VOLUME-7, ISSUE-11, NOVEMBER-2018 • PRINT ISSN No 2277 - 8160

Original Research Paper

Surgery

ROLE OF PAPAYA DRESSINGS IN MANAGEMENT OF CHRONIC ULCERS

Dr. K. Suhas	Professor, Department of General Surgery, ASRAMS Eluru, Andhra Pradesh, India. 534005.
Dr. Srinivas Mahesh Ayyar	Assistant Professor, Department of General Surgery, ASRAMS Eluru, Andhra Pradesh,
Dr. K. Sidhardha*	Post Graduate, Department of General Surgery, ASRAMS Eluru, Andhra Pradesh, India. 534005..*Corresponding author
Dr. G. Venkata Srinadh	Post Graduate, Department of General Surgery, ASRAMS Eluru, Andhra Pradesh, India. 534005.

ABSTRACT A practical definition of a Chronic Ulcer is one that has failed to heal within 3 months. Although there are a variety of underlying causes, most can be categorized as pressure sores, diabetic foot ulcers or leg ulcers. Different strategies including honey dressings, medicated dressings, povidone iodine dressings, platelet rich plasma dressings, saline dressings, vacuum dressings and papaya dressings are available in the management of Chronic Ulcer. Papaya has been studied from a pharmacologic perspective. Green papaya is rich in two enzymes (papain and chymopapain) that have very strong digestive properties, with an ability to dissolve dead tissue. The extracts of ripe and unripe papaya fruit and of the seeds are active against gram-positive bacteria. Strong doses are effective against gram negative bacteria. The substance has protein-like properties and yields the aglycone of glucotropaeolin benzyl Isothiocynate (BITC) which is bacteriostatic, bactericidal and fungicidal.

KEYWORDS : Ulcer, Papaya, Dressing

INTRODUCTION:

A practical definition of a Chronic Ulcer is one that has failed to heal within 3 months. Although there are a variety of underlying causes, most can be categorized as pressure sores, diabetic foot ulcers or leg ulcers. In the management of Chronic Ulcer early recognition of severe infections, diabetes control, appropriate and effective antibiotic selection, early surgical intervention, wound debridement; wound washing, appropriate dressings and definitive wound closure are the key components.

Safe and effective debridement method for the patient with a chronic diabetic wound is yet to be elucidated completely. Clinical experience strongly favors the combined therapy, such as initial surgical debridement followed by serial debridement using an enzymatic agent, is effective for many patients with chronic, indolent, or non healing wounds.

Different strategies including honey dressings, medicated dressings, povidone iodine dressings, platelet rich plasma dressings, saline dressings, vacuum dressings and papaya dressings are available in the management of Chronic Ulcer. Papaya has been studied from a pharmacologic perspective. Green papaya is rich in two enzymes (papain and chymopapain) that have very strong digestive properties, with an ability to dissolve dead tissue. The extracts of ripe and unripe papaya fruit and of the seeds are active against gram-positive bacteria. Strong doses are effective against gram negative bacteria. The substance has protein-like properties and yields the aglycone of glucotropaeolin benzyl Isothiocynate (BITC) which is bacteriostatic, bactericidal and fungicidal.

2. MATERIAL & METHODS:

This is prospective longitudinal study performed at Alluri Sitarama Raju Academy of Medical sciences & Hospital, Eluru, Andhra Pradesh 1st July 2017 to 31st October 2018.

Patients (n=81), with Chronic Ulcer up to grades 3, were included. Age of the patients ranged from 40 to 70 years. Patients with recurrent diabetic foot, poorly controlled blood sugar, peripheral ischemic disease, chronic renal failure, ischemic heart disease, hepatitis, malignancy and chronic ulcer of grade 4 & grade 5 were excluded. Grades of Chronic Ulcer were classified according Wagner's classification system (Table 1).

Table 1: Wagner's classification for diabetic foot disease

Grade 0	High risk foot and no ulceration.
Grade 1	Superficial Ulcer.
Grade 2	Deep Ulcer (Cellulitis)
Grade 3	Osteomyelitis with Ulceration or abscess.
Grade 4	Gangrenous Patches. Partial foot gangrene.
Grade 5	Gangrene of entire foot.

Initial management included empirical antibiotics, surgical debridement, control of glycaemia with the help of physicians and then wound care with the help of papaya dressings.

An Unripe papaya was taken and washed with normal saline. Skin of the papaya was discarded and multiple slices were made. The wounds covered with slices over sterilized gauze dressing were done. Patients and attendants were also educated for the dressing. Dressings were changed after every 48 hours. Patients were discharged after initial wound management and control of blood sugar. Rest of the dressings was carried out on OPD basis. The wounds were declared healthy when they were filled with healthy granulation tissue and had epithelial growth on their edges. After that papaya dressings were discontinued and simple dressings without any medications were carried out till the complete closure of wound.

3. RESULTS

Table 2 : Grades of chronic ulcer of patients (n=81)

Grades	N0 (%)
Grade I	27(33.33%)
Grade II	45 (55.56%)
Grade III	9 (11.11%)

In this study the age of patient ranged from 40 years to 70 years. Maximum numbers of patients were in the age group of 50 to 60 years. Majority were males (80%) with male to female ratio of 4:1. There were twenty seven (33.33%) patients with grade I, forty five (55.6%) patients with grade II and nine (11.11%) patient with grade III (Table 2).

Table 3: Surgical procedure performed in the patients with diabetic foot

Initial surgery performed	No (%)
No Surgery Require	23 (28.89%)
Debridement	58 (71.11%)
Amputation and Debridement	00 (0%)

Fifty eight patients (71.11%) were operated for debridement and twenty three patients (28.89%) didn't require any surgical treatment (Table 3).

Table 4: Initial and further surgeries in the patients

Further surgery after initial treatment	No (%)
No Further Surgery	72 (88.89%)
Debridement	09 (11.11%)
Amputation	00 (0%)

After the initial surgical treatment and dressing seventy two (88.89%) patient needed no further surgery, nine patients (11.11%) were operated for further debridement (Table 4).

Healing time ranged from 14 to 29 days. Mean healing duration was 19.65 days with Standard Deviation (SD) of ±3.47. Majority of the patients (51.11%) had healing duration of 18 to 20 days (Table 5). The healing was labeled to those wounds which had a healthy granulation tissue and having growing epithelium on their margins.

Table 5: Papaya dressing - duration in days

Duration in days	No Of Patient
14	3
15	6
16	6
17	15
18	33
19	24
20	12
21	6
22	3
23	3
24	6
25	6
26	3
27	3
28	3
29	3

4. DISCUSSION

Each of the patients had chronic medical conditions which both caused skin ulceration and mitigated against their prompt healing. All had tissue ischemia as the underlying process.

In each of these cases that had an arterial origin, the Papaya (Carica Papaya) dressing's treatment appears to have improved arteriolar circulation, but only in tissue which was ischemic and not necrotic and which was sufficiently viable progressed to healing.

Moreover, the quality of the skin around the ulcer improved markedly and rapidly in all cases. The initial improvement and closure of the wound was quite rapid, which was followed by healing at a rate more in keeping with that expected in normal skin. It may be that Papaya (Carica Papaya) dressings normalized the skin micro-environment, allowing healing to take place at the normal rate.

The papaya dressings in our study significantly reduced the risk of multiple surgical interventions and amputations.

Many studies suggested use of papaya for wound bed preparation. The additional effect of papaya dressing beside the micro-debridement is antibacterial activity which is also mentioned in the international literature.

5. Conclusion

Topical papaya dressing provides cost effective and favorable outcome in patients with Chronic Ulcer by decreasing the healing duration, reducing surgical interventions.

REFERENCES

1. Moura LI, Dias AM, Carvalho E. Recent advances on the development of wound dressings for diabetic foot ulcer treatment--a review. Acta Biomater. 2011; 9: 7093-114
2. Moghazy AM, Shams ME, Adly OA, Abbas AH. The clinical and cost effectiveness of bee honey dressing in the treatment of diabetic foot ulcers. Diabetes Res Clin Pract. 2010 ; 89 :276-81
3. Landsman A, Agnew P, Parish L. Diabetic foot ulcers treated with becaplermin and TheraGauze, a moisture-controlling smart dressing. J Am Podiatr Med Assoc. 2010 ;100:155-60
4. Shukrimi A, Sulaiman AR, Halim AY. A comparative study between honey and povidone iodine as dressing solution for Wagner type II diabetic foot ulcers. Med J Malaysia. 2008;63:44-46.
5. Dougherty EJ. An evidence-based model comparing the cost-effectiveness of platelet-rich plasma gel to alternative therapies for patients with nonhealing diabetic foot ulcers. Adv Skin Wound Care. 2008; 21:568-75.
6. Hewitt H, Talabere L,Bailey E, Weaver S, Wint Y. The Use of Papaya on Pressure Ulcers. ANJ, The American Journal of Nursing, 2002; 102:73-77
7. Sarabahi S. Recent advances in topical wound care. Indain J Plast Surg. 2012; 45:379-87
8. Murthy MB, Murthy BK, Bhave S. Safety and efficacy of papaya dressing with hydrogen peroxide solution on wound bed preparation. Indian J Pharmacol. 2012;44:784-87.
9. Benskin LL. A review of the literature informing affordable, available wound management choices for rural areas of tropical developing countries. Ostomy Wound Manage. 2013 ;59:20- 41.
10. Dawkins G, Hewitt H, Wint Y, Obiefuna PC, Wint B. Antibacterial effects of Carica papaya fruit on common wound organisms. West Indian Med J. 2003;52:290-92...
11. Murthy MB, et al. Comparison of safety and efficacy of papaya dressing with hydrogen peroxide solution on wound bed preparation in patients with wound gape.Indian J Pharmacol. 2012 Nov-Dec.