

Therapeutic Laser in the Treatment of Herpes Zoster

Laser therapy can be easily and economically utilized in the treatment of both acute phase herpes zoster and in chronic post-herpetic neuralgia.



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Shingles is the common name for a herpes zoster infection, a condition that often causes a painful skin rash with blisters that are limited to one side of the body and often occurs in a stripe pattern. It can be severely painful and resistant to conventional treatment. In this article, I will review some of the basic elements of herpes zoster, review some of the laser-related research, discuss a laser-centered treatment protocol, and present a case example.

Background

The varicella zoster virus (HZV) causes the acute illness we know as chickenpox and usually occurs in children and young adults. After resolution of the initial acute episode, the chickenpox virus can lie dormant for years before reactivating. When dormant, HZV lives in the nerve cell bodies and/or non-neuronal dorsal root cells, cranial nerves or autonomic ganglia,¹ without causing any outward signs or symptoms.² The virus can reactivate years later in patients who are immuno-compromised and affect the nerve endings in the skin. The virus may spread from one or more ganglia along the nerves of an affected segment and infect the corresponding dermatome causing a painful rash.^{3,4} While the rash usually heals within two to four weeks, some patients experience residual nerve pain for months or years. This residual nerve pain is known as post-herpetic neuralgia but the exact process is not clearly understood.¹

Early symptoms of herpes zoster are vague, such as headache, fever, and malaise. This may result in arriving at an incorrect diagnosis.⁴ These initial symptoms are frequently followed by burning pain, itching, hyperesthesia or paresthesia.⁵ The pain may be mild to extreme in the affected dermatome, with sensations that are often described as stinging, tingling, aching, numbing or throbbing. This can be accompanied by rapid-fire

flashes of severe pain⁶ in adults but may be often painless in children.

The initial phase of the condition is most often followed by the appearance of the characteristic skin rash. The pain and rash most commonly occurs on the torso, but can appear on the face, eyes or other parts of the body. At first, the rash appears similar to the first appearance of hives. However, unlike hives, herpes zoster causes skin changes that are dermatomal, typically resulting in a stripe or belt-like pattern that is limited to one side of the body that does not cross the midline.⁵ Zoster sine herpette is a term used to describe a patient who has all of the symptoms of herpes zoster except the characteristic rash.^{7,8}

The rash becomes vesicular as the condition progresses, forming small blisters filled with serous exudates. The fever and malaise may also continue. The painful vesicles eventually become cloudy or darkened as they fill with blood (see Figure 1), and crust over within seven to ten days. The crusts usually fall off and the skin heals but sometimes, after severe blistering, scarring and discolored skin remain.⁴

The rash and pain usually lasts three to five weeks until resolution but about one in five patients develops a painful condition called post-herpetic neuralgia, which is often difficult to manage. Complications resulting from this condition can affect several aspects of the nerve system. These include cranial neuropathies, polyneuritis, myelitis, or aseptic meningitis. Partial facial paralysis, ear damage and encephalitis may occur in some patients.¹

The incidence rate of herpes zoster ranges from 1.2 to 3.4 per 1,000 person-years among healthy individuals, increasing to 3.9–11.8 per 1,000 person-years among those older than 65 years.⁹ Similar incidence rates have been observed worldwide.^{6,9} Herpes zoster affects an estimated 500,000 Americans each year.¹⁰ Multiple

studies and surveillance data demonstrate no consistent trends in incidence in the U.S. since the chickenpox vaccination program began in 1995.¹¹ Since initiating this program, it is likely that the incidence rate will change in the future due to the aging of the population, changes in therapy for malignant and autoimmune diseases, and changes in chickenpox vaccination rates. Widespread inoculation with the zoster vaccination could dramatically reduce the incidence rate.⁹

Additional Symptoms

Herpes zoster may have additional symptoms depending on the dermatome involved. Herpes zoster ophthalmica occurs in approximately 10% to 25% of cases. It affects the orbit of the eye. It is thought to be related to reactivation of the varicella virus in the ophthalmic division of the trigeminal nerve. A small number of patients report symptoms of conjunctivitis, keratitis, uveitis, and optic nerve palsies that can sometimes cause chronic ocular inflammation, loss of vision, and debilitating pain.¹¹ Herpes zoster oticus involves the ear. It is thought to be caused by spreading of the virus from the facial nerve to the vestibulocochlear nerve. Symptoms include hearing loss and vertigo.¹

Studies of Therapeutic Laser on Herpes Zoster Patients

Several studies have been performed to determine the effectiveness of therapeutic laser on herpes zoster patients:

- Moore treated 20 patients with post-herpetic neuralgia (PHN) who were unresponsive to conventional care and experienced pain for at least six months. This double blind study demonstrated that the placebo group experienced little change while the treatment group experienced a decrease in VAS pain levels from 10 (pre-treatment) to 2 (post-treatment).¹²
- Moore published a retrospective report

covering 300 patients over nine years and found that patients with cephalic zoster experienced 61% pain relief and thoracic zoster patients experienced 78% pain relief following laser therapy. Laser therapy was also found to be 28% less expensive.¹³

- McKibbin treated 39 PHN patients with a GaAs laser. These patients had a visual analog scale (VAS) average of 8.5 before treatment and 3.3 after treatment. At one year it was 2.8.¹⁴
- Hong reported that 60% of the PHN patients that he treated with laser therapy were pain free after one year. These patients had been unresponsive to conventional care.¹⁵
- Hachenberger treated 41 patients with PHN, 93 herpes simplex patients and 3 herpes genitalis patients. All responded well to laser therapy.¹⁶
- Iijima treated 18 patients with PHN. VAS decreased from 6.2 to 3.6. Pain intensity decreased from 100 to 44.6%.¹⁷
- Otsuka found that therapeutic laser had similar effects on PHN as epidural or stellate ganglion blocks.¹⁸

Case Discussion

A 52-year old Hispanic male presented with severe chest wall pain on the right side (VAS 10) together with the telltale lesions of herpes zoster which had erupted three to four days earlier (see Figure 1).

I typically use a GaAs superpulsed TerraQuant laser in my practice and my typical treatment regimen, in this case, is as follows. Laser therapy is applied directly on the skin surface as well as over the path of the involved nerve root. I treat the areas over the nerve root outlet at 1000 Hz for up to 5 minutes per area when the pain is acute and skin lesions are present (see Figure 2).

If the pain is more long standing, I use a variable or sweep frequency which oscil-

lates between 1000 and 3000 Hz for up to five minutes. I also treat the areas along the nerve pathway from the spine to the nerve outlets using 1000 Hz for one to two minutes over each area.¹⁹ Treatment is daily when acute and every other day thereafter until the pain is gone or the patient has maximally improved.

By the second visit (two days later) this patient's VAS had decreased to 5. Approximately two weeks later, his reported VAS was 0 and the lesions showed dramatic improvement (see Figure 3).

Conclusion

Laser therapy can be easily and economically utilized in the treatment of both acute phase herpes zoster or in chronic post-herpetic neuralgia. It is painless and safe as well as non-invasive and usually brings rapid relief. Therapeutic laser can be utilized as an adjunct or as a standalone treatment. I have found additional benefit from the adjunctive use of complex homeopathic drainage along with the therapeutic laser. ■

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FIGURE 1. Presentation of herpes zoster on a male patient's right chest wall.



FIGURE 2. Firm skin contact is made over the area of treatment with an Infrared GaAs Superpulsed laser.



FIGURE 3. Approximately two weeks after initiation of laser treatment.