Successful Treatment of Wound Dehiscence by Innovative Type 1 Collagen Flowable Gel: A Case Report

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Summary: The growing demand for postbariatric body-contouring surgery after massive weight loss goes hand-in-hand with an increase in wound complications. Consequently, surgical reoperation or conservative management is necessary and represents a difficult challenge to healthcare professionals. Moreover, it is well known that postbariatric patients present aberrant wound healing due to multifactorial causes, such as preoperative illness, nutritional deficiencies, and vascular disease. To treat such complex wounds, several methods have been recommended, such as the use of negative pressure wound therapy, tissue-engineered skin substitutes, and collagen-based wound dressings. The case presented here is of a patient with deep wound dehiscence of the inner left thigh, 1 week after a medial thigh lift procedure, successfully managed with Vergenix Flowable Gel, a human recombinant type I collagen produced in plants. After 2 weeks of treatment, wound dehiscence was replaced with granulation tissue, and after 4 weeks, the patient was completely healed, with an acceptable aesthetic outcome of the surgical scar.

CASE REPORT

We describe the case of a 58-year-old woman with a history of severe obesity who underwent bariatric surgery...
1 year before reaching our attention. As a result of drastic weight loss, the patient had developed thigh contour deformities, particularly those of the inner thigh. For this reason, she was a candidate to undergo a medial thigh lift surgery for removing soft tissue excess at our plastic and reconstructive surgery unit. One week postoperatively, the patient presented with wound dehiscence at the upper medial left thigh of about 1 cm² in width (Fig. 1). A swab culture was obtained from the wound bed, which confirmed the presence of *Staphylococcus aureus*, and the patient responded well to treatment with amoxycillin and clavulanic acid capsules 1000 mg × 2 daily for 6 days. The wound was treated with standard dressing (topical antiseptic agents, paraffin-impregnated dressings, and gauze). However, after 1 week of treatment, the patient developed a severe wound dehiscence that had reached a width of 15 × 5 cm (Fig. 2). The patient was not interested in surgical revision. Negative pressure wound therapy was offered, but due to practical reasons, it was not desirable to the patient. Therefore, a preliminary surgical wound debridement was performed until viable wound bed tissue was reached. Vergenix Flowable Gel was applied once to the wound bed by using two 2-cc doses of the gel to cover the whole wound area, particularly in the undermined parts (see Video [online], which displays the recombinant type 1 collagen application of 2-cc dose to the wound, particularly in the undermined parts), followed by placement of a sterile gauze pad. The patient returned to our unit weekly for wound debridement, wound size, granulation and epithelialization assessments, and application of sterile gauze dressing. A good continuous progress in healing was observed at the following controls. Her wound dehiscence had healed when she was seen after 3 weeks post Vergenix application (Fig. 3). Complete epithelialization was complete, avoiding the risk of additional superinfections, particularly fearful in that area, that may worsen the clinical outcomes, as seen after 12 weeks (Fig. 4). All wounds were photographed before and after the treatment with human recombinant type 1 collagen. (See Video [online], which displays the recombinant type 1 collagen application of 2-cc dose to the wound, particularly in the undermined parts.)

**DISCUSSION**

Wound treatment is challenging because of the multifactorial nature of skin breakdown and repair, characterized by damaged tissue homeostasis. Impediments to wound healing include the presence of necrotic tissue, hypoxia, high bacterial burden, corrupt extracellular membrane, and senescent cells within the wound bed. Therapeutic options range from healing by second intention for rather small lesions to advanced wound healing therapies and various surgical interventions for major lesions. In recent years, a growing number of bioengineered human fibroblast-derived skin substitutes have emerged to restore the lost dermis in full-thickness skin defects. The use of collagen matrix is well known in
One of many possibilities is Vergenix. It maximizes contact with the wound bed and surrounding tissues, enabling scaffolds to develop across the wound bed and reducing the risk of wound bacterial colonization. The cost issue using this material is of interest, in the era of managed care and cost-effectiveness. In our analysis, although the cost of Vergenix Flowable Gel (about 1300€) is higher compared with standard dressings, against which there is a superior effectiveness according to our experience, it is certainly lower than the hospitalization of the patient for a reoperation (from 3000 to 5000€, relative to the length of stay), while there is no substantial price difference between Vergenix Flowable Gel and other acellular dermal matrix products. In summary, Vergenix Flowable Gel is safe, cost-effective, and most importantly, beneficial to the patient. To our knowledge, after performing a review of current literature, no previous publication has addressed management of postsurgical wound dehiscence in postbariatric patients with this product.

CONCLUSIONS

Vergenix FG contains bioengineered recombinant human type I collagen. When mixed with normal saline, it creates a collagen-fibrin matrix, enhancing cell migration and tissue repair. It has shown efficacy for wound healing in animal models and appears promising for healing of acute surgical wound defects refractory to standard treatment. As presented in our case, its ease of use and improved safety make it an alternative tool for optimizing the treatment of complex surgical wounds with undermining areas left to heal by second intention. However, although the product is part of the therapeutic toolkit within our unit in the postoperative care, so patients do not incur any additional charge for its expensive cost, additional research is required to identify those who will benefit most from this treatment and to quantify its advantages over standard care.

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PATIENT CONSENT

Written consent has been obtained from the patient for publishing the case and for the use of pre- and postoperative photographs for publication purpose. All specific patient information is deidentified.
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