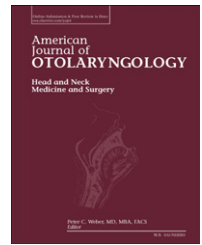


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Novel treatment of a septal ulceration using an extracellular matrix scaffold (septal ulceration treatment using EGM)[☆]

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ABSTRACT

Background: Septal ulceration is a mucositis involving the mucous membranes of the nasal septum. Patients often complain of nasal irritation, crusting, and epistaxis. Presently, there is no gold standard for the treatment of septal ulcerations. Currently described therapies include local debridement, septal dermoplasty, septal flap reconstruction, and cadaveric dermal graft repair; however, no therapy has demonstrated a consistent improvement of symptoms. We present a novel approach for the treatment of chronic septal ulceration, using an extracellular matrix scaffold (MatriStem® Wound Care Matrix, ACell, Inc.) to repair unilateral partial septal mucosal defects.

Methods: This is a retrospective chart review of three patients with age range from 42 to 74 years. All three patients underwent several years of unsuccessful conservative medical management and two patients had prior unsuccessful septoplasty and septal ulcer debridement procedure. There are no complications noted in the post-operative period.

Result: All three patients had complete symptom relief on post-operative visit after chronic septal ulceration repair using an extracellular matrix scaffold mechanism. Patients were able to manage with conservative nasal regiment after surgery with significant improvement on quality of life.

Conclusion: The use of extracellular matrix scaffolding provides the nasal septum with a framework for the in-growth of healthy mucosa over ulcerated areas. We propose this as a new treatment approach for patients who failed conservative medical management. Chronic septal ulcerations can be healed to provide improved quality of life to patients.

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1. Introduction

Septal ulceration is an erosion of the nasal septal lining and surrounding mucosa. The condition may occur unilaterally or

in severe cases, bilaterally. Patients most commonly complain of nasal irritation, foreign body sensation, crust formation, and epistaxis. A nasal septal ulcer may include just the surface epithelium, exposing submucosa, or extend through

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submucosa and expose perichondrium or cartilage, or even extend through cartilage and expose the opposite perichondrium or submucosa. The defects may arise from trauma, chemical exposure, iatrogenic injury, or idiopathic causes. Nasal septal mucosal defects do not heal well by secondary intention due to exudation and crusting [1]. Non-healing mucosal defects progress to septal ulcers, which are often painful and can significantly affect patient quality of life.

We report three cases of persistent septal ulceration that failed conservative and surgical measures and was ultimately repaired with ACell's *MatriStem*® *Wound Care Matrix*. These are the first reported cases of an extracellular matrix scaffold as a treatment for chronic septal ulceration.

2. Case series

Three patients with persistent septal ulceration were seen in a tertiary care medical center. All three patients had failed several years of conservative and surgical measures and were offered the treatment of ACell's *MatriStem*® *Wound Care Matrix* repair.

The first patient was a 49-year-old man with a history of HIV and hepatitis B who presented with persistent crusting and pain from a chronic, non-healing ulceration of the left nasal septum. He had been managed for several years with nasal emollients and local tissue debridement, and had failed surgical intervention with septoplasty and excision of ulcerated tissue followed by application of silastic sheeting. Physical exam demonstrated a recurrent 2-cm left anterior septal ulcer while the right septal mucosa was healthy.

The second patient was a 42-year-old woman presented with persistent crusting and daily epistaxis from a chronic, non-healing ulceration of left nasal septum. She had been managed for several years with conservative nasal irrigation and emollients without significant symptomatic relief. Physical exam demonstrated a left anterior septal ulcer measuring 1.5 × 2 cm.

The third patient was a 74-year-old female who had suffered from a left septal ulcer for years. Nasal jelly and Bactroban had managed to reduce the ulcer from 1.5 × 1.5 cm to 1 × 1 cm but she remained irritated at the site with crusting and some bleeding.

The first two patients underwent wide local excision of the ulcerated tissue bed with repair using an extracellular matrix scaffold in the operating room. In the first patient, a thick fibrinous scar was noted intraoperatively deep to a crusted portion of the ulcer, which was consistent with incomplete epithelialization of the previous surgical site (Fig. 1). Additionally, in the area of the posterior ulcer the septal mucosa was very thin and adherent to the contralateral mucosa without evidence of normal intervening cartilage. The septal ulceration in the second patient extended beyond an inferior left septal deflection, thus the septal deflection is unlikely to be the sole cause of her ulceration. The ulcers were debrided of weak mucosa with mastoid curettes to reach bleeding tissue which might serve as a good recipient bed.

For the first patient, a single sheet of 2 × 4 cm *MatriStem*® *Wound Care Matrix* was trimmed in half, layered, and fashioned in place over the center of another 2 × 4 cm graft.



Fig. 1 – Thick fibrinous scar was noted deep to a crusted portion of the ulcer after removal of the crust and debridement.

The three layers of *MatriStem* *Wound Care Matrix* were then sutured, secured, and placed into the left nasal cavity as an overlay graft to the septal ulcer. The *MatriStem* *Wound Care Matrix* sheets were then secured to the septum itself with 4-0 Vicryl suture in a quilted fashion (Fig. 2). While the senior author normally uses chromic or gut sutures in the nose, Vicryl was used as Acell was seen to break down chromic sutures in a septal perforation repair; Vicryl stands up to the Acell well though may require extraction in the office. For the second patient, a single sheet of 4 × 7 cm matrix was trimmed into thirds and layered into the left nasal cavity as a three layer onlay graft to the septal ulcer.

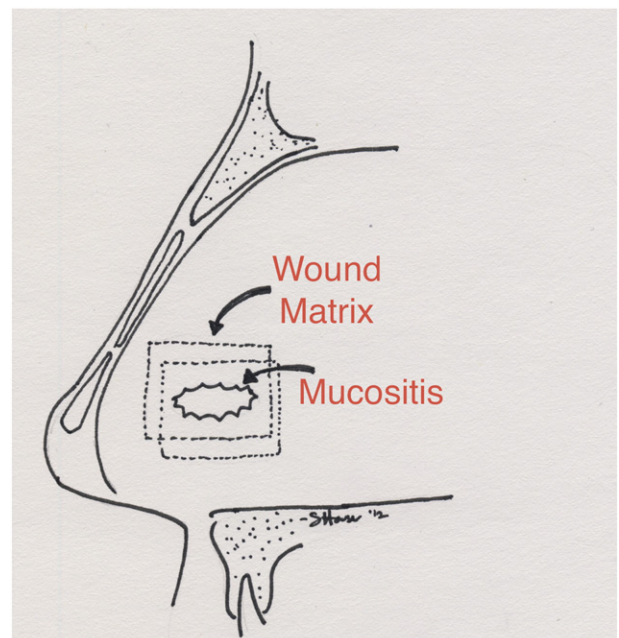


Fig. 2 – Illustration of how the *MatriStem*® *Wound Care Matrix* was designed and used as overlay graft to the septal ulcer.

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