Misuse or new use of radiation

Introduction Chronic vesicular hand dermatitis is a disease of unknown etiology, usually seen in patients between the ages of 20 and 40 years. Chronic vesicular hand dermatitis can be a severe disease, which affects the quality of life, and causes occupational disability. The clinical features of the disease includes vesicles on the palms of the hands or on the soles of the feet, associated with erythema, desquamation, fissuring, pruritis, pain, and skin tightness. The usual treatment includes cycles of: topical steroids, other topical medications, oral steroids, methotrexate, cyclosporine, mycophenolate mofetil, and ultraviolet light. Earlier, good results were obtained with radiation therapy using grenz rays or superficial x-rays but since such machines are not commonly available now, this modality of treatment is no longer used. This study describes the use of megavoltage radiation with good results.

Methods

The study involved treatment of nine patients with chronic vesicular dermatitis on their hands, feet, or both, with megavoltage radiation. All patients were refractory to conventional treatments. Six of the nine patients had both their hands and feet treated, while two patients had their hands treated, and one patient had the feet treated.

For treatment of the hands, the patients stood at the side of a linear accelerator couch and placed their prone palms on a one centimeter of bolus on the couch. Another one centimeter of bolus was placed on top of the hands. An isocentric anterior-posterior and posterior-anterior technique with 6 MV photons, with field size ranging from 19 × 23 cm to 38 × 24. 5 cm was used. The center of midplane between the two pieces of bolus received the radiation dose, with radiation dose prescription depths ranging from 1. 0 to

2. 5 cm from the patients skin surface (2. 0 to 3. 5 cm from the bolus). For treatment of feet, the patients lay supine on a linear accelerator couch and reverse on the table. With the knees bent, the feet were placed in a water bath having a one-centimeter bolus. An isocentric right and left lateral technique with 6 MV photons, with field size ranging from 14 × 28 cm to 24 × 34 cm was used. The radiation dose was prescribed to the isocenter with the radiation dose prescription depths ranging from 10. 5 to 12. 5 cm.

The radiation dose given was 1, 200 cGy in 8 fractions for 8 patients and 900 cGy in 6 fractions for one patient. Treatments were given twice per week, either on Monday and Thursday or on Tuesday and Friday.

Results

An improvement was seen in all patients during the course of radiation therapy. A follow-up (for a median period of 20. 2 months) showed complete resolution at seven sites (47%) and great improvement in eight sites (53%). A follow-up (for a median period of 38. 7 months) showed complete resolution in 4 of the 6 sites. Only two patients had a flare up of their disease but it was less severe than that prior to radiation.

Discussion

The new use of radiation considered here is megavoltage radiation therapy for the treatment of chronic vesicular hand dermatitis.

Megavoltage radiation leads to a successful resolution of chronic vesicular hand dermatitis, and provides a lasting remission. The few patients who did not have a complete resolution still had a reduction in the severity and frequency of relapses, and their disease was more easily controlled with topical medications than prior to radiation therapy.

More experience is required in considering megavoltage radiation therapy for

chronic vesicular hand dermatitis. At present, this treatment is recommended only for those patients where other treatments have failed. More investigation is required to determine if patients are actually cured of the disease after megavoltage radiation therapy.

The facts that were interesting in this article is that in addition to providing a complete resolution of the disease in the majority of patients, they did not have to take their normal treatment (oral steroids, methotrexate, or cyclosporine). These medications are very toxic and the use of megavoltage radiation therapy provided them a relief from the toxic effects of these drugs. Moreover, a lasting remission was obtained.

One particular aspect from the article, which can be applied in the future, as a radiographer, is the use of a water-bath to improve radiation dose homogeneity. This will make it easier for radiation therapists as well as the patients.

I would certainly recommend this article to others because megavoltage radiation therapy for the treatment of chronic vesicular hand dermatitis appears to be a promising technique. The results are good and no side-effects have been reported in the short term. The only reported side-effects were for patients who are treated for cancers (sarcomas).

As a follow-up, I would like to investigate the long-term resolution from disease and if any possible side-effects develop in the future.

Reference

Duff, M, Cruchfield, C. E, Moore, J, Farniok, K, Potish, R. A, Gallego, H (2006). Radiation Therapy for Chronic Vesicular Hand Dermatitis. Dermatitis. 17(3): 128-132.