

AVF25.



**Six Year's Experience Application of Dermal Matrix for Vascular Wounds**

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**Objective:** The purpose of this cross-sectional study is to evaluate the effectiveness of a dermal-epidermal matrix substitute (Integra Dermal Regeneration Template [IDRT]) for vascular wounds. Our primary end point was healing rate and recurrence rate. The secondary end point was comparing healing rate to bone expositions rate, hyperbaric oxygen therapy (HOT) and efficiency.

**Methods:** We retrospectively reviewed all medical records of patients treated by IDRT from November 2016 to July 2021 by our team, to evaluate the effects of Integra in wound healing. The inclusion criteria was use of IDRT. We evaluated the ulcer and patient profile, use of hyperbaric therapy, negative-pressure therapy, healing and recurrence.

**Results:** A total of 40 patients were included; the median age was 65.5 years, 21 patients were female (52.5%) and 19 male (47.5%). The etiology of the wound was arterial in 10, mixed in 2, mycroangiopathic/hypertensive in 4, infectious in 4, traumatic in 13, and venous in 7. The global healing rate was 77.5%. Three (7.5%) patients have recently been submitted to the surgical procedure with use of the IDRT and still in follow-up. Thirty-seven (92.5%) used negative-pressure therapy during the treatment, 28 (75.6%) of them had their wounds healed and 9 (24.32%) did not. Eleven ulcers had bone exposure and sixteen had tendon exposure with healing rate of 90.9% and 81.35% respectively. Comorbidities were present in 34 (87.5%), in the most of cases hypertension in 26 (65%), diabetes in 24 (60%), and dyslipidemia in 18 (45%). Twelve (30%) of them needed revascularization before the IDRT and 14 (35%) patients realized HOT after. The HOT group had a healing rate of 92.85%, and no recurrence, in contrast to no-HOP that had respectively 69.23%, and 3.84% ( $P = .088$ ). The arterial wounds had healing rate of 90% without recurrence and venous wound 71.4% and no recurrence. We had just one recurrence, in the mixed group (recurrence rate 50%). All patients with venous ulcer had yours varicose veins and/or obstructed veins treated and those with peripheral arterial disease were submitted to revascularization.

**Conclusions:** In our experience, the use of IDRT is an important and helpful option in wound care. In addition, HOT may be an useful option in a limb salvage and wound healing program. We noticed a tendency of better healing in those patients in despite the absence statistical significance. The only patient who had recurrence of the ulcer did not follow the clinical treatment prescribed. We observed that the application of negative-pressure therapy could potentially increase the integration of dermal matrix and, could be a first-line treatment option for wounds with bone or tendon exposure.

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**Improvement following Restoration of Inline Flow Argues against Comprehensive Thrombus Removal Strategies and for Selective Stenting in Acute Symptomatic Iliofemoral Venous Thrombosis**

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**Objective:** Randomized trials have demonstrated the benefit of thrombus removal strategies in iliofemoral deep venous thrombosis in providing early symptom relief and reduction of incidence of post-thrombotic syndrome (PT)S, especially severe PTS. However, the impact of intravascular ultrasound (IVUS) determined quantum of

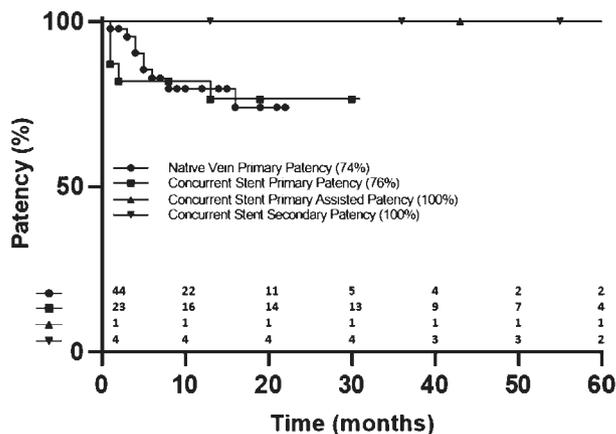
residual thrombus burden on PTS and the role of venous stenting in the acute setting have not been evaluated and represent the focus of this study.

**Methods:** Seventy-three consecutive limbs (67 patients) undergoing thrombus removal for acute iliofemoral deep venous thrombosis formed the study cohort. The extent of initial and residual thrombus burden after the intervention was estimated using IVUS examination and venogram. Grading was done as less than 50% (1), 50% to 99% (2), or 100% (3) of luminal thrombus fill within each segment (common femoral vein, external iliac vein, and common iliac vein) by a blinded rater and then combined to generate a total score. Venous Clinical Severity Score was evaluated initially and at 6 months, 12 months, and 24 months post thrombus removal. Quality of life (QoL) was appraised using the Chronic Venous Insufficiency Quality of Life Questionnaire-20 questionnaire. Utilization of stenting both concurrent (severe residual stenosis/persistent occlusion) and delayed (QoL impairing residual/recurrent symptoms) was evaluated. Analysis was done using paired/unpaired *t* tests and Kaplan-Meier estimates.

**Results:** Of the 73 limbs, 55 underwent pharmacomechanical thrombectomy while 18 underwent pharmacomechanical thrombectomy + catheter-directed thrombolysis. After the intervention, the median residual thrombus burden total score improved from 9 to 4 ( $P = .0001$ ) on IVUS examination and from 9 to 4 ( $P = .0001$ ) on venogram with the restoration of inline flow in all limbs. Spearman correlation coefficient between IVUS examination and venogram for total residual thrombus score was 0.52 ( $P = .002$ ). The Venous Clinical Severity Score improved from 7 to 2 at 6 months ( $P = .0001$ ) and remained at 2 at 12 months ( $P = .0001$ ) and at 24 months ( $P = .0001$ ). The Chronic Venous Insufficiency Quality of Life Questionnaire score improved from 50 to 25 ( $P = .001$ ) over a median follow-up of 19 months. There was no impact of residual thrombus burden score ( $\leq 3$  vs  $>3$ ) on the Venous Clinical Severity Score ( $P > .4$ ) or the Chronic Venous Insufficiency Quality of Life Questionnaire-20 scores ( $P = .4$ ). Stenting in the acute setting (concurrent stenting) was utilized in 31 limbs (39%) while delayed stenting was carried out in 11 limbs (14%) (Figure). The median time to delayed stenting was 5 months post initial thrombus removal intervention.

**Conclusions:** In patients undergoing pharmacomechanical/mechanical thrombectomy for acute symptomatic iliofemoral deep venous thrombosis, restoration of inline flow appears to be adequate to provide symptom improvement and reduce the incidence of PTS. The extent of residual thrombus burden does not seem to impact the Venous Clinical Severity Score or QoL following such restoration. Stenting should be pursued selectively in the acute setting to help restore inline flow.

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Native Vein and Stent Patencies Following Thrombectomy

Fig. Native vein and stent patencies post thrombectomy.