

A Clinical Study of Management of Wounds using Vaccum-Assisted Dressings**Mohammed Faizul Viqhas K¹, Nivedita², Mohammad Noor Alam³**^{1,3}Senior Resident, Gulbarga Institute of Medical Sciences, Kalaburagi²Assistant Professor, Gulbarga Institute of Medical Sciences, Kalaburagi

Received: 16-07-2023 / Revised: 18-08-2023 / Accepted: 21-08-2023

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Conflict of interest: Nil

Abstract:

One of the most common causes for admission in surgical ward is non healing ulcer. In which diabetes is the most common etiology. In most of the cases, hospital stay of many weeks is required for management of the above. In many cases they ultimately go for amputation. Acute and chronic wounds affect at least 1% of the population. Regardless of etiology, wounds are difficult to treat if coexisting factors (eg. infection or diabetes mellitus) prevent regular wound healing.

Keywords: Wound, Vaccum, Healing.

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Introduction

One of the most common causes for admission in surgical ward is non healing ulcer. In which diabetes is the most common etiology. In most of the cases, hospital stay of many weeks is required for management of the above. In many cases they ultimately go for amputation. Acute and chronic wounds affect at least 1% of the population. Regardless of etiology, wounds are difficult to treat if coexisting factors (eg. infection or diabetes mellitus) prevent regular wound healing.

Wounds represent a significant risk factor for hospitalization, amputation, sepsis, and even death, and from the patient's perspective, wound therapy is often un-comfortable and painful. In all sense patients turns to be a burden for society and family

Vacuum assisted closure is a universally accepted method for dressing. It has proved its efficacy for wound dressing. Faster wound healing, shorter hospital stay.

Still in our hospital, majority of dressings are conventional. My aim is to show the advantage of V.A.C over conventional dressing in our hospital. The application of negative pressure to promote wound healing first was described in the Russian medical literature for patients with infected breast wounds. These original reports described the topical application of a suction- cup-type apparatus to the wound surface to create negative pressures of 80 mm Hg [1,2]. Subsequent reports have described the successful management of enterocutaneous fistulae and open abdominal wounds using flat drains delivering negative pressure under compliant plastic

films. [3–5] In these early reports surgical gauze was used to create an interface between the wound surface and the vacuum source.

Methodology

Study is conducted at Basaveshwara Teaching and General Hospital. Patients are selected from general surgery wards.

Period of Study

A total of 50 cases clinically presenting as ulcer between September 2020 and July 2021 were included in the study.

Inclusion criteria

- Patient more than 12 years of age
- Patients presenting with ulcer.

Exclusion Criteria

- Patients less than 12 years of age
- Malignant ulcers.
- Patients with compromised vascular supply to the affected site.
- Patients with fistula/ gangrene/ anaerobic infection/ active bleeding/ undebrided wound.

Clinical examination of each case was done systematically as per the proforma drafted for the study and case selection was done.

Results

An interventional study involving 50 cases of ulcer was done in the Department of General surgery,

Basaveshwara Teaching and General Hospital, between September 2020 and July 2021.

Table1: Age distribution of wounds

AGE GROUP	Frequency	Percentage
<40	4	8
41-60	38	76
>61	8	16

Number of Patients

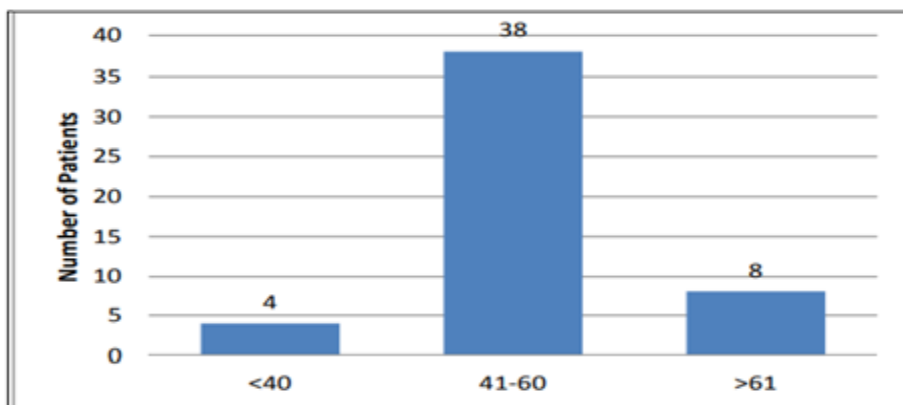


Chart 1:

Most of the patients presenting with wounds were in the age group of 41-60 years of age (76%)

Table 2: Gender distribution of wounds

GENDER	Frequency	Percentage
male	32	64
female	18	36

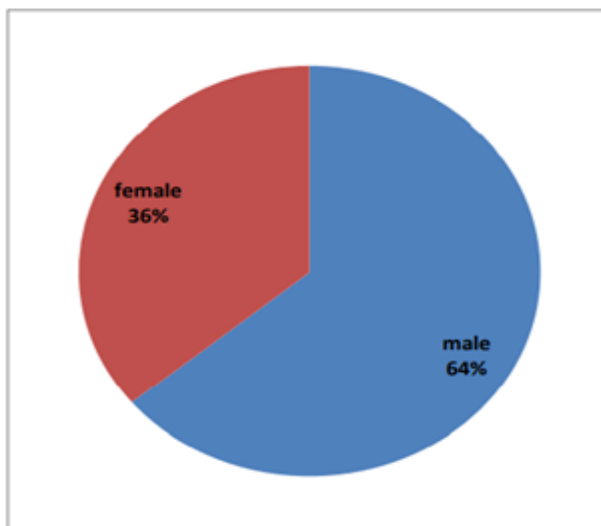


Chart 2:

Wounds were more common in males 32 cases (64%) than in females 18 cases(36%) Male to female ratio 1.778: 1.

Table 3: Distribution of location of wounds

LOCATION	Frequency	Percentage
foot	29	58
leg	18	36
sole	2	4
forearm	1	2

Number of Patients

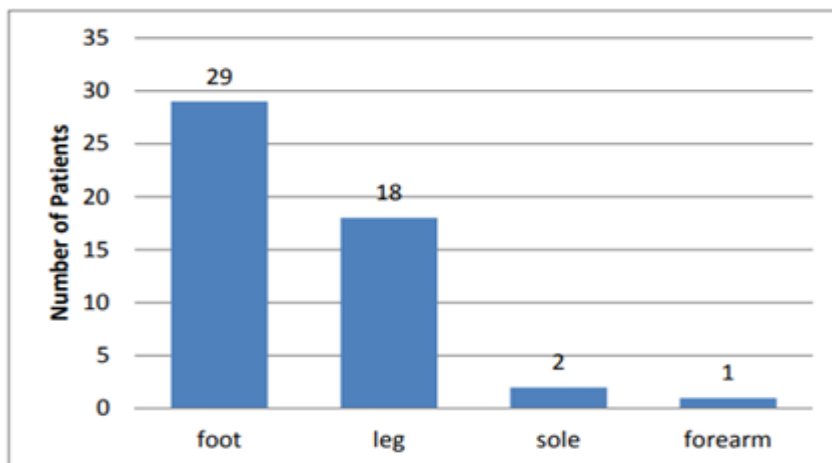


Chart 3:

Wounds were most commonly located in the foot 29(58%) followed by the leg 18(36%),sole 2(4%) and forearm 1(2%) .

Table 4 : Organisms cultured from wound control organisms before:

ORGANISMS	Frequency	Percentage
staphylococcus	11	44
pseudomonas	2	8
proteus	2	8
klebsiella	1	4
escherichia coli	1	4
No growth	8	32

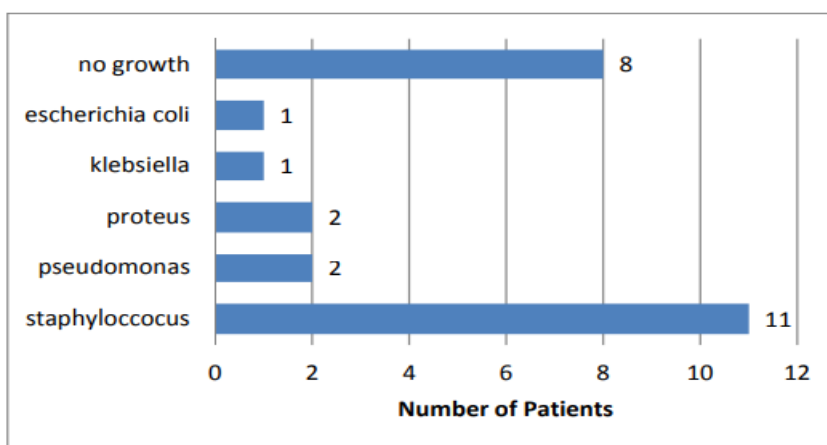


Chart 4:

Most common organism cultured from the wounds(CONTROL) was Staphylococcus aureus 11(44%).

Table 5: Control organisms after:

ORGANISMS	Frequency	Percentage
staphylococcus	5	20
pseudomonas	1	4
no growth	19	76

Table 6: Cases organisms before

ORGANISMS	Frequency	Percentage
staphylococcus	11	44
pseudomonas	5	20
proteus	2	8
klebsiella	1	4
escherichia coli	2	8
No growth	4	16

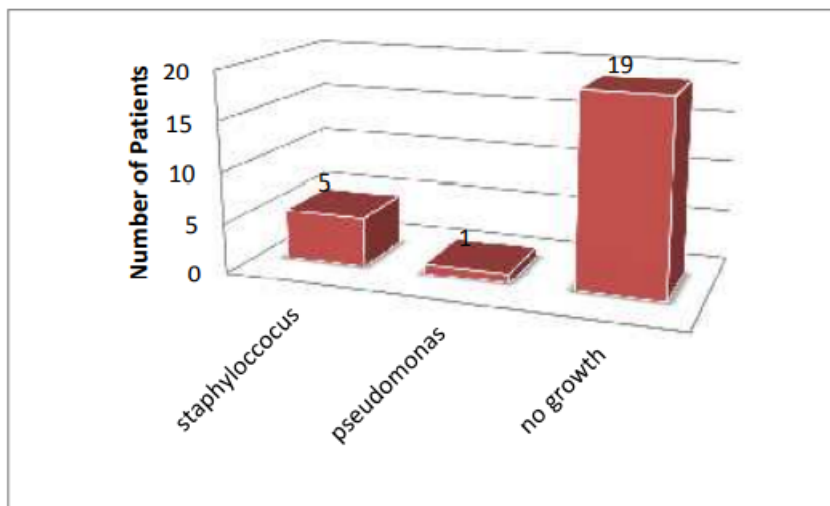


Chart 5:

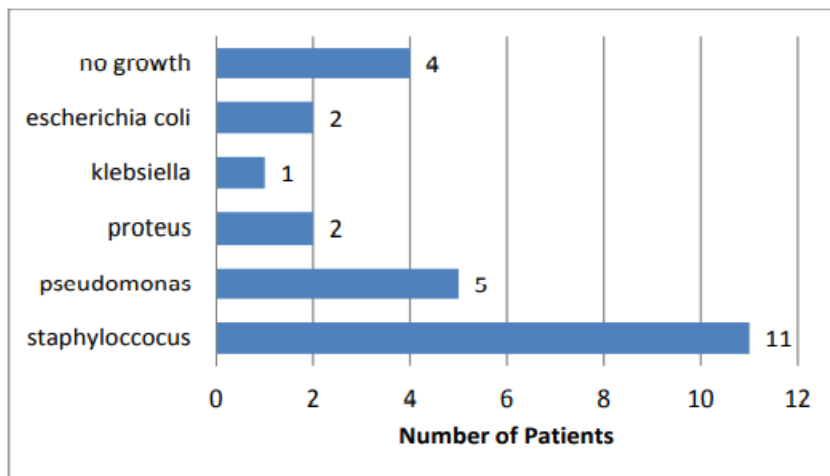


Chart 6:

Most common organism cultured from the wounds(CASES) was Staphylococcus aureus 11(44%).

Table 7: Cases organisms after

ORGANISMS	Frequency	Percentage
staphylococcus	1	4
escherichia coli	1	4
No growth	23	92

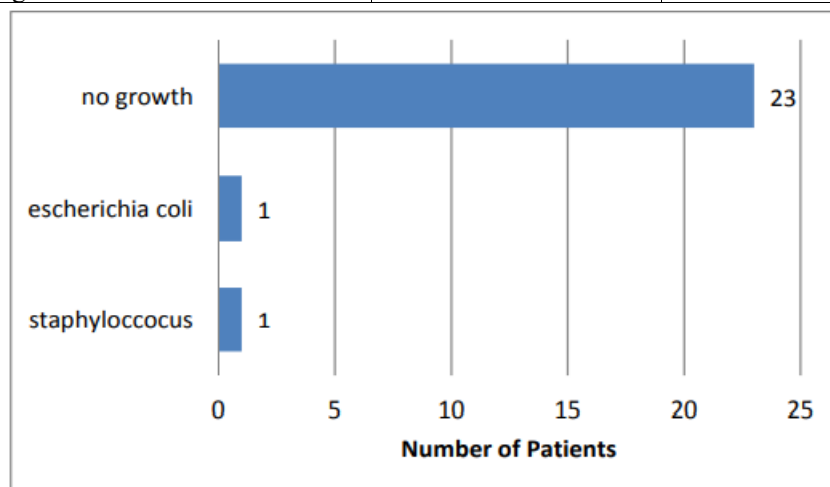


Chart 7:

Discussion

Age Distribution: Most of the patients in the study population was in the age group of 41- 60 years. 76% of the study population was within the age group of 41-60years

Gender Distribution: Wounds were more common in males than females. Out of the 50 patients 32 were male, i.e. 64% of the study population were males

The male to female ratio was 1.778:1

Location Distribution: Wounds were commonly located at the foot 29(58%) followed by leg 18(36%), sole 2(4%) and forearm 1(2%)

Organism Cultured: Most common organism cultured both from case and control population was *Staphylococcus aureus* 11(44%) each.

Pre Vac & Post Vac Culture Analysis:

Patients with sterile pre-vac culture were not turning non-sterile after VAC.

But 90% of non-sterile pre-vac culture turned sterile after VAC.

Hospital Stay:

The hospital stay was found to be only 21 days for patients with VAC dressing, when compared to the conventional dressings, who have an average hospital stay of 28 days.

Independent Sample t-test shows that the study is significant (p-value<0.0001)

Patient Factor: Patients were free of daily cleaning and dressing. Patient compliance and satisfaction was found to be good. There was a general increase in patient well-being and confidence after putting VAC dressing.

End of Treatment Analysis

Patients with VAC dressing have more Split Skin Graft before discharge and less rate of amputation when compared to the control group.

Pearson Chi Square test shows the study is

significant (p-value= 0.048).

56% of cases were given SSG cover when compared to 28% in control group.

The amputation rates in cases were only 4% when compared to 28% in control group.

Conclusion

VAC therapy is a recent modality of treatment of wounds. Its introduction has changed the course of management of wounds. Based on the data from the present study and other studies available, VAC does appear to result in better healing, with few serious complications, and thus looks to be a promising alternative for the management of various wounds. The application of VAC is simple, but requires training to ensure appropriate and competent use. The cost of VAC will vary and depend on the length of hospital stay and cost of supplies.

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