73.96%
VRANA STRAV (DISCHARGE)	100.00%
VRANA OSHTHASHOTHA (WOUND MARGINE)	100.00%
VRANA VARNA (COLOUR)	100.00%
VRANA TALA (GRANULATION TISSUE)	100.00%
Overall Average % Improvement	**95.70%**

Table No. 14:
Distribution of patients according to relief:

Discussion on Subjective & Objective Criteria:

A marked improvement was observed in all assessed parameters after treatment. Significant reduction was found in Vrana Vedana (pain), Vrana Gandha (smell), Vrana Daha (burning sensation), and Vrana Kandu (itching). Similarly, wound size, discharge, wound margins, colour, and granulation tissue also showed statistically significant improvement ($p<0.05$).
The mean percentage improvement was highest (100%) for smell, burning sensation, wound discharge, wound margins, wound colour, and granulation tissue. Improvement in pain was 96.67%, itching was 90.63%, and wound size was 73.96%. The overall average improvement was 95.70%.
Overall, all 16 patients (100%) showed marked improvement, with no patients falling into the

moderate improvement, mild improvement, or unchanged categories. These findings suggest that the treatment was effective in improving the clinical features and healing-related parameters of Vrana in the studied patients.

Conclusion

The present study showed that the treatment produced significant improvement in all assessed clinical parameters of Vrana. Significant reduction was observed in pain, smell, burning sensation, itching, wound size, discharge, wound margins, colour, and granulation tissue ($p<0.05$). The overall mean improvement was 95.70%, and 100% of patients showed marked improvement. Thus, the treatment was found to be effective in promoting wound healing and reducing the clinical symptoms of Vrana in the studied patients.

Result

The total effect of therapy is evaluated by taking relief in percentage of each patient. All 16 patients (i.e. 100%) realized marked improvement.

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