

## SHORT COMMUNICATIONS

### Effects of Imiquimod 5% Cream in the Prevention of Excised Keloid Recurrence

Jennifer Frias MD<sup>a</sup>, Raquel Vargas MD<sup>a</sup>, Erika Paez MD<sup>a</sup>, Marinna Chopite MD<sup>a</sup>, Oscar Reyes MD<sup>a</sup>, Natalia Soucre MD<sup>a</sup>, Nicole Swenson DO<sup>b</sup>, Brian Berman MD PhD<sup>c</sup>

<sup>a</sup>Biomedicine Institute, University of Central Venezuela

<sup>b</sup>KCUMB-GME Consortium/ADCS Dermatology Residency Program

<sup>c</sup>Dermatology and Cutaneous Surgery, University of Miami Miller School of Medicine, Skin & Cancer Associates, Center for Clinical and Cosmetic Research

#### INTRODUCTION

The majority of keloids recur at the site of keloidectomy, and currently there are no medications approved to reduce keloid recurrence after excision. Surgical excision of keloids has a reported 71% average weighted recurrence rate if performed without adjuvant therapies.<sup>1</sup> Treatment of surgical keloidectomy excision sites with topical imiquimod 5% cream for 8 weeks daily has been reported to have no recurrences of the keloids at the end of the relatively short, 24 week follow up period.<sup>2</sup> Imiquimod has its immune modulatory effect partly due to induction of production of antifibrotic IFN- $\alpha$ , and TNF- $\alpha$ , interleukins 6 and 8, as well as recruitment and activation of cytokine producing plasmacytoid dendritic cells.<sup>3</sup>

#### METHODS

Twenty five patients with at least one non-enlarging keloid were enrolled into this study, which was conducted at the Biomedicine Institute at the University of Central Venezuela. Keloids at all anatomical sites between 5mm and 50mm in diameter without any treatment in the previous 3 months were eligible to be included in the study. A total of 41 keloids were shave excised tangentially along the long axis of the lesion, followed by curettage, hemostasis and a compression dressing. Patients were instructed to wait 24 hours after the procedure to begin nightly applications of 5% imiquimod cream for 2 months. Follow up visits occurred at 2 weeks after excision, and then every 4 weeks until 6 months postoperatively. 35 keloidectomy sites (20 auricular, 9 truncal, 2 suprapubic and 4 on extremities) were available for evaluation at the 6 month endpoint and all 20 auricular keloidectomy sites (16 lobe, 3 antihelix, 1 helix) were evaluated at 6 months and 5 years post keloidectomy. Photographs were taken,

adverse events were assessed, and the presence of a burning sensation at the application site was quantified using a Visual Analog Scale at each visit.

## RESULTS

No systemic symptoms, such as fever or malaise, were reported by any subjects during the course of the study. All patients sensed burning at the imiquimod application site, in addition to pain, itching, inflammation, and wound crusting. Three patients discontinued the study early due to

application site adverse effects. At 6 months, all 9 of the excised keloids on the trunk and 4 keloids excised on the extremities had evidence of recurrence while of the 20 treated auricular keloids, only 3 had evidence of recurrence at 6 months and neither keloids in the suprapubic region had evidence of recurrence. The subset of 20 treated auricular keloids were followed up to 5 years after keloid treatment, with no additional recurrences were noted. Photographs of earlobe keloid prior to, 2 months following, and 1 year following treatment are shown in Figure 1.

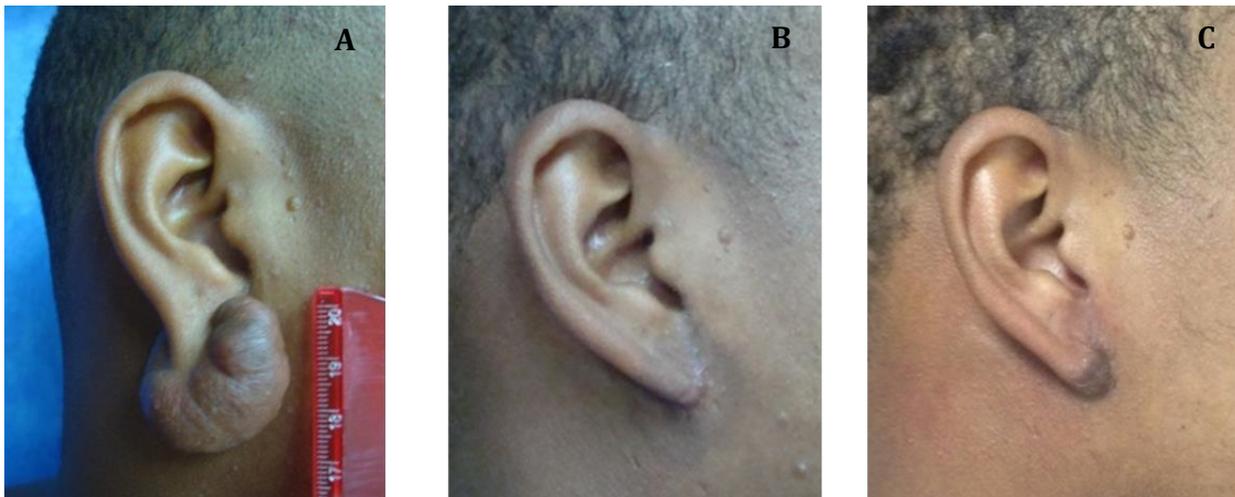


Figure 1. Photographs of earlobe keloid (A), post-shave excision and 2 months once-daily 5% imiquimod cream treatment (B), 5 year post-excision and treatment (C)

## CONCLUSION

The use of postoperative, topically applied, imiquimod following tangential shave removal, is a more limited and more effective intervention compared to the standard, complete excision of auricular and

suprapubic keloids, with lower recurrence rates for up to 5 years.

**Conflict of Interest Disclosures:** none.

**Funding:** none.

**Corresponding Author:**

Brian Berman, MD, PhD  
2925 Aventura Boulevard, Suite 205  
Aventura, FL 33180  
305-933-6716 (Office)  
305-933-6720 (Fax)  
bbmdphd@gmail.com

---

**References:**

1. Mustoe TA, Cooter RD, Gold MH, Hobbs FD, Ramelet AA, Shakespeare PG et al. International Advisory Panel on Scar Management. International clinical recommendations on scar management. *Plast Reconstr Surg.* 2002; 110: 560–571.
2. Berman B, Kaufman J. Pilot study of the effect of postoperative imiquimod 5% cream on the recurrence rate of excised keloids. *J Am Acad Dermatol.* 2002 Oct;47(4 Suppl):S209-11.
3. Kim K, Son D, Kim J. Radiation Therapy Following Total Keloidectomy: A Retrospective Study over 11 Years. *Arch Plast Surg.* 2015 Sep;42(5):588-95.