

Heartbreak of Facet Joint Pain

In 2007 the 3-month US prevalence of back and/or neck pain was estimated to be 31%. This pain significantly restricts patients' activities of daily living and has profound social implications. The zygapophysial (facet) joint has been identified as the pain generator in (15-40%) of low back cases and approximately 60% of neck pain.

Lumbar facet mediated pain is often poorly defined and is felt in the low back, buttock, hip and thigh and typically is unilateral. Often facet pain is described as dull and achy, but occasional sharp and most often is made worse with movement.

Neurological signs are absent and physical examination and imaging studies often poorly correlate with the actual pain generator. Precise, selective diagnostic nerve blocks are required to secure a correct diagnosis.

The zygapophysial (facet) joints, are paired synovial joints involving the articular facets of the superior and inferior articular processes from C2-3 through L5-S1. Each joint is

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Kansas Spine Institute, LLC REPORT



Rash decisions— About Herpes Zoster (Shingles)

Chickenpox is typically a childhood disease resulting from systemic infection with the varicella-zoster virus (VZV). This virus is one of eight herpes viruses known to infect humans and is referred to by many names, including: chickenpox virus, varicella virus, zoster virus, and human herpes virus type 3 (HHV-3).

After the chicken pox infection, the varicella virus remains dormant in nerve cell bodies of the dorsal root ganglia and less frequently in non-neuronal satellite cells of dorsal root, cranial nerve or autonomic ganglion. For various reasons the virus may reactivate resulting in the condition known as shingles or herpes zoster. Zoster is a Greek word for a form of girdle or belt and presumably is the root for its use to describe the belt like rash of shingles. The lifetime occurrence rate for shingles is almost 30% with approximately 1 million new cases per year in the United States. The incidence of shingles increases with increasing age with half of the cases occurring in patients over sixty.

A dermatomal pattern of pain, itching or tingling will typically precede the development of the rash by 1 to 5 days. This erythematous, maculopapular rash develops into clusters of clear vesicles that will blister and then scab over in 7 to 10 days with resolution in 2 to 4 weeks. As the virus resides in the dorsal root ganglion, its emergence will predominantly be within one or on occasion two adjacent sensory dermatomes.

This fact is why the rash is striped or banded and most typically on one side only rarely crossing the midline. When there is involvement around the eye, loss of vision is possible. The herpes zoster infection often has systemic effects leading to fever, chills, headache and GI distress.

Viral reactivation and involvement of the Dorsal Root Ganglion (DRG) appears to be the cause of the acute and prolonged pain.

The non-crusted blisters of the rash contain virus particles. Persons who have never had chickenpox may contract chickenpox from contact with the fluid but they cannot contract shingles. It is advised to cover the non crusted rash and to wash after contact. Most patients will develop shingles only once in their lifetime but multiple infections are possible. When shingles reoccur the possibility of concurrent disease affecting the immune system should be considered.

The area of the rash may develop secondary bacterial infection and on

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The lingering and often severe pain from shingles is difficult to manage.

The challenging diagnosis of facet joint pain

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innervated by nerves from two spinal levels. Radiofrequency neurotomy of the facet innervating nerves remains the definitive treatment for facet mediated pain.

Facet mediated pain is responsible for low back pain in ~40% of the over age 60 population and 10 – 15% in the under 30 age group. Typically the pain is unilateral and the L4-5 or L5-S1 facets are most often involved

in the lumbar region. Posterior lumbar fusion tends to increase facet pain in adjacent segments.

The diagnosis of facet pain involves injection of a very small volume (0.3-0.5 mL) of local anesthetic to block the medial branch nerves innervating a specific joint. Thirty to sixty minutes following the injections, the patient is evaluated for pain relief secondary to the nerve blocks. This involves movements which, previous to the procedure exacerbated the patient's usual pain.

The primary indication for a diagnostic work up of suspected facet joint mediated pain is unilateral axial pain of greater than 2-3 months. In the classic study by Lord and Bogduk, cervicogenic headaches following motor vehicle accidents, was largely secondary to C2-C3 facet joint involvement.

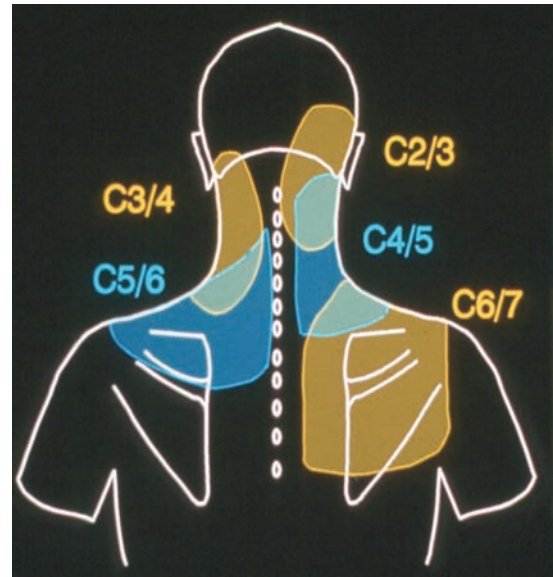
Radiofrequency (RF) energy is used to heat the distal 10 mm of a special cannula. A heat lesion of the nerves typically disrupts neural conduction to the facet. Dysthesia for 1 – 2

weeks is experienced in some patients which is generally well tolerated. Relief of the index pain is seen over the course of 4 weeks in 60-

70% of cases. When the neurotomy is correctly performed, this decrease in pain typically lasts 6 months to 3 years. The neurotomy may be repeated in 6 months with renewed effectiveness if needed.

Facet joint pain is included in the differential diagnosis of axial spine pain. Only physicians specifically trained in non-surgical spine/interventional pain are equipped to make the diagnosis and treat appropriately. ●

Facet pain is the least understood source of spine pain and the most underdiagnosed as it is the culprit in almost one third of all cases



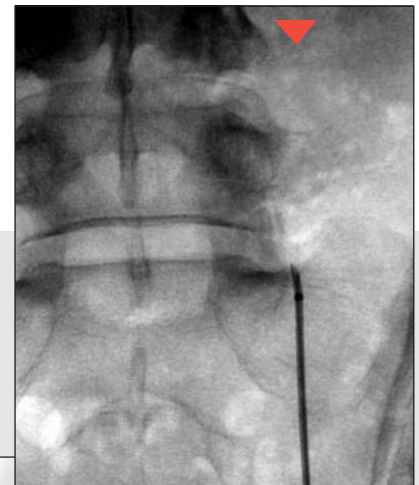
Referral zones of cervical facet pain

Treatments

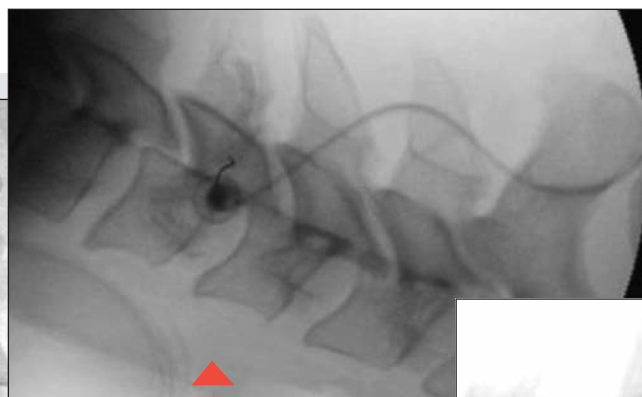
Facet Pain Treatment

- Rest and Physical Therapy
- Usual Arthritis Treatments
- Intra-articular Facet Injections
- Diagnostic Medial Branch Blocks and Radio Frequency Neurotomy
- Spinal Fusion

L5 – Dorsal Ramus Radio Frequency Neurotomy



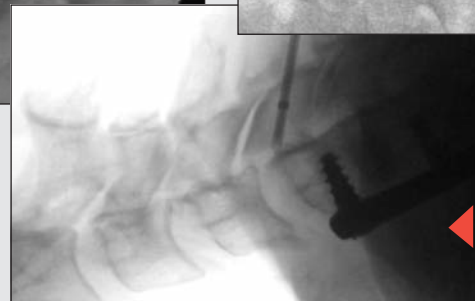
C5 – Radio Frequency Neurotomy



C5 – Medial Branch Block



L3 – Medial Branch Block



Shingles Pain

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occasion the varicella virus may become systemic affecting multiple other organs and nervous tissues. However the most common severe and dreaded complication of herpes zoster is post herpetic neuralgia (PHN). PHN is pain within the area of the shingles lasting for weeks to years following resolution of the rash. PHN is rarely seen in patients under 40.

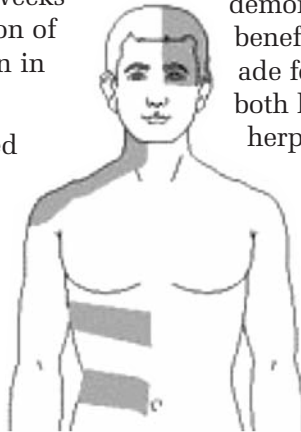
Children who have received the varicella vaccine appear to develop herpes zoster at a rate 30% of those who did not receive the vaccine. It is unknown if the 30% rate of herpes zoster in vaccinated individuals is a result of vaccine failure or results from infection with the vaccine virus.

Zostavax® is a vaccine for shingles and is licensed for use in people over 60. It has been shown to reduce the incidence of shingles by approximately 51% and reduces the risk of post-herpetic neuralgia by 67%.

Patients with acute herpes zoster have intense inflammation of the dorsal root ganglion (ganglionitis). After activation, the virus travels through the nerve to the area of cutaneous innervation where the typical rash containing the virus particles develops. Medical treatment during the early herpetic neuralgia phase includes the use of antiviral agents such as acyclovir and famciclovir. Opioids, anti-seizure medications, tricyclic anti-depressants, corticosteroids, topical local anesthetics and capsaicin among others are often utilized. Probably due to the ganglion involvement, there is a significant sympathetically-mediated component to the acute pain. With the development of post-herpetic neuralgia the pain takes on a more sympathetically-independent neuropathic state making the pain much more difficult to treat. Anti-viral

medications given early decrease the amount of viral shedding and shorten the duration of the rash but have not been shown to decrease the frequency or incidence of post-herpetic neuralgia.

Dr Rosenak first described using sympathetic blockade in treating acute zoster pain in 1938. There have been numerous studies demonstrating significant benefit of sympathetic blockade for treating the pain of both herpetic and post herpetic neuralgia.



Typical locations of Herpes Zoster rash

The loss of the larger myelinated nerve fibers with sparing of the smaller C-fibers in ischemic varicella infected ganglion has been described. The large fibers provide a suppressive feedback and their loss has been postulated to be what

leads to the development of post herpetic neuralgia. Early sympathetic

blockade may reduce the ischemia within the ganglia and therefore lessen the large fiber loss. Once the large fibers are lost, effective treatment becomes much more difficult.

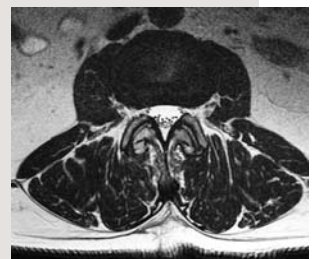
The care of patients afflicted with herpes zoster requires prompt treatment not only with antiviral agents, analgesics, tricyclics, anticonvulsants and topical local anesthetics but also prompt sympathetic blockade in an attempt to reduce the ischemic damage to the dorsal root ganglion. These efforts not only help the suffering patient with their initial pain but will reduce the incidence of post herpetic neuralgia. The longer post herpetic neuralgia is present, the more resistant it seems to effective treatment. Typically, after 12 months and presumably after damage to the dorsal root ganglia results in irreparable changes by neural plasticity to the central nervous system, effective treatment is very difficult. More invasive modalities may be trialed in severe and resistant cases and would include spinal cord stimulation. ●

All MRI scans are not the same.

Although image quality is seldom mentioned as part of the typical MRI radiology report, tremendous differences exist between scanners. Unless the ordering physician is also reading the images these differences go unnoticed and are not appreciated. Fine resolution of anatomic structures is critical in the diagnosis of many spine abnormalities. Open MRIs have typically utilized lower strength magnets due to design limitations. The images from the older open scanners are often of limited diagnostic utility. This is most evident in axial reconstructions which are important in diagnosis of disc and facet pathology and nerve root involvement. Significant continual improvements have occurred in the past 10 year in all scanners. Not only are the capabilities of the scanner critical, the skill of the technicians running the scanner and the computer software must all work together to produce the most diagnostically useful image and the best quality care possible.



Open MRI



Closed MRI

In our market, there are MRI options and the costs are the same. So be aware of the quality of the scanner and the technical expertise of the physician reading the scan when ordering an MRI. Large patients and those with claustrophobia issues can often be accommodated in the newer larger bore scanners. ●

Happenings

Drs. Landers and Jones at the Kansas Spine Institute are very much involved in teaching and research. These activities help maintain the Institute's status as a World Class center of excellence for the diagnosis and treatment of multiple painful disorders with a strong emphasis on pain of spinal origin. The nurses, technicians and staff work closely with the physicians to give patients and referring health care providers an overall excellent experience.

The Institute congratulates Dr. Landers for his recent chapters in Lennard: Pain Procedures in Clinical Practice. This prestigious reference book on Interventional Pain Procedures, published in 2011, was rapidly adopted as a landmark text. Dr. Landers' Chapter, Intervertebral disc Access and Stimulation Lumbar, Thoracic, and Cervical and his chapter Epidural Steroid Injections: Cervical, Thoracic and Lumbar: Transforaminal, Interlaminar, and Caudal are both authoritative and instructive. Dr. Landers was awarded the first "Excellence in Teaching" award presented by Dr. April at the annual meeting of the International Spine Intervention Society in 2010. The Institute congratulates Dr. Jones for

his recent chapter also in Lennard: Spinal Cord Stimulation and Implanted Intrathecal Drug Infusion. This chapter is fast becoming a reference for these minimally

invasive procedures which, when appropriately utilized, may offer patients significant relief of radicular pain and spasticity. ●



Rodney Jones, M.D. is a private practice Interventional Pain Management physician who has worked in the Wichita area for over 25 years. He is board certified by the American Society of Anesthesiologists (ASA) and holds Added Qualifications in Pain Management by the ASA. He is a Fellow of Interventional Pain Physicians (FIPP) and is a Diplomate of the American Board of Interventional Pain Management Physicians.



Milton H. Landers, D.O., Ph.D. has distinguished himself in both academics and private practice, bringing to Wichita an international reputation and extensive experience in the specialty of interventional pain medicine. He is board certified in both Anesthesia and Pain Management from the American Osteopathic Board of Anesthesiology.



For referrals or more information contact:
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