"Use of Viable Cryopreserved Umbilical Tissue for Soft Tissue Defects in Patients With Gas Gangrene: A Case Series"

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<u>Abstract</u>

Introduction

Gas gangrene is a rapidly progressive bacterial infection leading to necrosis that usually develops as a result of trauma or postoperative complications. This condition requires early diagnosis with immediate surgical intervention. With a poor prognosis, a high incidence of amputation, and comorbidities such as diabetes and peripheral vascular disease, patients with gas gangrene are put at further risk for surgical complications.

Objective

This case series reports the clinical outcomes of using a commercially available viable cryopreserved umbilical tissue (vCUT) in the surgical management of 10 patients (9 males, 1 female) with acute lower extremity gas gangrene.

Materials and Methods

All 10 patients had aggressive debridement and irrigation, followed by an intraoperative application of vCUT to cover the large, complex wounds with exposed bone, tendon, and soft tissue, which was fenestrated and sutured to the surrounding skin edges.

Results

The average wound size following debridement was 45.9 cm² (range, 8 cm²–105 cm²). Average percent area reduction of the wounds at 4 weeks post-vCUT application was 68.4% (range, 49%–99.5%). The average length of hospital stay was 9 days (range, 2–16 days), and postdischarge patients were treated with negative pressure wound therapy and standard of care (nonadherent dressing, dry gauze, and mild compression) until wound closure was achieved (average, 3.3 months [range, 1.25–4.5 months]). With a 1-time application of vCUT, all patients reached complete wound closure with decreased time to closure, fewer complications, and a shorter duration of hospitalization as compared with traditional inpatient management of gas gangrene (incision and drainage with staged procedures).

Conclusions

The positive clinical outcomes indicate that vCUT may be an effective aid as an intraoperative application to cover wounds following aggressive debridement in the presence of gas gangrene.

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