MIMEDX

MIMEDX PLACENTAL-BASED ALLOGRAFTS

MOHS SURGERY CASEBOOK

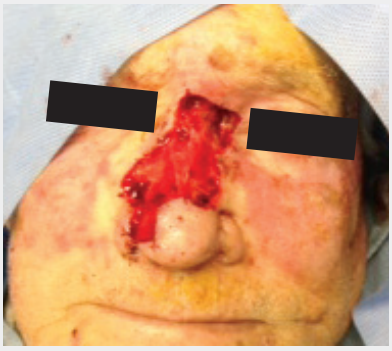
EARS

EARS

EYELIDS & CHEEK

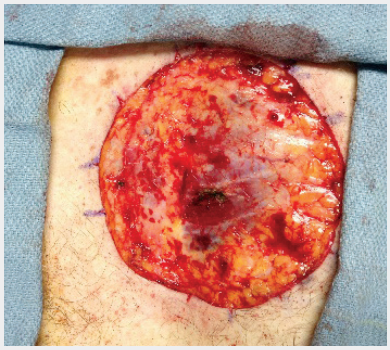
EYELIDS & CHEEK

NOSE

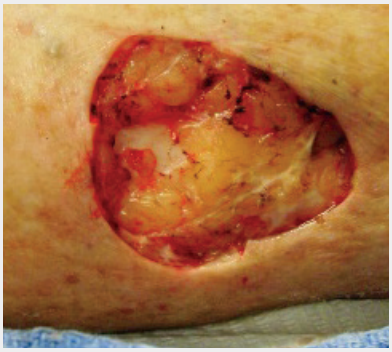


NOSE

FOREHEAD & SCALP



TRUNK & EXTREMITIES



TRUNK & EXTREMITIES

INTRODUCTION

Mohs surgery has developed as a contemporary solution to address the need for excision of cancerous and other cutaneous lesions on high risk areas and on large lesions. Skin cancer located on the scalp, eyelids, nasal structures, or ears represent challenges as the clinician seeks to remove all of the neoplasm while simultaneously preserving as much of the normal tissue structures as possible.

Once cancers are removed from these locations, the clinician is then faced with wounds of varying sizes that can present various obstacles to healing, including multiple patient co-morbidities. Primary closure of a wound is often difficult in areas of high tension or where there may not be sufficient skin to close the wound, such as on the eyelid area or other cosmetically sensitive areas. Secondary closure of wounds (healing on their own) can take considerable time and is often accompanied by significant scarring or complications of delayed healing including infection and wound contraction.

The use of EPIFIX® in these situations provides a readily available advanced treatment option. EPIFIX is a dehydrated human amnion/chorion membrane allograft. The product provides a semi-permeable barrier that supports the healing cascade and protects the wound bed to aid in the development of granulation tissue in acute and chronic closures. It provides a biocompatible human extracellular matrix and retains 300+ regulatory proteins.[1-3]

EPIFIX

MIMEDX offers the following case examples as supporting information in addition to our multiple published clinical case studies, case series, and randomized controlled trials.

Cases are organized according to major categories where Mohs surgery is used, each with their own challenges and issues. For the purposes of this review, the following types of cases are included:

- **Ears**
- **Eyelids & Cheek**
- **Nose**
- **Forehead & Scalp**
- **Trunk & Extremities**

Acknowledgements: We are most appreciative of receiving the following case material from Oliver J. Wisco, DO, FAAD, FACMS who has assisted in the editorial process, and case examples supplied by John A. Marascalco, MD and Janice Warner, MD, FAAD, FACMS.

Scan code to learn more about using EPIFIX in challenging Mohs closures.
www.mimedx.com/mohs

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Basal Cell Carcinoma of the Left Antihelix and Scaphoid Fossa With EPIFIX

Oliver J. Wisco, DO, FAAD, FACMS | Dermatology | Bend, OR

85-year-old male presents with a biopsy proven recurrent nodular basal cell carcinoma on the left antihelix with extension onto the scaphoid fossa.

LOCATION: Left ear scaphoid fossa and antihelix

PREOP SIZE: 1.0 cm x 1.5 cm

DIAGNOSIS: Recurrent nodular basal cell carcinoma

APPROACH: Surgical excision using Mohs surgical technique

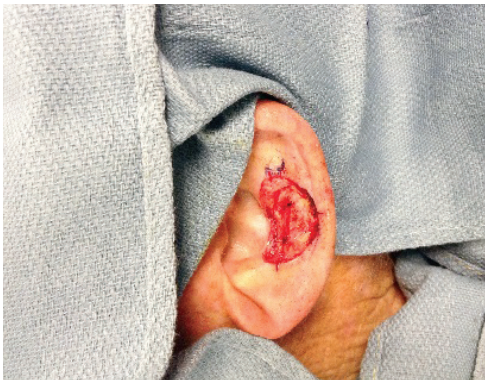
FINAL DEFECT: 2.1 cm x 2.9 cm, with depth to cartilage with some cartilage removed

CHALLENGE:
The biggest challenge with this wound is the loss of some of the underlying cartilage, which compromises support and may lead to wound contraction and deformity of the ear. The patient declined a graft or flap due to wanting to avoid further surgery. EPIFIX was chosen as an alternative by the patient and the clinician.

WOUND TREATMENT:
An EPIFIX 2.0 cm x 3.0 cm graft was placed and hydrated with sterile saline. A Mepilex® nonadherent dressing was placed over the graft for coverage and to secure the graft. One graft was used. After one week, the Mepilex dressing was removed and then the patient used daily application of Vaseline® with a bandage until the wound was closed.

FOLLOW-UP:
Granulation tissue was observed at one week follow-up, and the graft was fully resorbed. Wound showed complete closure with some contraction, but with overall good cosmetic results at 6 weeks.


Initial presentation


Final defect 2.1 cm x 2.9 cm


1 week follow-up


Closed at 6 weeks

Basal Cell Carcinoma of the Right Concha Bowl With EPIFIX

Oliver J. Wisco, DO, FAAD, FACMS | Dermatology | Bend, OR

62-year-old male presents with a biopsy proven nodular basal carcinoma on the right conchal bowl.

LOCATION: Right concha bowl

PREOP SIZE: 0.9 cm x 1.0 cm

DIAGNOSIS: Nodular basal cell carcinoma

APPROACH: Surgical excision using Mohs surgical technique

FINAL DEFECT: 1.5 cm x 1.6 cm down to the perichondrium

CHALLENGE:
This area heals well with a graft or flap, while secondary intention can be difficult to manage as this area can be slow to heal and painful. The patient declined a graft or flap due to wanting to avoid further surgery. EPIFIX was chosen as an alternative by the patient and the clinician.

WOUND TREATMENT:
The EPIFIX graft was placed and hydrated with sterile saline. A Xeroform® bolster dressing was sutured over the graft for coverage and to secure the graft. One graft was used. After one week, the bolster was removed and then the patient used daily application of Vaseline with a bandage until the wound was closed.

FOLLOW-UP:
Granulation tissue was observed within one week, and the graft fully resorbed. Wound showed complete closure with good cosmetic results at 4 weeks. There was minimal pain reported by the patient throughout the treatments.


Initial presentation


Final defect 1.5 cm x 1.6 cm


1 week follow-up


Closed at 4 weeks

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Invasive Melanoma of the Right Cheek and Lower Eyelid With EPIFIX

Oliver J. Wisco, DO, FAAD, FACMS | Dermatology | Bend, OR

55-year-old male presents with a biopsy proven lentigo malingna melanoma with a Breslow depth of 0.3 mm on the right cheek with extension onto the lower eyelid.

LOCATION: Right cheek with extension onto the lower eyelid

PREOP SIZE: Biopsy site 1.2 cm x 2.1 cm (biopsy was taken from the darkest part of the lesion); Lesion with Wood's light 3.1 cm x 4.0 cm

DIAGNOSIS: Lentigo Malignant Melanoma, 0.3 mm Breslow depth with surrounding MMIS-LM type

APPROACH: Surgical excision using the Modified Mohs surgical technique / Staged Excision

FINAL DEFECT: 4.1 cm x 5.0 cm down to the deep fat

CHALLENGE:
The size of this defect with the proximity to the right ala and the right lower eyelid margin make this area difficult to close primarily. Secondary intention would result in slow healing with a high potential for contraction that would lead to an ectroprion and alar displacement/notching. Based on these issues and the patient's desire to avoid a large rotation flap, the patient and physician chose an inferiorly based island pedicle flap repair.

WOUND TREATMENT:
Upon performing the flap, due to the tension on the wound, there was a residual 1.5 cm x 1.8 cm defect that could not be closed on the lateral aspect of the defect. A 16 mm EPIFIX graft was placed on this residual defect and a pressure dressing was placed on the entire wound site. At the one week postop visit, there was flap necrosis at the superior aspect of the flap with superficial sloughing over most of the flap. A 2.0 cm x 3.0 cm EPIFIX graft was then placed on the entire involved area and hydrated with sterile saline. A Mepilex dressing was placed over the entire surgical area.

FOLLOW-UP:
The Mepilex dressing was removed after 7 days and the patient used daily application of Vaseline with a bandage until the wound was closed. Wound showed complete closure with good cosmetic results at 7 weeks.


Initial presentation


Final defect 4.1 cm x 5.0 cm


1 week follow-up


Closure at 6 weeks

Basal Cell Carcinoma of the Right Lower Eyelid and Cheek With EPIFIX

John A. Marascalco, MD | Dermatology | Grenada, MS

65-year-old female presents with a biopsy proven basal cell carcinoma on the right lower eyelid with extension on to the cheek. The patient is a moderate drinker and smokes a pack a day.

LOCATION: Right lower eyelid with extension onto the cheek

PREOP SIZE: 1.0 cm x 2.0 cm

DIAGNOSIS: Basal cell carcinoma

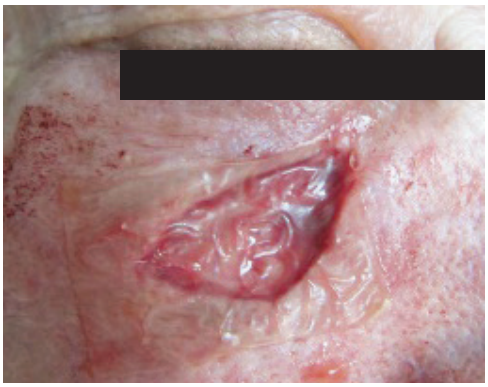
APPROACH: Surgical excision using Mohs surgical technique

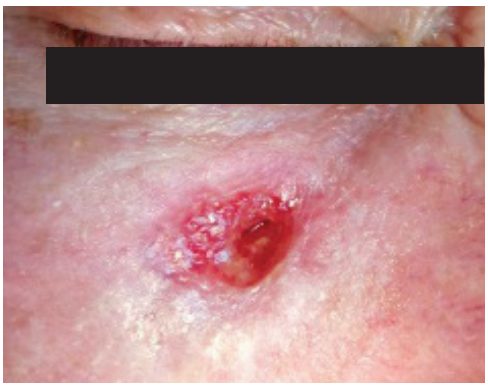
FINAL DEFECT: Not available

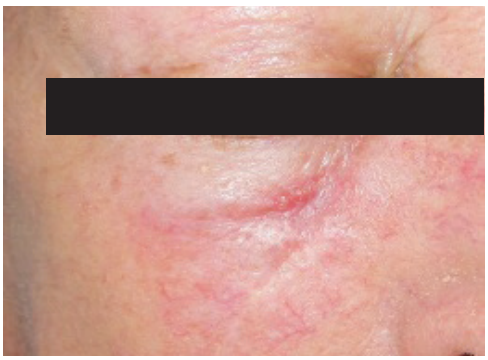
CHALLENGE:
The size of this defect with the proximity to the right lower eyelid margin make this area difficult to close primarily. Secondary intention would result in slow healing with a high potential for contraction that would lead to an ectropion. EPIFIX was selected due to ready availability, and ease of use in this location.

WOUND TREATMENT:
An EPIFIX 2.0 cm x 3.0 cm graft was hydrated with sterile saline and sutured in place using a 5 Ethilon® running suture. The graft was then covered with a moisture retentive dressing.

FOLLOW-UP:
Gradual improvement was observed over the next month after the last graft was placed, with complete closure by 4 weeks.


Final defect with EPIFIX graft placed


2 week follow-up


Closed at 4 weeks


10 month follow-up

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Basal Cell Carcinoma of the Alar Rim With EPIFIX

Oliver J. Wisco, DO, FAAD, FACMS | Dermatology | Bend, OR

45-year-old male presents with a biopsy proven nodular basal cell carcinoma on the right lateral alar rim of the nose.

LOCATION: Right lateral nasal alar rim

PREOP SIZE: 0.2 cm x 0.3 cm

DIAGNOSIS: Nodular basal cell carcinoma

APPROACH: Surgical excision using Mohs surgical technique

FINAL DEFECT: 0.5 cm x 0.6 cm down to the fibrofatty tissue

CHALLENGE:
The location on the alar rim makes primary closure challenging. Secondary intention would result in slow healing and possible contraction leading to a notched ala. EPIFIX was selected due to ready availability and ease of use in this location.

WOUND TREATMENT:
An EPIFIX graft was trimmed to 0.7 cm x 0.8 cm and the residual pieces of the graft were placed on the base of the defect to support building granulation tissue and decrease depth of the wound. A Mepilex dressing was placed over the graft for coverage and to secure the graft. One graft was used. After one week, the dressing was removed and then the patient used daily application of Vaseline with a bandage until wound closure.

FOLLOW-UP:
Wound was closed with minimal scarring at approximately 3 weeks. There was some minor residual redness that resolved with treatment with a Pulsed Dye Laser.


Initial presentation


Final defect 05 cm x 0.6 cm


1 week follow-up


6 week follow-up

Basal Cell Carcinoma of the Nose With EPIFIX

Oliver J. Wisco, DO, FAAD, FACMS | Dermatology | Bend, OR

80-year-old male presents with a biopsy proven basal cell carcinoma on the nasal dorsum, right nasal sidewall, right ala, and left medial canthus.

LOCATION: Nasal dorsum, right nasal sidewall, right ala, and left medial canthus

PREOP SIZE: 1.7 cm x 3.8 cm on the nasal dorsum and right side of the nose, 1.1 cm x 1.7cm on the left medial canthus

DIAGNOSIS: Nodular and Superficial Basal Cell Carcinoma. Squamous Cell Carcinoma *in situ* was also found during removal

APPROACH: Surgical excision using Mohs surgical technique

FINAL DEFECT: 3.8 cm x 6.5 cm (the lesions merged together during the removal) down to the level of the subcutis, with extension through the cartilage on the right ala

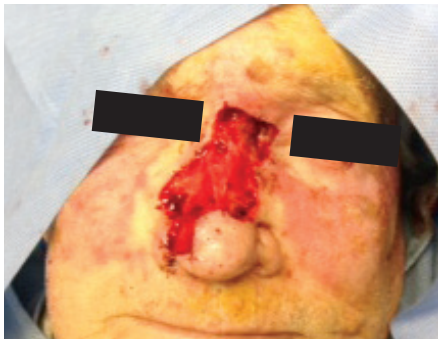
CHALLENGE:
The size of this defect along with the number of cosmetic units of the nose involved makes primary closure difficult. Secondary intention would result in slow healing and possible contraction of scar would likely cause a notched ala and possible webbing around the left medial canthus. The patient refused an interpolation flap and cartilage grafting. The patient and the clinician decided on the use of a single stage flap and EPIFIX, and bilateral cheek advancement flaps.

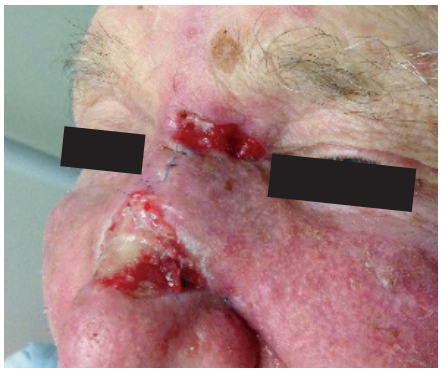
WOUND TREATMENT:
Bilateral cheek advancement flaps were used to decrease the size of the defects as much as possible and to isolate the cosmetic units. The right alar cartilage was advanced inferiorly to give more support over the right alar rim. EPIFIX grafts were then placed over the residual defects on the right ala, nasal dorsum, and left medial canthus. A Xeroform™ dressing was sutured over the grafts.

FOLLOW-UP:
At the 2 week follow-up, excellent granulation tissue was seen at sites of EPIFIX graft placement. Sutured aspects over the nasal dorsum and the right ala and melolabial folds were closed. The patient continued with daily application of Vaseline with a bandage until closure.

One month postop check showed a 1.5 cm x 2.0 cm area of excessive granulation tissue over the nasal dorsum, otherwise, the flap healed. The patient reported that complete closure occurred at approximately 6 weeks. There was minimal notching of the right ala. Otherwise, there were no residual complications.


Initial presentation 1.7 cm x 3.8 cm


Surgical site 3.8 cm x 6.5 cm


2 week follow-up


Nearly closed at 4 weeks

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Basal Cell Carcinoma of the Forehead and Frontal Scalp With EPIFIX

Oliver J. Wisco, DO, FAAD, FACMS | Dermatology | Bend, OR

85-year-old male presents with a biopsy proven infiltrative basal cell carcinoma on the mid forehead with extension onto the frontal scalp.

LOCATION: Mid forehead with extension onto the frontal scalp

PREOP SIZE: 2.8 cm x 2.9 cm

DIAGNOSIS: Infiltrative basal cell carcinoma

APPROACH: Surgical excision using Mohs surgical technique

FINAL DEFECT: 3.6 cm x 4.0 cm

CHALLENGE:
The size of this defect and the lack of tissue laxity in this location makes primary closure difficult. Secondary intention would result in slow healing, but with an acceptable cosmetic result. A partial closure and EPIFIX over the residual defect was selected by the patient and the clinician.

WOUND TREATMENT:
An M-plasty flap was used to decrease the size the defect. A 2.0 cm x 3.0 cm EPIFIX graft was placed across the residual 1.8 cm x 2.7 cm defect. A Mepilex dressing was then placed with plan to remove this dressing in 7 days.

FOLLOW-UP:
The Mepilex dressing was removed in 7 days and wound care was changed to daily application of Vaseline and a bandage. Wound showed complete closure with good cosmetic results at 4 weeks.


Initial presentation


Final defect 3.6 cm x 4.0 cm


1 week follow-up


Closed at 4 weeks

Basal Cell Carcinoma on the Anterior Chest Wall With EPIFIX

Oliver J. Wisco, DO, FAAD, FACMS | Dermatology | Bend, OR

63-year-old male presents with a large biopsy proven morpheaform and nodular basal cell carcinoma on the anterior chest wall over the sternum.

LOCATION: Anterior chest wall over the sternum

PREOP SIZE: 6.1 cm x 7.8 cm

DIAGNOSIS: Morpheaform and nodular basal cell carcinoma

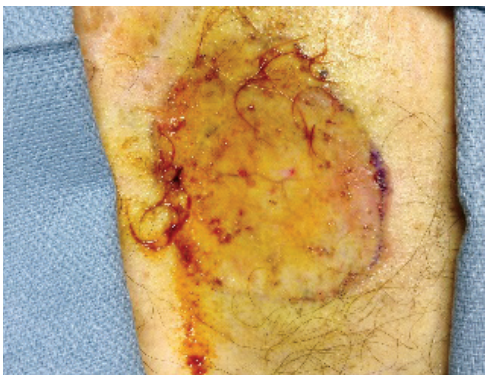
APPROACH: Surgical excision using Mohs surgical technique

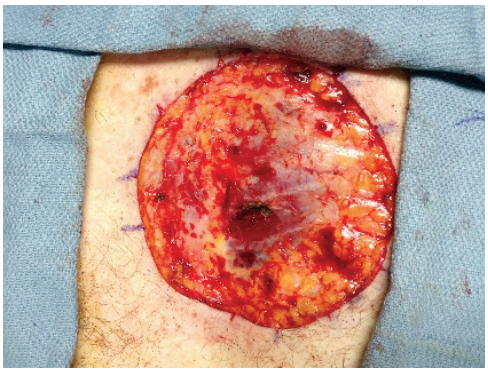
FINAL DEFECT: 9.8 cm x 10.5 cm down to the muscle

CHALLENGE:
The main consideration in repairing this defect was the size of the wound and the surrounding tension. A partial closure followed by EPIFIX was selected by the patient and the clinician due to the patient's desire to minimize further surgery.

WOUND TREATMENT:
The size of the defect was first decreased through the use of a purse string and pulley guiding sutures. An EPIFIX graft was then spread across the residual 2.2 cm x 8.8 cm opening. A Mepilex dressing was then placed over the wound with planned removal in 7 days and placement of second and third EPIFIX allografts at the next two weekly visits.

FOLLOW-UP:
Granulation tissue was noted within one week. Second and third EPIFIX grafts were applied at the next two weekly visits. The wound was completely closed with good cosmetic results at 5 weeks.


Initial presentation


Final defect 9.8 cm x 10.5 cm


1 week follow-up


5 week follow-up

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Squamous Cell Cancer (SCC) on the Right Pre-Tibial Area With EPIFIX

Janice Warner, MD, FAAD, FACMS. | Dermatology | Austell, GA

87-year-old white female with a biopsy proven 2 cm squamous cell cancer on the right pre-tibial area. She has a history of multiple skin cancers including SCC and melanoma.

LOCATION: Right lateral pre-tibial area – distal right shin

PREOP SIZE: 2.0 cm x 2.0 cm

DIAGNOSIS: Squamous cell carcinoma

APPROACH: Surgical excision using Mohs surgical technique

FINAL DEFECT: 3.5 cm x 3.6 cm down to the deep fat

CHALLENGE:
The pre-tibial area is a challenging place to perform surgery. The skin in this area is typically thin and fragile, and it has little elasticity making a surgical wound in this area difficult to repair. Also, this area is prone to infections and edema, which further compromises healing. Given these issues, EPIFIX was selected due to ready availability and ease of use in this location.

WOUND TREATMENT:
A 4.0 cm x 4.0 cm EPIFIX graft was applied and was sutured in place and a Xeroform dressing was applied and covered with gauze and a Coban wrap. The patient was instructed not to get the dressing wet, limit activity and off-load.

FOLLOW-UP:
EPIFIX integration into the wound was noted at one week postop. Wound closure was observed over the next few weeks. Scarring was minimal at 5 months post-application.


Initial presentation


Final defect 3.5 cm x 3.6 cm

1 week follow-up


Appearance at 5 months

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Email: customerservice@mimedx.com

REFERENCES: 1. Koob TJ, Lim JJ, Massee M, Zabek N, Denozière G. Properties of dehydrated human amnion/chorion composite grafts: Implications for wound repair and soft tissue regeneration. J Biomed Mater Res B Appl Biomater. 2014;102(6):1353-1362. **2.** Lei J, Priddy LB, Lim JJ, Massee M, Koob TJ. Identification of Extracellular Matrix Components and Biological Factors in Micronized Dehydrated Human Amnion/Chorion Membrane. Adv Wound Care (New Rochelle). 2017;6(2):43-53. **3.** MM-RD-00086, Proteome Characterization of PURION Processed Dehydrated Human Amnion Chorion Membrane (DHACM) and PURION Plus Processed Dehydrated Human Umbilical Cord (DHUC) Allografts.

MIMEDX | Purion