

Acute radiation-aloë vera induced dermatitis in a malignant eccrine tumor of left gluteal region: A case report

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ABSTRACT

A 67 year-old female with the diagnosis of malignant eccrine tumor of left gluteal region was treated with radiation therapy. Concurrent with radiation therapy, a topical aloe vera cream was applied to prevent acute skin toxicity of radiation therapy. On the third day of treatment she presented with lesions mimicking a grade 3 acute radiation-induced dermatitis limited to the radiation portal. Radiation therapy and aloe vera cream was discontinued urgently and topical prednisolone was applied. Patch test for aloe vera was negative. One week later all lesions disappeared and remaining course of radiation therapy was continued without further skin toxicity. The evidence for early skin reaction in this case is suggestive of radiation-aloë vera induced dermatitis. [Turk J Cancer 2006;36(3):138-141].

KEY WORDS:

Aloe vera, radiation therapy, prednisolone, radiation-aloë vera dermatitis

INTRODUCTION

Acute radiation injury of skin is a common adverse side effect of radiation therapy (RT) which may have negative influence on both treatment outcome and patient's quality of life in many forms of cancer (1). The severity of reaction depends on factors including total dose and fraction dose of radiation, the treated skin site, underlying hypersensitivity conditions, collagen tissue disorders and individual variations (2). Severity of the reaction may range between initial mild hyperemia and dry desquamation to moist desquamation with bullae or ulcer formation or even tissue necrosis which may necessitate discontinuation of the treatment.

There are several topical agents available which may be used for prevention of radiation dermatitis. These agents include hydrocolloid dressings, gentian violet, topical steroids, hydrogen peroxide, salt water bathing, topical steroids, sucralfate, biafine and aloe vera gel/cream (3-7). There are variations for treatment recommendations for the prevention of acute radiation dermatitis among radiation oncology centers.

The case presented here shows unusual toxicity of RT and aqueous aloe vera cream which was used for prevention of acute radiation dermatitis in a malignant eccrine tumor of left gluteal region.

CASE REPORT

A 67 year-old female with the previous diagnosis of malignant eccrine tumor of left gluteal region was referred to İnönü University Turgut Özal Medical Center, Department of Radiation Oncology in September 2002. The patient complained of the lesion on left gluteus for four years. Computerized tomography yielded left posterolateral gluteal dermal thickening and a nodular lesion of 4 cm that was invading the underlying adipose tissue accompanied by multiple left inguinal lymphadenopathies measuring up to 3 cm. Further abdominal and pelvic examination revealed no sign of metastatic disease. Histopathological evaluation of incisional biopsy specimen showed malignant eccrine tumor. Lesion was excised together with iliac and inguinal lymphatic dissection in July 2002. Histopathological examination was reported as malignant eccrine tumor with vascular and lymphatic invasion, being in concordance with the pathologic report of the biopsy specimen.

In September 2002, a total dose of 60 Gy was delivered to lesion site and 50 Gy to the lymphatics in 2 Gy fraction doses. Aloe vera cream was applied topically to the radiation portal twice daily for prevention of radiation dermatitis. On the third day of radiation treatment the patient presented with sever itching and painful dermal lesions limited to radiation portal. Clinical evaluation revealed widespread tender, pinky-red colored papullomacular lesions together with bullae formation in some regions. Lesions were recorded to be grade 3 up to RTOG acute radiation toxicity criteria for radiation dermatitis. No other skin lesion was detected. Both radiotherapy and aloe vera were stopped abruptly and topical prednisolone was applied. Patch test for aloe vera was performed. Blood sample tests were all in normal limits. All lesions disappeared after one week of topical prednisolone application. Patch test for aloe vera was found to be negative. Then, remaining radiotherapy schedule was applied successfully without any further complication. As no other dermatitis was experienced during remaining course of radiotherapy and negativity of patch test for aloe vera gel, the skin reaction was diagnosed as the combined toxicity of aloe vera and radiotherapy.

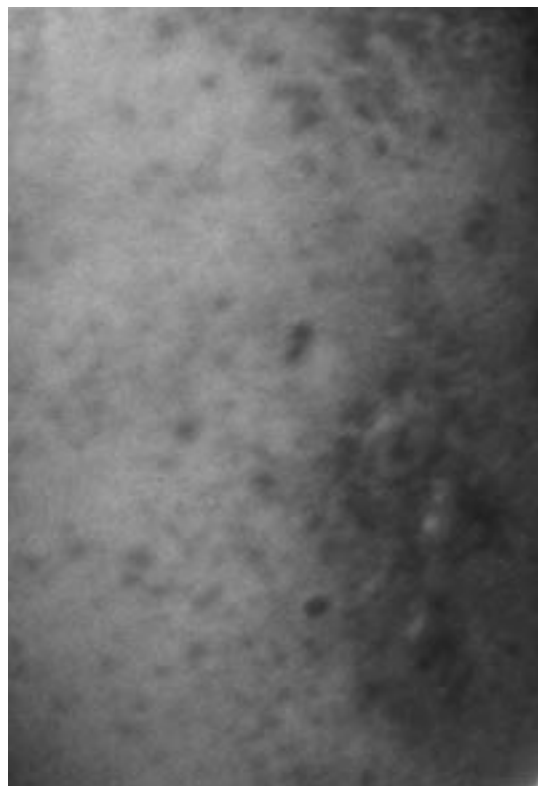


Fig 1. Presentation lesions mimicking grade-3 radiation dermatitis on the third day of radiation-aloe vera treatment

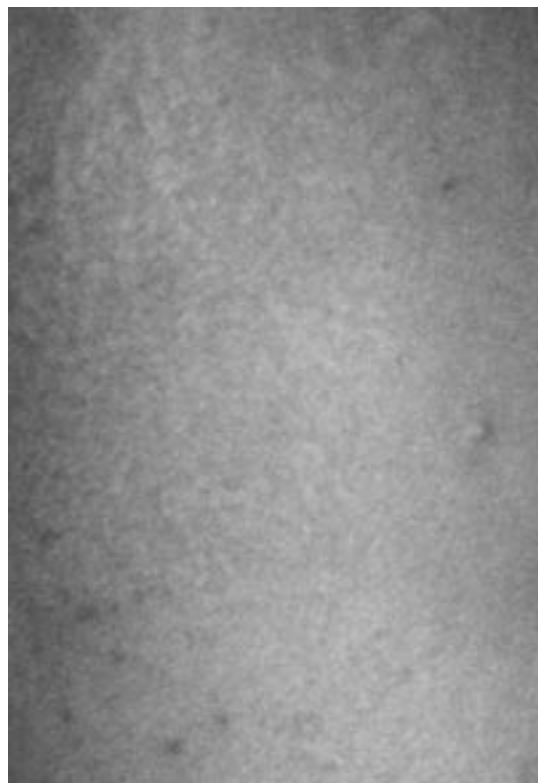


Fig 2. Disappearance of all lesions after discontinuation of treatment and topical prednisolone application

DISCUSSION

Acute radiation dermatitis is a common adverse reaction of RT which may cause itching, pain, mild erythema, dry desquamation, moist desquamation with bullae formation and tissue ulceration leading to tissue fibrosis or even necrosis in the radiation portal. This dose limiting reaction may not only impair patient's quality of life but may necessitate discontinuation of treatment which may have adverse effects on clinical outcomes as well (1).

The prophylactic treatment of acute radiation dermatitis varies between different radiation oncology centers. Although various types of agents have been used, a standard of care has not been addressed yet. One of those agents is the extracts of aloe vera plant which has been used in gel or aqueous cream forms. In their randomized controlled trial Olsen et al. (8) reported that aloe vera gel and mild soap combination was superior to mild soap alone in preventing skin reactions in patients undergoing RT. Heggie et al. (9) reported that the aqueous form of aloe vera was more effective than gel form. On the other hand Williams et al. (5) reported that aloe vera gel was ineffective in prevention of acute radiation dermatitis. As it can be seen, results of the trials involving aloe vera are conflicting, and its usage for prevention or treatment of acute radiation dermatitis remains to be answered.

The case presented here was a part of randomized controlled trial which was designed to compare topical usage of aqueous form of aloe vera cream alone or in conjunction with steroid cream in prevention of acute radiation dermatitis. In general, when RT is used alone and in conventional dose schedules without any chemotherapeutic intervention, type of acute radiation dermatitis experienced is in the form of initial mild hyperemia beginning in 24 hours of first treatment which may be progressive till a total dose of 10-20 Gy (7,10). More severe reactions

are generally experienced when further total doses are reached. Our patient presented with a more severe form reported as RTOG grade 3 just in the third day of RT (6 Gy). Negativity of patch test for aloe vera, and local involvement of lesions instead of being wide spread as in the case of drug reactions, was important tools for eradicating possibility of reaction induced by aloe vera itself. Again as patient was treated with prednisolone successfully and absence of no further toxicity during remaining course of radiation therapy in the absence of aloe vera was important for eradication of radiation induced skin toxicity. Depending on those factors, the reaction that we experienced was thought to be caused by an atypical interaction between RT and aloe vera.

Extracts of aloe vera contains compounds like saponins, naftaquinones, anthraquinones, sterols and triterpenoids (11). Although it is difficult to speculate any mechanism to explain this interrelated phenomenon caused by radiation and aloe vera it is possible that each of these constituents may be responsible for an unknown cascade of reactions causing the toxicity that we reported here.

We believe that our report is important for two reasons, first, up to our knowledge, it is the first case reporting this atypical interaction between aloe vera and RT, and second, it may serve as a guide for treatment of such a toxicity when experienced.

In conclusion, we believe that, in the future the prevention of acute radiation dermatitis could gain greater importance, as more frequent use of hyperfractionated RT schedules and concomitant use of chemotherapy will most likely increase the incidence of such reactions. We recommend other authors to be more careful and aware of possibility of such atypical reactions when trials are designed for seeking better preventive measures of radiation induced skin toxicity.

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