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TREATMENT OF HERPES ZOSTER AND POSTZOSTER NEURALGIA BY THE SUBLESIONAL INJECTION OF TRIAMCINOLONE AND PROCAINE

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Abstract. Fifteen patients with herpes zoster or postzoster neuralgia were treated with a triamcinolone-procaine solution injected under the cutaneous lesions and in painful areas. The results were excellent in controlling the pain and in eradicating the cutaneous manifestations. This preliminary report is offered to encourage others to try this method since it is felt that it will decrease morbidity and suffering from this infection.

In a previous communication, Epstein & Allington demonstrated that there is no known efficient treatment for herpes zoster (1). Many "successful" therapeutic approaches have been reported, encompassing large and small series, but none have stood the tests of time and widespread application. With full realization of the pitfalls of advocating a new treatment for a disease as capricious as this one with a small series of cases, this report is offered to the medical profession in the belief that it would be unwise to withhold this information until an adequate series could be gathered with valid controls.

Herpes zoster is a painful, disabling entity. The lesions may become gangrenous and lead to cicatrization. Death may result from a complicating viral meningoencephalitis. It is believed that this remedy is effective for this viral infection. Furthermore, postzoster neuralgia is apt to be lasting and resistant to therapy. This complication is more common in older patients; 13 of these 15 individuals were more than 54 years of age. Six of these patients were treated for postherpetic symptoms. "Premature reporting" may ease considerable suffering and even prevent some deaths by introducing the medical profession to this remedy. It is recognized that in this scientific era, it may be difficult to attain acceptance of a minimal series.

TECHNIQUE

This treatment is a simple one. A solution of 200 mg of triamcinolone in the form of kenalog-IM(r) or aristocort forte(r) is mixed with 100 cm^3 of 2% procaine hydrochloride. The physician injects the necessary amount of this mixture *subcutaneously* below the visible lesions and into the areas of pain, burning or itching. The strength of the solution is approximately 2 mg per cm^3 of procaine. Up to 20 cm^3 of the mixture has been injected along the affected segments at a single session. Fifteen cubic centimeters has been administered in a single area of the face. Repeated daily injections may be given if adequate relief is not obtained. No attempt is made to insert the solution into the nerve nor to administer it perineurally. Hospitalization is unnecessary.

Two points must be made in regard to the injection of this mixture. 1) It is essential that the injection be given subcutaneously to minimize the hazard of producing cutaneous atrophy. Although zoster has the potentiality for causing the formation of scar tissue, the treatment should not add further cicatricial alterations. One must avoid also injecting the adipose tissue to prevent a painful, disabling panniculitis and subsequent atrophy. 2) It is essential that the dosage be adequate to produce the desired results. While it must be stressed that extreme care is necessary to avoid injuring the patient, maximum therapeutic benefits cannot be anticipated unless all of the involved area is injected. For instance, in case 8, the initial dose was 15 cm^3 (30 mg of triamcinolone) injected into the right side of the face. This was followed on successive days by injections of 5 cm^3 (10 mg), 3 cm^3 (6 mg) and 5 cm^3 (10 mg), a total of 28 cm^3 (56 mg). Larger amounts can be inserted on the trunk, 20 cm^3 not being an excessive dose in such instances. Most patients respond well to smaller doses but this is regulated by the extent of the involvement. Often, the patient notices little or no benefit after the initial treatment. This is due to the fact that the entire

Table I. *Patients with herpes zoster treated with the triamcinolone-procaine mixture injections*

Case	Age	Sex	Location	Duration	Injections		Results
					No.	Total volume (cm^3)	
1	74	♀	Left, forehead	Days	1	1.5	Excellent
2	83	♀	Left 12th thoracic	Days	2	8.0	Excellent
7	68	♀	Left 5th thoracic	1 week	4	?	Excellent
8	64	♀	Right side of face	5 days	4	28.0	Excellent
10	15	♀	Right thigh	2 weeks	2	10.0	Excellent
11	71	♀	Left 12th thoracic	1 week	1	5.0	Excellent
14	72	♂	Left 10th, 11th, 12th thoracic	2 days	4	40.0	Excellent
15	63	♀	Left T 10	2 weeks	3	40.0	Excellent

Excellent indicates complete cure without residual symptoms.

area is not covered as a rule by the injection. This is an indication for further injections. If the physician injects the remaining areas of maximal discomfort on the following day, beneficial results may be anticipated.

REPORT OF CASES

Case 1. A 74-year-old white woman was seen on September 26, 1967. She presented a single plaque of herpes zoster on the left side of her forehead. It was gangrenous and painful. She was given 1.5 cm^3 of the triamcinolone-procaine mixture subcutaneously under the plaque. She returned two days later. The area was healing and she was symptomatic. By October 3, the lesion was crusted. Complete healing was not obtained until October 12. There were no postherpetic complications.

Case 2. On October 2, 1967, an 83-year-old white woman complained of a severe eruption in the area innervated by the left twelfth thoracic nerve. The painful dermatitis was patchy but involved her abdomen, side and back. She was given an injection of 5 cm^3 of the afore-described mixture. The following day, the pain had disappeared except for a sharply localized area on her back. This was injected subcutaneously with 3 cm^3 of the triamcinolone-procaine solution with prompt relief. There were no further untoward symptoms and by October 16, the lesions had subsided completely.

Case 3. A 54-year-old white woman was seen on October 26, 1967 because of post-zoster pain involving the area supplied by the right eleventh thoracic nerve. The complaint was of three months' duration. She had been treated by a number of remedies including protamide, nerve block, etc., without benefit. She was given 5 cm^3 of the mixture and this was repeated four days later. This resulted in a complete cure and there has been no recurrence of her symptomatology to date.

Case 4. A 56-year-old white woman was seen with an acute herpes zoster of her left hand, arm and back. The pain and the dermatologic manifestations were severe. The eruption cleared with other measures but numbness of her left middle and ring fingers persisted. Starting on November 20, she was given three injections of the herein-reported solution over a period of three weeks into the involved areas. By December 15, there was marked improvement in the numbness, about 90% relief, although complete eradication of the complaint was not obtained.

Case 5. A 47-year-old white woman had an acute herpes zoster at the level of the left fifth thoracic nerve in November, 1966. As a residual of this infection, she developed numbness of her back, chest and left breast. This had persisted unchanged until January 13, 1968 when she was given 3 cm^3 of the triamcinolone-procaine solution. This was repeated five times between the aforementioned date and February 26. At the latter time, only a small area of numbness persisted on her back. The patient felt that there was very substantial improvement in her complaint.

Case 6. A 94-year-old white man had a severe post-zoster pain in his leg. The pain was so severe and intractable, that he was forced to walk with a cane. Nerve section was being considered. After one injection of the triamcinolone-procaine solution by Dr Freeman Browne, there was sufficient improvement that the patient was able to discard the cane. A second injection was given into his ankle. A minor pain persisted after the second treatment but it was mild and not incapacitating.

Case 7. A 68-year-old white woman consulted Dr Norman N. Epstein on October 17, 1967 because of a painful eruption of herpes zoster involving the left side of her thorax. The condition was of one week's duration. Treatment with analgesics and vitamin B 12 was instituted without benefit. While these agents were continued, she was given an injection of the triamcinolone-procaine solution on four occasions—October 24, 27 and 31 and one on November 3. Relief was prompt, there being little discomfort after the final injection. The pain had abated completely when she was seen on November 17 and on January 9, 1968, it was noted that there was no postherpetic discomfort.

Case 8. A 64-year-old physician's widow, was seen in a hospital on June 16, 1968, because of a very severe herpes zoster involving the right side of her face. There

Table II. *Patients with postherpetic neuralgia treated with triamcinolone-procaine mixture*

Case	Age	Sex	Location	Duration	Injections		Results
					No.	Total volume (cm^3)	
3	54	♀	Right 11th thoracic	3 months	2	10.0	Excellent
4	56	♀	Left hand, arm, back	6 months	3	15.0	90% well
5	47	♀	Left 5th thoracic	2 months	6	18.0	95% well
6	94	♂	Leg	3 months	2	10.0	90% well
9	65	♀	Left 6th thoracic	11 years	3	25.0	90% well
12	72	♀	Left 1st, 2nd, 3rd lumbar	2 years	4	?	95% well
13	18	♂	Left T4	7 months	1	5.0	Excellent

Excellent indicates complete relief of symptoms.

was occular involvement as well as marked deforming edema of the entire area. This was particularly severe on her upper lip and on the eyelids. The right side of the roof of her mouth was involved markedly. Most of the skin was covered by crusting compounded by the application of calamine lotion. The process was of five days' duration. She complained of severe pain. Her temperature reached 37.8°C. Treatment was instituted by the injection of 15 cm^3 of the solution. The next day she was no better so an additional 5 cm^3 was administered in the areas of maximum discomfort. The following day, she was judged to be about 40% better so another 3 cm^3 was given. On the fourth day, there was still pain in the forehead so a final 5 cm^3 was injected. By June 20, the patient was practically well both subjectively and objectively.

Case 9. A 65-year-old white woman was seen on July 7, 1968 because of a persistent post-zoster neuralgia involving the cutaneous surface innervated by the left sixth thoracic nerve. She had suffered from a zona of this area in 1957. Since then, she had suffered severe neuritic pains in the affected area. On examination, there was marked atrophic scarring. She stated that "novocaine made her pass out". Therefore, the kenalog IM(r) was diluted in saline and she was given 5 cm^3 on the date of her first visit followed by two daily injections of 10 cm^3 each in the affected region. She was seen two months later at which time she stated that she was greatly improved but not completely well.

Case 10. A 15-year-old white girl presented herself on September 17, 1968 with a herpes zoster of her right thigh of two weeks duration. The pain was mild. There was marked unilateral inguinal lymphadenopathy. She was given two injections of the triamcinolone-procaine solution two days apart with complete and prompt cure.

Case 11. A 71-year-old white woman consulted me on October 3, 1968 with a zoster of the left twelfth thoracic nerve. She was given one injection of 5 cm^3 of the afore-mentioned medication. She returned five days later, completely recovered.

Case 12.[1] A 72-year-old woman, a psychiatrist, was hospitalized on July 26, 1968 because of a severe zoster of the left first, second and third lumbar nerves. She responded well but temporarily to prednisone. However, the pain recurred on August 6 and did not respond to this oral medication. In addition, she was given radiotherapy and then collodeon spray without alleviating the complaint. On September 11, treatment with triamcinolone in xylocaine (10 mg) was instituted with relief of the paresthesias which now constituted the patient's main complaint. Three more injections were given with complete relief of the superficial pain and paresthesias although some deep pain and soreness in the left knee persisted. The treating physicians were at first skeptical when the method was suggested to them by Dr Marion Sulzberger but later admitted their enthusiasm.

Case 13. Seven months before seen, an 18-year-old white man had suffered from "shingles" in the area of his left 4th thoracic nerve. The eruption subsided but pain persisted on the back of his left shoulder. He was given one subcutaneous injection of 5.0 cm^3 on January 6, 1969. There has been no recurrence of the pain.

Case 14. A 72-year-old white man was seen on January 17, 1969 because of a severe herpes zoster of his left 10th, 11th and 12th thoracic nerves. The condition was of two days' duration. He was given four daily injections of 10.0 cm^3 each. The severe cutaneous pain was not relieved, even partially, until after the third injection but was completely eradicated after the fourth treatment. The visible lesions became more severe after the administration of the first two injections but by the completion of therapy, it was definitely subsiding. The patient also had severe gastrointestinal complaints consisting of pain, tenderness, anorexia, nausea, etc. This did not respond to the treatment and still persisted unabated three months later.

Case 15. A 63-year-old white woman, a physician, was seen on February 25, 1969 complaining of an acute herpes zoster of the left tenth thoracic nerve. The condition was of two weeks' duration. The pain was severe and prevented sleep. She was given 10 cm^3 of the solution into the areas of cutaneous involvement on February 25 and 26 and 20 cm^3 on February 28. On March 3, 1969, she was completely well.

[1] Case presented by courtesy of Drs Mervyn L. Elgart and Robert Higdon.

DISCUSSION

The use of intralesional corticosteroid injections would seem to be a reasonable therapeutic measure in herpes zoster since probably neural and perineural inflammation are important in the production of the symptomatology. Yet, only three references to this type of therapy could be found in the available literature and in two instances, only a single patient had been treated (3, 5). Sehgal & Gardner treated 12 patients with post-zoster neuralgia by the local injection of hydrocortisone and procaine and reported "good results" in 2, "fair" in 5 and "poor" in 5 (4). The effect was considered to be "poor" in all 3 patients treated by the local injection of procaine alone. These investigators also treated 12 patients with vitamin B 12 (the results in all were poor), dilantin (14 out of 15 poor), cortisone by mouth (poor in all 6 followed), epidural injection of procaine and hydrocortisone acetate (8 poor, 2 fair results), and the intradural injection of methyl prednisolone acetate (18 poor, 2 fair). So, in their series, the best results were obtained by the local injection of a corticosteroid and a local anesthetic. The results with triamcinolone, such as used in the herein reported series, might have produced better results than those obtained with hydrocortisone.

Corticosteroids have been used in zoster parenterally and orally with varying results. There has been some fear that such agents might cause dissemination of the viral infection. However, there is now sufficient evidence to establish that this is a very rare, if existent, potential hazard. No side effects were encountered in this series.

There is a certain amount of evidence that the procaine is not the crucial ingredient in this therapy. In case 9, saline was substituted for the local anesthetic with good results. In case 12, both triamcinolone and procaine were used separately without benefit. Procaine alone was ineffective in 3 instances reported by Sehgal & Gardner (4). However, it is recognized that local anesthetics alone have a dramatic result in some cases (2). Regardless of whether the beneficial effects are from the corticosteroid or the local anesthetic or the combination, it is of practical importance that the combination has proved successful in these patients with zoster or post-herpetic neuralgia.

In 8 patients with active herpes zoster, the results were excellent. Two patients received one injection each, two were given two each, one three, and three four treatments each. Only one patient had some residual itching and numbness but this disappeared after two months. Seven patients with postherpetic neuralgia were treated with one to 6 injections. Two of the patients recovered completely. The improvement was at least 90% in each of the other 5, only slight numbness or pain persisting. Three of these patients were treated by independent physicians at my suggestion—one being in San Francisco, one in Kansas City and one in Washington, D.C. Their results equalled those obtained by this author.

It should be stressed that while this regime may result in prompt alleviation of all of symptoms after the first injection, in most cases repeated injections are necessary. It is important that the physician should localize the points of maximum discomfort as accurately as possible and administer the medication selectively into these areas. It is possible to control extensive eruptions by this technique. The injections are given subcutaneously so that atrophy is not to be anticipated.

The patients are unable to distinguish the injected areas from the untreated ones by the presence or absence of pain. An attempt was made to control this study by injecting the triamcinolone solution into one area and saline into another in three patients with post-zoster neuralgia. None of these individuals obtained any benefit in either location. Since the entire region was not infiltrated, the patient still had pain. He was unable to realize that he might have obtained benefit in the lesions treated with triamcinolone because of the persistence of the discomfort in the untreated locations. If regionally separated multiple nerves were involved, it might be possible to conduct a control study by injecting each one with a different substance including a placebo. As long as only one nerve or an adjacent group of nerves is affected, this cannot be done since there is too much overlapping of the nerve fibers and the patient's localization of the pain is too inaccurate. In case 14, the treated cutaneous symptoms responded promptly. However, the visceral symptoms persisted. This could be considered as a control since only skin segments were treated. The treated portion responded; the untreated continued unchanged.

From these few cases, it does seem that the

injections shorten the course of the cutaneous manifestations. More important, the effect on the discomfort is prompt and gratifying. This method is offered as a promising therapeutic suggestion. From my experience, it has outmoded all other approaches. Only widespread use will establish its true value in the treatment of zoster.

There are reasons for considering that the herein-reported experience is significant. The cases were unselected—they were consecutive—and the results were uniformly good. Six of the seven pots-herpetic neuralgias occurred in patients over 54 years of age and it is believed that this complaint is more resistant to therapy in this age group. Twenty percent of the patients were treated by physicians other than the author and were not seen by him, suggesting that the herein-reported results are reproducible by others. Other reported studies indicate that injections per se do not exercise a potent placebo effect in zoster or in post-herpetic neuralgia. The therapeutic results in the post-zoster neuralgia cases are outstanding.

It is recognized that zoster can clear spontaneously. However, a much longer period of time is necessary to accomplish this than in most cases reported herein. Most clear without sequelae but persistent pain and scarring are not uncommon. There were no examples of post-herpetic neuralgia occurring in the treated patients.

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