



# RESULTS OF TREATMENT OF SLOW- HEALING ULCERS IN PATIENTS WITH LOWER LIMB ARTERIAL SRENOSIS AND TYPE 2 DIABETES

Nguyen Do Nhan, MD, Master  
Department of Cardiovascular and Thoracic Surgery  
THONG NHAT HOSPITAL

# CONTENT

## SLOW-HEALING ULCERS

### EVALUATE TREATMENT ULCER CARE

## CASE STUDY REPORTS

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**ELDERLY [2], [3], [4]**  
**GOOD AND SUITABLE STRATEGY?**

minimally invasive?	Target control? Glucose Hypertention hyperlipidemia	Multi lesion? TASC II A,B TASC II C,D	Wound care Technique?
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## RESULTS OF TREATMENT ?

[1] Micheal R Jaff et al (2015), "An Update on Methods for Revascularization and Expansion of the TASC" Ann Vasc Dis, 2015;8(4):343-57  
 [2] Nguyễn Văn Tuấn (2008), "Mô hình bệnh tật của người cao tuổi tại viện Lão khoa quốc gia", LV tốt nghiệp đại học, ĐHYD Hà Nội  
 [3] Phan Quốc Hùng (2016), "Nghiên cứu hiệu quả phục hồi lưu thông mạch "tắc hẹp động mạch chủ-chậu". Luận án Tiến sĩ, ĐHYD Tp.HCM  
 [4] Nguyễn Duy Tân (2021) "Kết quả can thiệp nội mạch""động mạch chủ-chậu". Hội nghị Tim mạch-Lão khoa quốc tế lần V, tr.427-34.





# CASES STUDY REPORTS

## • Objectives:

- This study characterized the frequency of gender, age, risk factors, comorbidities, symptom, lesion characteristics;
- Result of treatment would healing ulcers in PAD mix with type 2 diabetes.

## • Material and Methode:

- A retrospective study of treatment would healing ulcers for peripheral artery disease with type 2 diabetic patients from 10/2021 to 04/2023, at Thong Nhat hospital.

## • Results:

- 45 patients



Demographics		n	Rate (%)	Wound Care
Age (years)	> 60	39	86,6	Ulcers: 39 cases(small) Amputation: 10 (06 small)
	< 60	06	13,3	
Sex	Male	26	57,7	Time of healing: 58.14 + 12.35 days
	Female	19	42,2	
Clinical comorbidities				Statistic test
Obesity		07	15,55	The lower rate
Tobacco (current, former use)		10	22,23	
Hypertension		32	71,11	The highest rate
Hyperlipidaemia		29	64,45	the high rate
Coronary artery disease		12	26,67	
Chronic pulmonary disease		07	15,56	The lower rate
Alcohol abuse		06	13,32	The lowest rate
Type 2 Diabetes mellitus				
Chronic kidney disease		26	57,78	The difference in CKD was not statistically significant (P < 0,05)
Non CKD		19	42,22	





# DISCUSSION

## 1. CHARACTERISTIC

## 2. TREATMENT:

- INTERVENTION
- TARGET CONTROL

## 3. ULCER CARE

- medical gauze bandage
- Vacuum assisted closure
- Tissue debridement
- **The TIME principle**





# TREATMENT

## 1. ENDOVASCULAR INTERVENTION (CAUSES)

## 2. TARGET CONTROL

- Glucose
- Hypertension
- Hyperlipidemia

## 3. Ulcers care

- INFECTIONS: DO NOT culture or treat clinically uninfected lower extremity wound with systemic antibiotic

**The mainstay of treatment is the TIME principle: tissue debridement, infection control, moisture balance, and edges of the wound**



ulcers

PAD

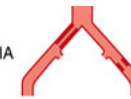
Diabetes

- PAD[5]:
  - TASC II (2015) and intervention
- TYPE 2 Diabetes[6]
  - Most common cause of amputation, high mortality rate after amputation.
  - Are caused by a combination of underlying neuropathy, peripheral arterial disease.
- **Mix:**
  - Acute stage
  - Chronic
  - **Risks a potential risks=> all risk**

## TASC II (2015) [5]

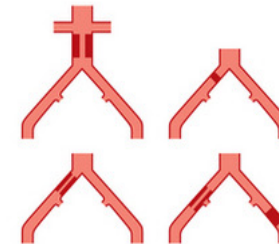
### Type A lesions

- Unilateral or bilateral stenoses of CIA
- Unilateral or bilateral single, short ( $\leq 3$  cm) stenosis of EIA



### Type B lesions

- Short ( $\leq 3$  cm) stenosis of infrarenal aorta
- Unilateral CIA occlusion
- Single or multiple stenosis totaling 3-10 cm involving the EIA, not extending into the CFA
- Unilateral EIA occlusion not involving the origins of internal iliac or CFA



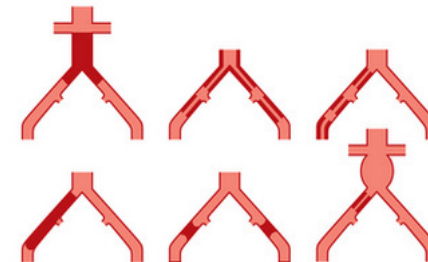
### Type C lesions

- Bilateral CIA occlusions
- Bilateral EIA stenoses 3-10 cm long, not extending into the CFA
- Unilateral EIA stenosis extending into the CFA
- Unilateral EIA occlusion that involves the origins of internal iliac and/or CFA
- Heavily calcified unilateral EIA occlusion with or without involvement of origins of internal iliac and/or CFA



### Type D lesions

- Infrarenal aortoiliac occlusion
- Diffuse disease involving the aorta and both iliac arteries, requiring treatment
- Diffuse multiple stenoses involving the unilateral CIA, EIA, and CFA
- Unilateral occlusions of both CIA and EIA
- Bilateral occlusions of EIA
- Iliac stenoses in patients with AAA requiring treatment and not amenable to endograft placement or other lesions requiring open aortic or iliac surgery



A

[5]. Tasc Steering Committee, M. R. Jaff, C. J. White et al. (2015). An Update on Methods for Revascularization and Expansion of the TASC Lesion Classification to Include Below-the-Knee Arteries: A Supplement to the Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II). *J Endovasc Ther*, 22(5), pp. 663-677.

[6]. Jupiter DC, Thorud JC, Buckley CJ, et al. The impact of foot ulceration and amputation on mortality in diabetic patients. I: from ulceration to death, a systematic review. *Int Wound J*. 2016;13(5):892-903.



# LOW-HEALING ULCERS

Basic definition: is one that fails to progress through a normal, orderly, timely sequence of repair/ in which the repair process fails to restore anatomic and functional integrity 3ms.[7]  
*taking decades to heal, thus contributing to secondary conditions such as depression, and can ultimately lead to isolation and family distress*

- Pathogenesis:

- Assessment of chronic wound: Common lower extremity wounds include **arterial Issue**, (diabetic, pressure, and venous ulcers)
- Hemostasis, inflammation, proliferation, maturation

- Complication:

**a chronic wound for infection - the acute infected wounds**

**=> NERDS\* – STONEES\*\* [8]**

\*nonhealing, exudative, red and bleeds easily, debris, and smell

\*\*size increasing, temperature increased, os (probes to or exposed bone), new areas of breakdown, exudative, erythema/edema, and smell

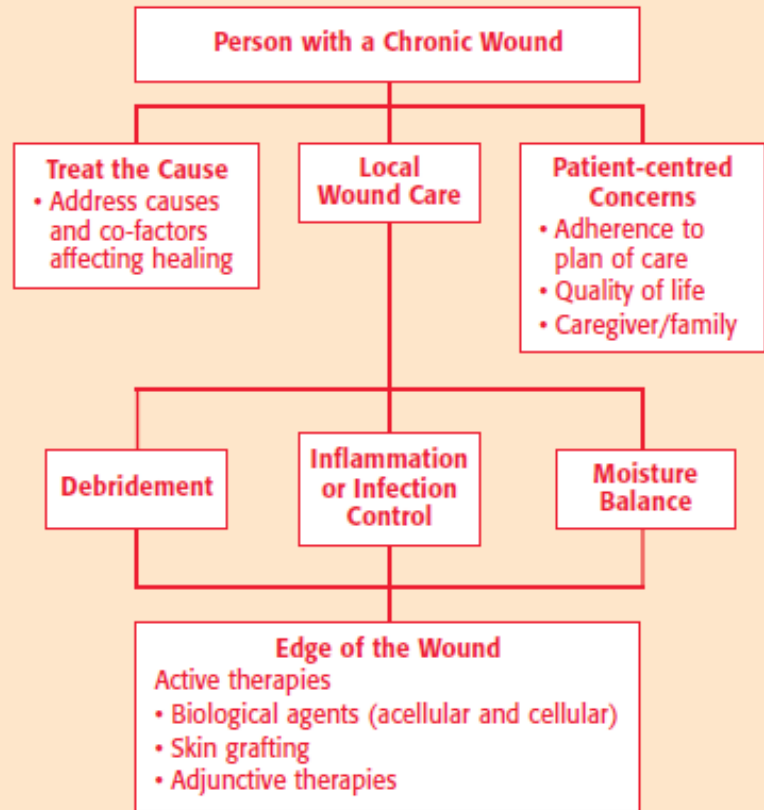


[7].Mustoe TA, O'Shaughnessy K, Kloeters O. Chronic wound pathogenesis and current treatment strategies: a unifying hypothesis. *Plast Reconstr Surg.* 2006;117(7 suppl)-35S.

[8].Woo KY, Sibbald RG. A cross-sectional validation study of using NERDS and STONEES to assess bacterial burden. *Ostomy Wound Manage.* 2009;55(8):40-48.

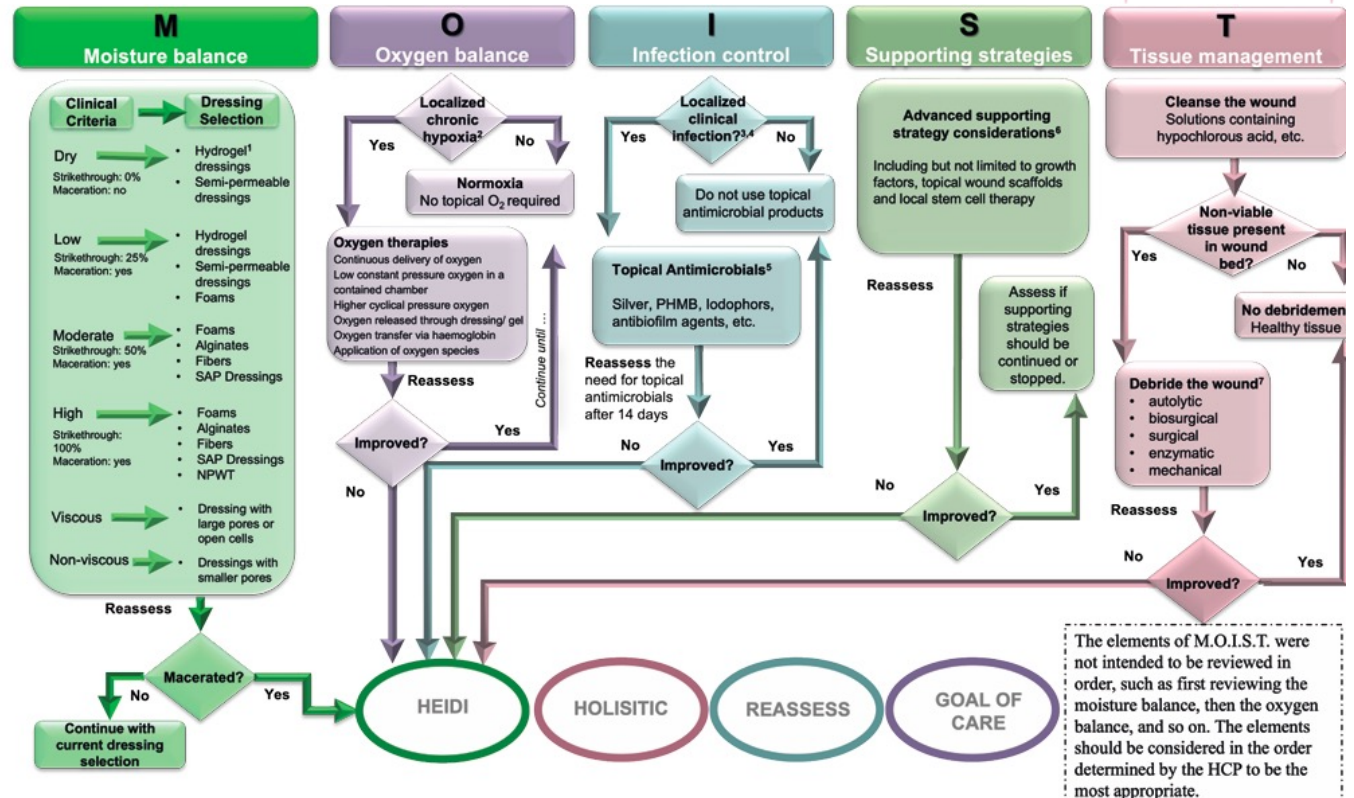
# REVIEW

## Preparing the Wound Bed Paradigm



Adapted from Sibbald RG, Orsted HL, Schultz GS, et al.<sup>6</sup>

## T.I.M.E. to M.O.I.S.T [9].



Wounds International 2023 | www.woundsinternational.com

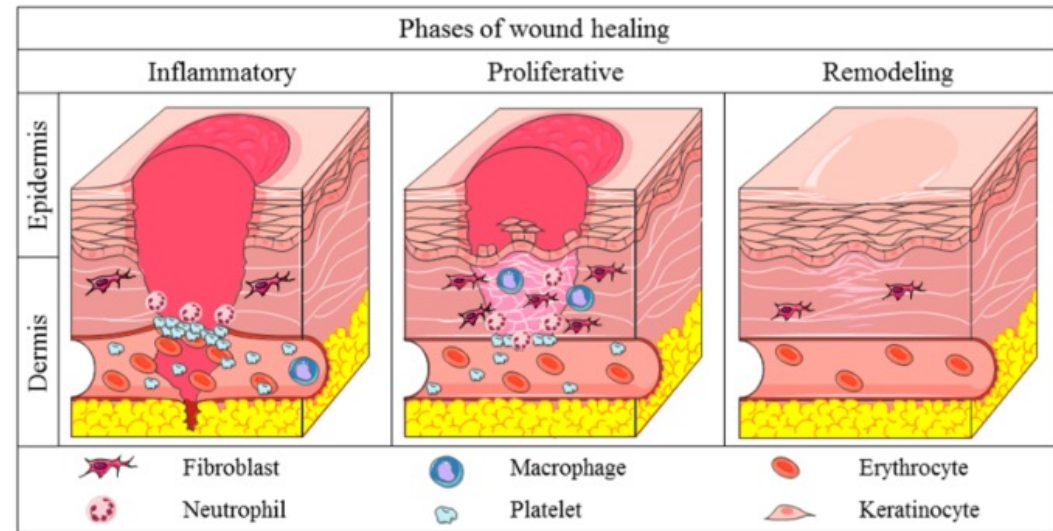
[9]Joachim Dissemond, Matthew Malone. "Implementation of the M.O.I.S.T. concept for the local treatment of chronic wounds into clinical practice". Wounds International 2023. [Home Page - Wounds International](#)



# ULCER CARE

1. Medical gauze bandage
  2. Vacuum assisted closure
    - Vac version I (only vacuum)
    - Vac version II (vacuum and instillation)
- Tissue debridement
  - **The TIME principle** :
    - T**issue debridement, **I**nfection control,
    - M**oisture balance, and **E**edges of the wound

***all wounds that are “stalled” or delayed[10]***

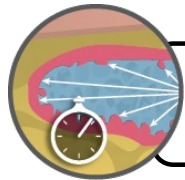
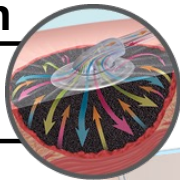


# Vacuum assisted closure [11]

## IRRIGATION AND SOAKING STAGE

### Solution Instillation

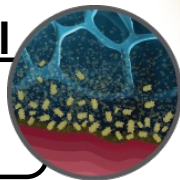
Cleanses wound with cyclic delivery, dwell, & removal of topical wound solutions



Provides thorough wound coverage with topical solution during selected dwell time<sup>1</sup>

### Solution Dwell

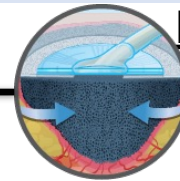
Dilutes and solubilizes\* infectious material and wound debris



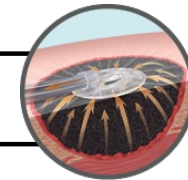
## NEGATIVE PRESSURE SUCTION STAGE

### Macrostrain

Draws wound edges together



Removes exudate and infectious material

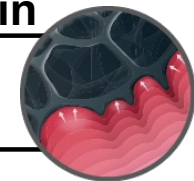


Promotes perfusion and reduces edema

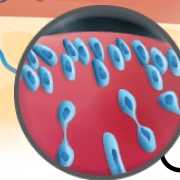


### Microstrain

In vitro/in vivo studies show that foam contact with tissue creates micro-deformation that leads to cell stretch<sup>2,3</sup>



Cell stretch under negative pressure stimulates cellular activity that results in granulation tissue formation<sup>4</sup>



[11] Rycerz AM, Slack P, McNulty AK. Distribution assessment comparing continuous and periodic wound instillation in conjunction with negative pressure wound therapy using an agar-based model. *Int Wound J.* 2013;10:214--20. DOI: 10.1111/j.1742--481X.2012.00968.x



# Conclusion

- Result of intervention, target blood glucose control Wound care was positive
- All patients with a nonhealing lower extremity ulcer should have a vascular assessment, including documentation of wound location, size, depth, drainage, and tissue type; palpation of pedal pulses; and measurement of the ankle-brachial index.
- TREATMENT BY WOUND ETIOLOGY





**THANKS FOR YOUR  
LISTENING**

