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Identifying and Managing Vascular Wounds: A Clinical Approach to Early Diagnosis and Optimal Care

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INTRODUCTION

Vascular wounds are chronic, non-healing ulcers resulting from arterial or venous insufficiency. They significantly contribute to patient morbidity, healthcare burden, and the risk of limb loss. Early identification of the underlying vascular cause and prompt management can significantly improve healing outcomes.

AIM

Primary Objective

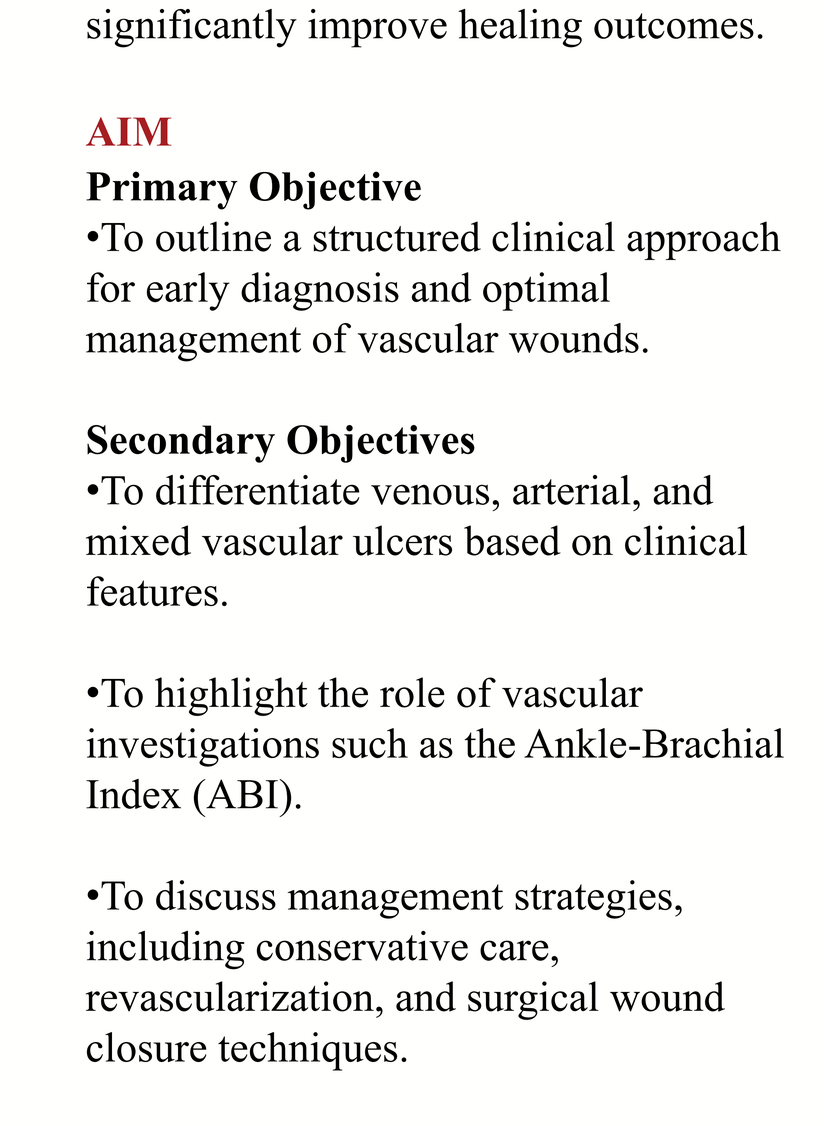
•To outline a structured clinical approach for early diagnosis and optimal management of vascular wounds.

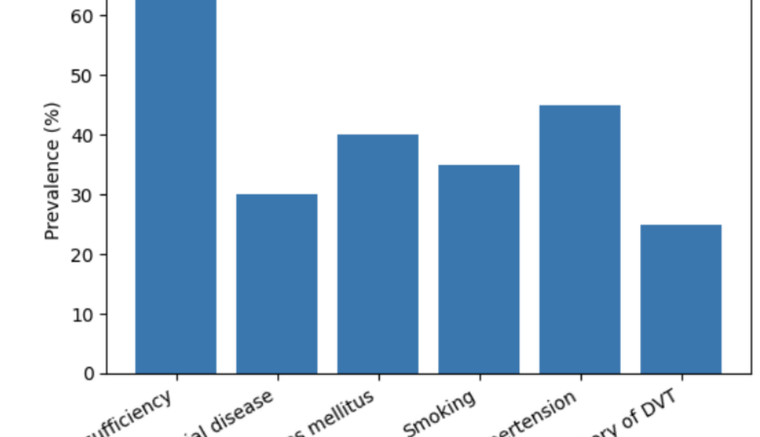
Secondary Objectives

•To differentiate venous, arterial, and mixed vascular ulcers based on clinical features.

•To highlight the role of vascular investigations such as the Ankle-Brachial Index (ABI).

•To discuss management strategies, including conservative care, revascularization, and surgical wound closure techniques.





METHODS

A Retrospective study was conducted at the Department of Surgery. Patients diagnosed with vascular wounds (venous, arterial, or mixed etiology) were included after obtaining informed consent. The data collected included patient demographics, comorbidities, wound characteristics, Ankle–Brachial Pressure Index (ABPI) values, Doppler findings, and the management strategies employed. Patients were categorized based on the etiology of their wounds, and outcomes were assessed in terms of healing progression, infection control, and recurrence. Data were analyzed descriptively using frequency distributions and correlation between vascular assessment and wound healing

DISCUSSION

Vascular wounds, most commonly venous leg ulcers (VLUs) and arterial insufficiency ulcers, remain a major cause of chronic non-healing wounds with significant impacts on patient quality of life, healthcare utilization, and risk of amputation. Evidence shows that accurate early diagnosis and targeted management are essential for effective healing and reduced recurrence [1].

Diagnosis and Clinical Assessment

Timely differentiation between venous, arterial, and mixed etiology ulcers is critical before initiating therapy. Clinical assessment, including pulse checks, Ankle-Brachial Index (ABI), and duplex ultrasonography, improves diagnostic accuracy and guides management decisions. An abnormal ABI warrants further vascular evaluation [2].

Early involvement of vascular specialists, especially in arterial disease, has been shown to improve wound outcomes and healing rates [3].

Management of Venous Ulcers

Compression therapy remains the cornerstone of VLU care, reducing venous hypertension and promoting healing. Updated clinical practice guidelines suggest that structured compression, combined with interventions such as ablation or sclerotherapy, may enhance healing outcomes and reduce recurrence [4].

Evidence also emphasizes addressing underlying venous reflux and patient education for optimal engagement in care [5].

Despite compression being central to management, some patients require advanced wound care products and surgical therapy for wound closure and prevention of further ulceration. [6].

Arterial and Mixed Ulcers

Chronic arterial ulcers due to peripheral arterial disease require vascular evaluation and revascularization, where indicated, as inadequate perfusion is a major barrier to healing. Management of mixed arteriovenous ulcers (AVLU) remains challenging and is an active area of research. Current data suggest light compression may be beneficial, but clear evidence for integrated strategies combining venous and arterial interventions is still emerging [7]

Adjunctive and Emerging Therapies

Although standard wound care — including debridement and dressings — remains fundamental, novel adjuncts like advanced dressings (hydrogels, micropore particle dressings), human tissue grafts, and photobiomodulation techniques are showing promise in accelerating healing and improving wound bed conditions [8].

Clinical Implications

- Early and accurate classification of ulcer etiology is crucial to prevent inappropriate treatments (e.g., compression without arterial assessment).
- Multidisciplinary care involving vascular medicine, wound care specialists, and surgical teams improves outcomes.
- Evidence-based guidelines, such as those from the WOCN (2024), support structured management algorithms for arterial and venous wounds [9].

CONCLUSIONS

Fig 1

Fig 2

Fig 3

Fig 4

Fig 5

REFERENCE AND FIGURES DESCRIPTION