Successful non-operative treatment of eruptive keratoacanthomas refractory to excision

Edward W Seger MD MS, Isadore S Tarantino MD, Brett C Neill MD, Ting Wang MD PhD

Affiliations: Division of Dermatology, University of Kansas Medical Center, Kansas City, Kansas, USA

Corresponding Author: Edward W Seger MD MS, Division of Dermatology, University of Kansas Medical Center, 3901 Rainbow Boulevard, Kansas City, Kansas 66160, Tel: 913-588-3840, Email: Ed.seger@gmail.com

Abstract

Keratoacanthomas are rapidly growing neoplasms of squamous epithelium. Despite their benign nature, they are often difficult to distinguish from squamous cell carcinoma and require excision. In cases in which excision is not successful or not desired, intralesional treatments may be considered. However, limited research exists on individual therapeutic efficacy. We present a 68-year-old man who developed multiple eruptive keratoacanthomas around the wound edge of a previous keratoacanthoma excision. Considering previous excisional failure, intralesional 5-fluorouracil was used as a treatment modality. Injections every 3-4 weeks over a course of 12 weeks induced clinical keratoacanthoma clearance with excellent cosmetic results. This case showcases that weekly intralesional 5-fluorouracil injections, as was the standard mode of treatment in previous case reports, may not be necessary. This less frequent injection strategy is more convenient for the patient and may lead to fewer treatments and less medication necessary. Although a case-by-case basis is needed for any alternative approach to keratoacanthoma treatment, this report is useful for the practicing clinician in showing that 5-fluorouracil may be efficacious in these difficult-to-treat patients.

Keywords: keratoacanthoma, non-operative, intralesional, 5-fluorouracil, excision

Introduction

Keratoacanthomas (KAs) are rapidly growing neoplasms of the squamous epithelium that are cosmetically disfiguring and difficult to distinguish clinically from squamous cell carcinoma (SCC). With a solitary KA, excisional biopsy can be quickly performed and has the benefit of being both diagnostic and curative. In cases of widespread KA eruption however, non-operative modalities may be better suited. This consideration is amplified when KAs have recurred following excision. Intralesional 5-fluorouracil (5-FU) has been previously described in two patients who developed multiple KAs that would have been difficult to resect surgically [1, 2]. In both instances, weekly 5-FU injections led to resolution. Despite this success, having a patient return weekly is inconvenient and may not be necessary if less frequent treatments are also effective. We report a patient with multiple eruptive KAs, which failed previous excision but were successfully treated with intralesional 5-FU injections every three to four weeks.

Case Synopsis

A 68-year-old man with no significant past medical history presented to our clinic with an exophytic red papule with a central erosion on the right forearm, which had been present for two weeks. On the initial visit the lesion was removed via shave biopsy and pathology returned consistent with well-differentiated KA. The lesion recurred and was excised 8 weeks after initial biopsy using an elliptical incision with deep and superficial sutures. The patient returned two weeks later with an eruption clinically consistent with multiple KAs surrounding the excision site (**Figure 1A**). Considering the reoccurrence and patient reluctance to undergo a second excision, the decision at that time was to inject 5-FU into the lesions and have the patient return in three weeks. At this return visit there was obvious clinical improvement and the patient was satisfied with the results and interested in continuing

treatment (**Figure 1B)**. The patient was subsequently injected at this visit and three additional visits before there was clinical resolution of the KA with minimal scarring (**Figure 1C)**. A total of 5ml of 5-FU was injected into the base of the KAs. There were no associated adverse events and the patient tolerated the injections well. Given clinical resolution, a confirmatory biopsy was not performed at this time and the lesions were instead monitored with follow up appointments. At a 10-month follow up the site remained clear without KA recurrence and with excellent cosmetic outcome.

Case Discussion

In this instance, the predisposition for developing KAs at excisional sites necessitated an alternative approach. We were able to achieve KA resolution with excellent cosmetic results following 5-FU injections at three to four-week intervals. Our approach was rooted in the recognition that although some studies reported clinical improvement one week following a 5-FU injection, others did not [3]. Given 5-FU's mechanism of action by inhibiting DNA synthesis, it is likely that one week is not an adequate time to quantify the full impact on KA destruction that each injection would have. By spacing these injections out by several weeks, we could visualize the final outcome of each treatment and reduce the number of treatments (and overall 5-FU) necessary for resolution. Fortunately, there have been no reports of systemic adverse events following intralesional 5-FU. Nonetheless, if the lesion can be cleared successfully with less frequent injections this could save patient and provider time and reduce the risk of potential side effects.

It is unclear what causes recurrent KAs at excisional sites. However, they are sparsely described in the literature. The addition of oral acitretin to intralesional 5-FU has also been successful in more widespread cases of KAs [4]. The side effect profile of oral retinoid-based medications may preclude extensive use but this may be an option to consider in cases which do not resolve with intralesional 5-FU treatment alone. Similarly, topical 5-FU is commonly used for actinic keratosis, another potentially malignant lesion of keratinocytes, and may be useful for smaller KAs if the patient does not wish to undergo intralesional injections [5].

Conclusion

We report a unique case of recurrent KAs, which were refractory to excision and subsequently treated with 5-FU injections. For the practicing clinician, this report serves to showcase that eruptive KAs can recur surrounding an excisional site and that intralesional 5-FU at three to four-week intervals can achieve complete resolution with excellent cosmetic outcomes.

Potential conflicts of interest

The authors declare no conflicts of interests.

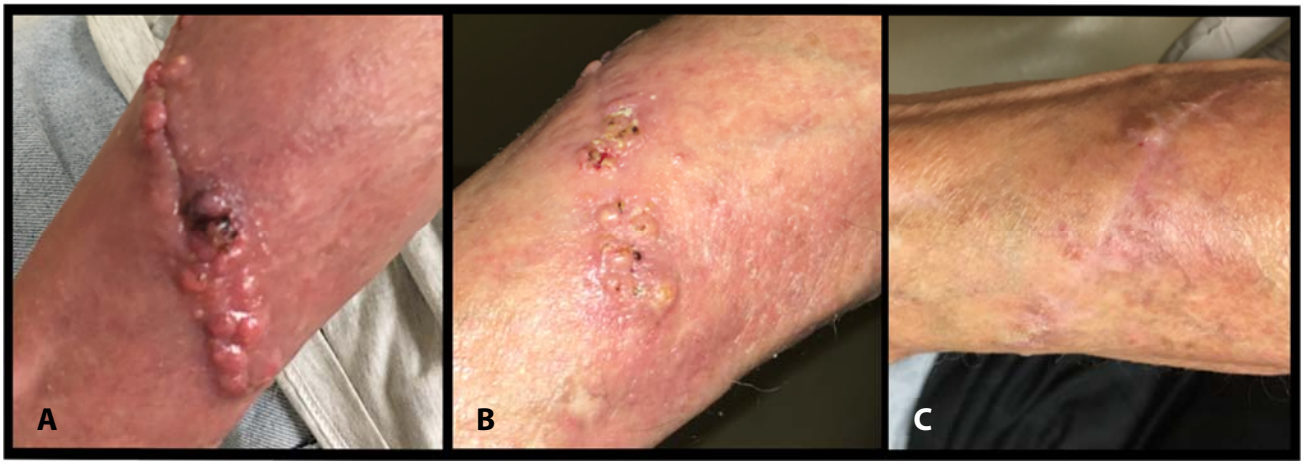

Figure 1. *Treatment of eruptive keratoacanthomas with intralesional 5-fluorouracil.* ***A)*** *Eruptive keratoacanthomas on right forearm on day 0 prior to treatment with intralesional 5-fluorouracil.* ***B)*** *70% improvement three weeks after first injection.* ***C)*** *Final outcome following five injections over 12 weeks.*

References

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