Could cryosurgery be an alternative treatment for basal cell carcinoma of the vulva?

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Abstract

Basal cell carcinomas (BCC) on the genital area account for less than 1% of all BCCs. Surgical management is indicated. Recurrence rate of vulvar BCC has been reported to be 10-20%. Mohs micrographic surgery (MMS) is a superior surgical option. Other treatments include radiation and topical immunotherapy. Cryosurgery for vulvar BCC has not been reported. We present the case of a 88-year-old Hispanic woman with a vulvar ulcer that was confirmed as BCC by histopathology and treated with liquid nitrogen cryosurgery. Control biopsy was performed on day 90 was negative for BCC. No clinical evidence of recurrence was detected after one year. Although, the vulva is considered to be a high-risk site with respect to BCC and MMS is the gold standard for treatment, the delicate nature of the area may preclude complete removal by a surgical technique without compromising vital anatomical function. Liquid nitrogen cryosurgery uses the effects of extreme cold to effect deep destruction of the tumor and surrounding tissues. This is the first report of a vulvar BCC successfully treated with liquid nitrogen cryosurgery. We suggest this technique could be of benefit as an alternative treatment in cases where excisional procedures cannot be performed.

Key words: Basal cell carcinoma, cryosurgery, genital area

Introduction

Basal cell carcinoma (BCC) is a tumor derived from the non-keratinized cells which originate from the basal cell layer of the epidermis.[1] It is a slow growing tumor with a low rate of metastasis and mortality approaching 0.1% of incidence. These tumors are the most common type of cancer in Europe, Australia, and the United States,[2] and accounts nearly 75% of all non melanoma skin cancers diagnosed in the United States each year.[3] It is widely accepted that exposure to ultraviolet light (UV) is the main contributory factor for the development of BCC.[4] Consequently, this entity occurs more often in elderly patients over sun-exposed areas such as the head, neck, and upper chest. BCC is seen less often over covered sites such as the genital area,[5,6] where it accounts for less than 1% of all BCCs.[2] Vulvar BCC represents less than 5% of all vulvar neoplasms.[7] As with other BCCs, surgical management is indicated, with complete excision and clearing of histological margins. However, possibly due to the often poorly-circumscribed nature of these lesions and that the vulva is considered to be a high-risk site for BCC, the recurrence rate has been reported to be 10-20%.[8,9] Consequently, Mohs micrographic surgery (MMS) is a superior surgical option in that it offers greater margin control. Other treatment options include radiation and immunotherapy with topical imiquimod.[3] Although cryosurgery has been described as an alternative treatment for common BCCs, it has not been reported for vulvar BCC. We present a case of vulvar BCC successfully treated with liquid nitrogen cryosurgery.

Case Report

An 88-year-old Hispanic woman presented to our institution with a painless vulvar ulcer of two years duration that had been unresponsive to medical treatment. She had a medical history of type 2 diabetes mellitus, diabetic retinopathy, hypertension, auricular fibrillation, and chronic renal disease stage III. Earlier biopsy was performed by her primary care physician reported lichenoid dermatitis. She was treated with hydrocortisone 1% cream for 18 months...
with no improvement. The patient referred that the ulcer had increased in size, with occasional pruritus and spontaneous bleeding. The physical exam revealed a 2 × 1.5 cm non-tender erythematous ulcer with irregular and erosive borders over her right labium majus [Figure 1]. No enlarged or palpable lymph nodes were found. Complete blood count, Venereal Disease Research Laboratory and Human immunodeficiency virus (HIV) tests were not relevant. Punch biopsy performed from the ulcer border reported a solid BCC [Figure 2]. Because the patient refused MMS or any other excisional treatments, liquid nitrogen cryosurgery was performed with a close technique, using a liquid nitrogen handheld device (CRY-AC®, Brymill Cryogenic Systems, Connecticut, CT, U.S.A.) attached to a flat 2 cm probe and administering double freeze/thaw cycles until a 5 mm freeze rim was reached at each cycle. Local anesthesia was given with 2% lidocaine. The patient continued her follow up visits on post procedure days 7, 14, 30, 60, 90, 180, and 365 [Figures 3 and 4]. A control biopsy was performed on post procedure day 90, which was negative for BCC. No clinical evidence of recurrence was detected at one-year follow up [Figure 5].

DISCUSSION

BCC of the vulva is relatively rare and comprises about 2-4% of all vulvar cancers. UV exposure is thought to be the major contributor in the pathogenesis of BCC; however, it does not appear to play a major role in the development of BCC of the vulva. Suppression of the immune system by way of mutations in tumor suppressor and regulatory genes may be responsible. Barrett et al., reported the importance of p53 mutations in the pathogenesis of BCC in roughly 50% of cases; such factors that predispose to these gene mutations include advanced age, exposure to ionizing radiation, and chemicals (such as arsenic), inherited genodermatoses, and chronic inflammation. We believe that in this case, the vulvar lichenoid dermatitis could be a contributory factor. Although the vulva is considered to be a high-risk site with respect to BCC and MMS is the gold standard for treatment, the delicate nature of the area may preclude complete removal by a surgical technique without compromising vital anatomical function. Cryosurgery tends to be most useful in the treatment of low risk BCC, although good results have been reported following treatment of high risk lesions. When the lesion is carefully selected and in expert hands recurrence rates may be as low as 1%. However, no descriptions or recommendations for vulvar BCC have been reported when treating with liquid nitrogen cryosurgery.

The destruction of BCC with liquid nitrogen cryosurgery uses the effects of extreme cold (tissue temperatures of minus 50-60°C) to effect deep destruction of the tumor and surrounding tissues. Individual treatment techniques vary considerably, with both open and closed spray techniques and single or multiple cycles of freezing (freeze/thaw cycles). Double freeze/thaw cycles are generally recommended for the treatment of facial BCC, although superficial truncal lesions may require only a single treatment cycle. A study comparing cryosurgery (20 seconds freeze, 60 seconds thaw ×2 cycles) to standard surgical excision for head and neck superficial BCC and small nodular BCC found no significant difference in recurrence rates at one year. To reduce the possibility of recurrence or failure of treatment, aggressive treatment is recommended to achieve complete destruction of the tumor at first attempt rather than limiting the destruction to avoid a poor cosmetic result, which leads to under treatment and eventual recurrence. As per our experience with this case, we believe that double freeze/thaw cycles until a 5 mm freeze rim is reached on each cycle is an acceptable recommendation for the treatment of vulvar BCC.

Figure 1: Erythematous ulcer with irregular and erosive borders on the right labia majora

Figure 2: Islands of basaloid cells with peripheral palisading and clefting are seen
CONCLUSION

To the best of our knowledge, this is the first report of a vulvar BCC successfully treated with liquid nitrogen cryosurgery with no recurrence after one year. Since more patients and follow up time are needed to establish its curative rate, we suggest that cryosurgery should not be first line treatment, but could be an alternate treatment in those cases of vulvar BCC where MMS or other excisional procedures cannot be performed.

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