

## ALOE VERA IN THE TREATMENT OF RADIATION ULCERS OF MUCOUS MEMBRANES

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IN 1935, Collins and Collins (1) published a favorable report on the treatment of roentgen dermatitis with the fresh whole leaf of *Aloe vera*. Later that year Collins (2) added a report on the use of an ointment of *Aloe vera* (Alvigel) as a therapeutic agent for roentgen and radium burns. The following year Wright (5) gave a paper on the use of *Aloe vera* in the treatment of roentgen ulcers and telangiectasis. He concluded that (5):

"From the cases reported it would seem that x-ray ulceration, even of several years' duration, will respond to the use of *Aloe vera*. The permanence of the results can be determined only by watching cases thus treated over a period of time. Little can be expected in the treatment of telangiectasis as a result of irradiation beyond the smoothing and softening of the affected skin."

Probably the most recent and authoritative information, worth quoting at length to bring it to the attention of radiologists, comes from MacKee, who says (3):

"During the past two or three years excellent results have been obtained with the jelly obtained from the leaf of a plant called *Aloe vera*. The plant grows in Florida. The leaf is green in color and long and wide—somewhat like a sword. The shell of the leaf is thick and tough, but when fresh can be cut easily with a knife. On one side of the leaf the shell is flat; on the other side it is convex. There is a thick layer of jelly-like substance between the shells. The leaf should be kept in a cool, moist environment. It is customary to cut a piece of the leaf to the size and shape of the lesion. The convex shell layer is removed. The jelly is placed in contact with the floor of the ulcer and held in place with a bandage. Dressings are changed once or twice daily. The treatment seems to be inefficacious for roentgen or radium sequelae—atrophy, telangiectasia, sclerosis, and keratosis. It appears most effective in the case of indolent roentgen and radium ulcers. Often the pain disappears within a day or two and healing takes place in a few weeks or a few months—more often the latter. The writer can vouch for the good results in a fairly

large percentage of indolent ulcers. Good results have been obtained also in ulcers that occur early in third-degree reactions.

"To obtain satisfactory results it seems necessary to use the fresh leaf. Preparations on the market which contain the *Aloe vera* jelly have been thus far unsatisfactory. It is thought that the good results are due to vitamin D."

Our own personal experience in man has been limited to five cases. All five have experienced definite relief from pain and discomfort, as mentioned by MacKee. One case of severe roentgen dermatitis of the face, treated two years ago with the fresh leaf, can be recorded as an excellent result. Three other cases of roentgen ulcers of the skin, in patients treated for carcinomas of the prostate, breast, and vagina, died incident to their disease, before a reasonably accurate or satisfactory evaluation of *Aloe vera* therapy could be made. Relief from pain was definite, sloughing appeared to clear more readily, and skin grafting was successful in the breast case.

As no cases of radiation ulcers of the mucous membranes treated with *Aloe vera* have been noted by us in the literature, our purpose is to report the fifth case which has remained well for two years following healing of osteo-radio-necrosis of the tongue, floor of mouth, and mandible.

Case 5. A 54-year-old white male had noticed a growth 1 cm. in diameter on the right side of his tongue and floor of his mouth anteriorly for three months. This was removed by a surgeon with electrocautery and the pathologic diagnosis by A. C. Broders, M.D., was squamous-cell epithelioma, Grade 3. There was slight enlargement of the anterior right cervical lymph nodes. He was then referred for radiologic treatment. Intra-oral radium therapy, heavily filtered, and external deep x-ray therapy was administered over a ten-day period. The case was complicated by ex-

fensive peri-odontal disease, which seemed to be a factor in the marked and severe radiation reaction of the tongue and mouth which began on the fourth day following the completion of therapy. The acute reaction began to subside within 14 days, but during the next three months a large ulcer of the right side of the tongue and floor of the mouth developed. All of the teeth were extracted, a few at a time, but osteo-radio-necrosis developed in the right mandible in spite of expert dental care and mouth hygiene. An alcohol injection of the third branch of the right fifth nerve was performed but the patient still suffered pain in the floor of the mouth and tongue. The ulcer was deep and measured 5 X 1.5 cm. and left the right mandible exposed. Films of the mandible showed rarefaction of the upper right margin about 5 centimeters in length and 0.5 centimeter in depth. Approximately three and one-half months following radiation therapy the jelly-like substance of fresh *Aloe vera* leaf was held by the patient within the mouth for from one and one-half to thirteen and one-half hours daily for a period of eight weeks, averaging seven hours daily. Relief from pain was prompt and definite and the ulcer slowly grew smaller. Saline mouth washes were used between and after this *Aloe vera* therapy. Five weeks later a single sequestrum of the upper right mandible was lifted off with forceps. In another five weeks the ulcer was completely healed. Removable dentures were fitted six months later. The mouth is dry and there is some furrowing of the tongue and limitation of its motion. The patient

has been followed for two years since complete healing was obtained and has been seen in large radiologic clinics elsewhere, with no evidence of ulceration.

We believe that osteo-radio-necrosis should be prevented when possible, but as rather large numbers of such cases are being reported from the larger radiological centers where protection, filtration, and dosage are carefully considered, any means which will aid in its treatment should be described.

#### SUMMARY

1. Recent literature on *Aloe vera* therapy for radiation ulcers of the skin is briefly reviewed.
2. Radiation ulcers of the mucous membranes and adjacent tissues of body cavities may also be treated with the fresh leaf of *Aloe vera*.
3. A case of osteo-radio-necrosis of the mouth so treated and well two years following healing is briefly reported.

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