Original Research Paper

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Surgery

THE ROLE OF VACUUM ASSISTED CLOSURE IN DIABETIC WOUNDS

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ABSTRACT To study the outcome of vacuum assisted closure of diabetic wounds and to evaluate the positive impact of vacuum assisted closure on wound healing in enhancing granulation tissue formation , in patients who presented to the department of general surgery, Meenakshi Medical College hospital and RI, enathur , kanchipuram.

KEYWORDS : Vacuum-assisted closure (VAC), objective scoring system of wounds, Negative Pressure Wound Therapy (NPWT), wound contraction, granulation tissue, wound dressing.

INTRODUCTION :

Vacuum-assisted closure (VAC) is new in the armamentarium of managing wounds, both acute and chronic. Vacuum-assisted wound closure refers to wound dressing that uses pressure below normal, continuously or intermittently by an apparatus, this promotes healing in various kinds of wounds. It helps in wound debridement. Wounds heal best when the negative pressure is 125mmHg. Negative pressures remove fluid, decreases edema and increases blood flow. Thus decreasing bacterial counts. Our customized technique is less expensive than conventional management of complex wounds.

PATIENTS :

From dec 2015 till dec 2016, 25 patients admitted to surgical wards in meenakshi medical college and RI, enathur, kanchipuram were selected to the study according to the following inclusion and exclusion criteria.

INCLSION CRITERIA :

1. Patients: diabetic patients.
2. Age group: 25 to 75 years
3. Sex: both sexes

EXCLUSION CRITERIA:

1. Age group : < 25years and > 75 years
2. Hemoglobin : <10 g%
3. Patients on anticoagulants
4. Immuno compromised patients who have AIDS, steroidal therapy.
5. Wounds with:
   1.Active bleeding
   2.Exposed vessels
   3.Anastomotic sites
   4.Organs
   5.Nerves
   6.Malignancy
   7.Untreated osteomyelitis / active infection
   8.Necrotic tissue

MATERIALS AND METHODS:

Materials :

1. Suction catheter 14F or 16 F
2. Sponge (autoclaved), number depending on the size of the wound.
3. Suction apparatus available in the ward.
4. Opsite sheet
5. Sterile gloves

Method :

Wound dressing is removed. A swab culture is taken. The wound must be adequately debrided of necrotic tissue. Evidence of wound infection should be treated before the initiation of NPWT. Once this is done, under aseptic precautions The sponge is either cut or more sponges added according to the size of the wound.

1. Fenestrations made in suction catheter according to the size of the sponge, such that the diagonal length corresponding to the sponge used is fenestrated.
2. One end of the suction catheter is inserted into the sponge along the diagonal length of the sponge.
3. The sponge is placed over the wound area, care should be taken to cover the entire wound area.
4. This is kept in place by wrapping the entire setup using an opsite sheet, allowing the other end of the suction catheter to come out through the opsite cover without disturbing the seal.
5. The suction catheter is connected to a suction apparatus.
6. Intermittent NPWT is given in a 30mins negative pressure and 30 mins rest cycle .
7. VAC reapplied after 3 days or if the wound's ideal – planned for cover.

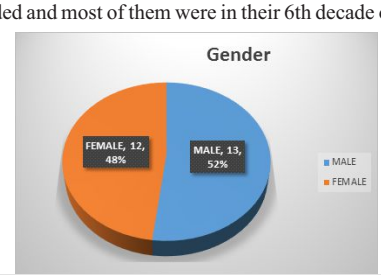
OBSERVATION AND ANALYSIS OF RESULTS :

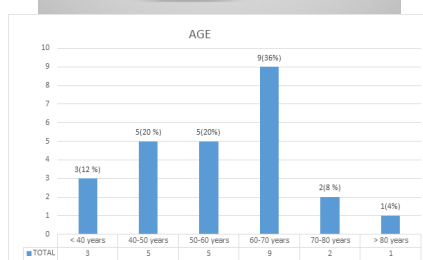
The outcome was measured using wound scoring system consisting of area of wound covered with granulation tissue, and its color and consistency.

Wound scoring system

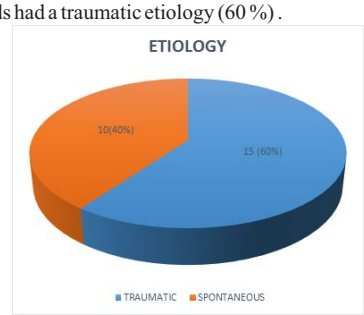
Granulation	SCORE	DAY 3	DAY 7	DAY 10
NONE	0			
1/4 wound area	1			
1/2 wound area	2			
2/3 wound area	3			
Complete	4			
Color	SCORE			
Pale	0			
Pink	1			
Bright red	2			
Consistency	SCORE			
Spongy	0			
Solid	1			

In our study 13 male and 12 female patients with diabetic foot ulcers were included and most of them were in their 6th decade of life (36 %) .

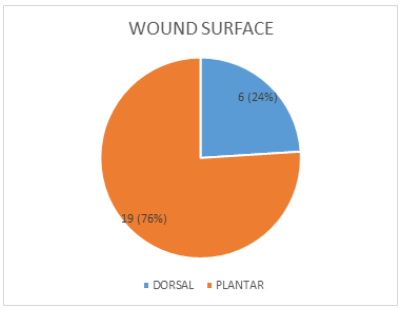




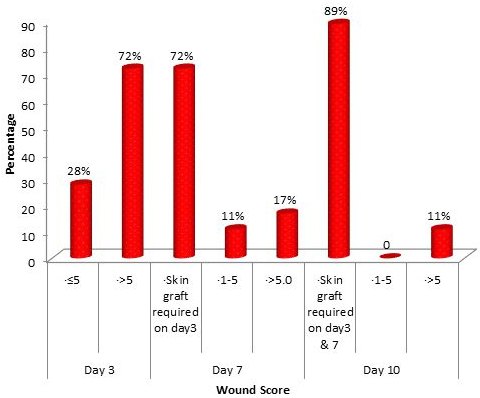
Most wounds had a traumatic etiology (60 %) .



In this study , most of the wounds were on the plantar surface of the foot (76 %)

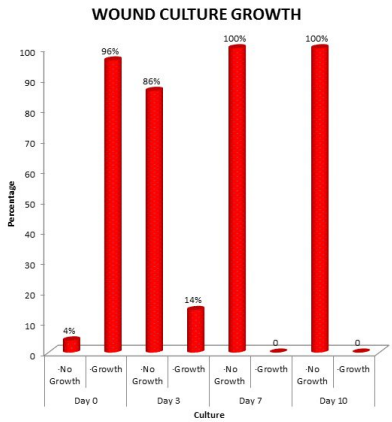


Wound area show an impact on wound healing. Smaller the wound area, better the wound healing.



Wound score satisfaction was a wound score of more than 5 . After a satisfactory wound score was attained , the patients were taken for skin grafting of the wound . In this study , 72 % of patients achieved a satisfactory wound score by day 3 ; It increased by a further 17 % on day 7 and all of the patients attained a satisfactory wound score by day 10 (100 %)

Wound Culture growth was predominant on day 0 (96 %) which reduced drastically on day 3 (14 %) and completely disappear by day 7 and continue to be sterile on dav 10 .



CONCLUSION :

1. In our study 13 male and 12 female patients with diabetic foot ulcers included.
2. In our study it was observed that the diabetic foot ulcer was commonest among the 6th decade of life.
3. Predisposition of diabetic foot ulcer was more common among males than in females.
4. More number of diabetic patients presented with diabetic foot ulcers arising from the trauma than those occurring spontaneously.
5. The common occurrence of diabetic foot ulcer was found to be in the plantar aspect than on dorsal aspect.
6. Time taken for wound to granulate is drastically reduced.
7. Duration of stay is reduced.
8. Antibiotic need is reduced.
9. Acceptance of graft is better.

Morbidity is decreased.