Facet Pain and Radiofrequency Ablation

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Basic Pain Injections:
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Epidemiology

Most episodes of low back pain will be short-lived
80% resolve in about 6 weeks, irrespective of treatment
Pain will recur 24-33% of the time over a 12 month period
5% to 10% of patients develop persistent back pain

Low Back Pain in the working population
age 20-64: 15%, or 26 million
age 65 and older: 27%, or 60 million
11% demonstrate high pain intensity and significant disability

Stanton TR, Henschke N, Maher CG, Refshauge KM, Latimer J, McAuley JH. After an episode of acute low back pain, recurrence is unpredictable and not as common as previously thought. Spine 2008; 33:2923-2928.
Back Pain is often multifactorial and symptoms related for facet joint pathology can overlap with other degenerative disorders of the spine:

- Facet syndrome: 40%
- Discogenic pain: 26%
- Sacroiliitis: 2%
- Nerve root irritation: 13%
- Unknown: 19%

Facet joints are synovial joints

Each joint is surrounded by a capsule of connective tissue and produces a fluid to nourish and lubricate the joint.

Joint surfaces are coated with cartilage allowing joints to articulate smoothly.
Each joint receives innervation from two spinal levels:

- the medial branch of the dorsal ramus at the same level as the corresponding vertebra
- as well as from the level above

In the absence of other pathology the neurological examination is normal.
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Cervical Facet Syndrome

Unilateral or bilateral neck pain
Decreased range of motion
Tenderness over the affected facet joint(s)
Headaches
Can radiate to head, shoulder or proximal upper arm
ill-defined in character
often associated with myofacial pain or spasms
Pain is exacerbated by flexion, extension, lateral bending of the cervical spine
worse in the morning and after physical activity
no sensory or motor deficits (unless coexisting disease)

Cervicalgia, cervical bursitis, cervical fibromyosotis, inflammatory arthritis, disorders of the cervical spinal cord, roots, plexus, and nerves
C1-C2 facet joints refer to the posterior auricular and occipital region
C2-C3 facet joints refer to the forehead and eyes
C3-C4 facet joints refer superiorly to the sub-occipital region and inferiorly to the posterolateral neck
C4-C5 facet joints radiate to the base of the neck
C5-C6 facet joints refer to the shoulders and interscapular region
C6-C7 facet joints radiate to the supra-spinous and infra-spinous fossa
Facet joints are responsible for pain in 15-45% of patients with chronic low back pain. The disorder is more frequent at older ages and may be due to degeneration, strain and inflammation.

Radiological examinations are not diagnostic. They often show osteoarthritic findings and facet joint degeneration in both symptomatic and asymptomatic patients.

Most common disease affecting the facet joints is arthritis. This is a degenerative, inflammatory condition that over time results in loss of joint cartilage, bone overgrowth (‘osteophytes’ or ‘spurs’), erosions of the joint, and ultimately instability of the joint itself.

Facet joints are also damaged by trauma, and frequently are the source of pain after whiplash type injuries.
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Lumbar Facet Syndrome

Low back pain can radiate to the buttocks and posterior thighs down to the knees

When the superior articular processes are affected, the pain may radiate to the hips and lateral thighs down to the knees

Pain worsened by twisting or rotation, and exacerbated by moving from sitting to standing position

Pain is relieved when lying down

Getting up in the morning, the patient usually feels stiff and in pain

During the physical examination, patients report pain when pressure is exerted paravertebrally and during the extension and rotation of the spine, while the pain is relieved at spinal flexion

Pain directly over involved facet joint
Conservative treatment initiated with

- Physical therapy including heat and massage
- NSAIDs and muscle relaxants
- Underlying sleep disturbance and depression can be treated with tricyclic antidepressants.

Treat co-existing disease
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Common indications for diagnostic facet joint interventions

- Non radicular pain in the neck, upper back or lower back that can be associated respectively with headache, proximal upper or lower extremity pain.

- Duration of pain of at least three months.

- Average pain levels of six or more out of 10.

- Intermittent or continuous pain causing functional disability.

- Failure to respond to more conservative management, e.g., physical therapy.

- Lack of either for discogenic or sacroiliac joint pain.

- Lack of disc herniation radiculitis.
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Diagnostic medial branch blocks

blocking the nerve branches that innervate the suspicious joints with the use of local anesthetics

positive response to controlled local anesthetic blocks (<1 ml per nerve)

80% pain relief

ability to perform prior painful movements without any significant pain


SCOTTIE DOG  FLUOROSCOPIC IMAGE

VIEW OF FACETS (superior and inferior), LAMINA and PARS INTERARTICULARIS

Discography and Nucleoplasty, (intra-discal therapy approach)

Facet Joint injection site

Medial Branch Block injection site

Epidural or Intrathecal access

Selective Nerve Root Block
Oblique View - Scottie Dog
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Radiofrequency Ablation

Treatment of choice is radiofrequency facet joint denervation using a needle-electrode on the nerve branches that innervate the painful joints

Requires percutaneous local anesthesia and radiological guidance

Absolutely safe when conducted by a skilled Interventional Pain Physician

Results lasts 9-24 months

Nerves regenerate. If pain recurs this treatment can be repeated.

The RF ablation technique is scientifically evidence-based and is strongly recommended by the international scientific community.
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**Frequency of Interventions**

- **Diagnostic phase**: Some insurances require 2 diagnostic facet procedures (either medial branch blocks or facet joint injections) at intervals of no sooner than one week or preferably 2 weeks.

- **Therapeutic phase**: (After the diagnostic phase is completed), the suggested frequency would be 2-3 months or longer between facet joint injections, provided that ≥ 50% relief is obtained for 8 weeks.

- **Medial branch neurotomy**: May be repeated after 6 months or longer, provided that 50% or greater relief is obtained for at least 10 to 12 weeks.
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Proximity to the spinal cord and exiting nerve roots
Vascular nature of the neck
These procedures should be performed by practitioners who are well-versed in the regional anatomy and experienced in performing interventional pain management techniques

Allergic reactions to medication or dye used
Infection (occurs in less than 1 per 15,000 injections)
Post-injection flare (joint swelling and pain hours after the corticosteroid injection)
Depigmentation (a whitening of the skin)
Local fat atrophy (thinning of the skin)
Rupture of a tendon or capsule located in the path of the injection