

Epidural Scarring

Also known as:

Epidural fibrosis

Peridural fibrosis

Postoperative epidural adhesions

Definition

Epidural scarring refers to the formation of fibrous tissue in the epidural space, typically following spinal surgery (laminectomy, discectomy, etc.). It is a common finding postoperatively and can contribute to nerve root tethering, chronic pain, and postlaminectomy syndrome.

Pathophysiology

Reactive fibrous tissue forms as part of normal wound healing

Can envelop nerve roots, causing mechanical tethering and neuroinflammation

May impair nerve root mobility during motion or Valsalva maneuvers

Can coexist with recurrent disc herniation, making diagnosis complex

Risk Factors

Repeated surgery at the same spinal level

Excessive tissue dissection or bleeding

Lack of epidural fat preservation

Smoking, diabetes, poor wound healing

Clinical Relevance

Can cause persistent radicular pain despite anatomically successful decompression

Common cause of postlaminectomy syndrome

Pain may be neuropathic, burning, dysesthetic, or positional

Does not usually cause motor deficits, unless severe or accompanied by other pathology

Diagnosis

MRI with gadolinium contrast:

Scar tissue enhances (vascularized)

Recurrent disc does not enhance or enhances peripherally

May show nerve root encasement or adherence

CT myelography (if MRI contraindicated)

Clinical history is essential – progressive pain after initial relief post-surgery

Management

Conservative

Neuropathic pain medications (gabapentinoids, TCAs, SNRIs)

Epidural steroid injections – often less effective in dense fibrosis

Physical therapy – to maintain mobility and reduce secondary deconditioning

Interventional

Adhesiolysis via catheter (e.g., Racz catheter technique)

Spinal cord stimulation (SCS) – effective in selected cases with refractory radicular pain

Surgical revision is rarely indicated unless associated with new compressive pathology

Prevention

Minimize epidural dissection

Use of hemostasis and preservation of epidural fat

Investigational use of barrier gels (e.g., ADCON-L) – controversial efficacy

See Also

[postlaminectomy_syndrome](#)

[spinal_cord_stimulation](#)

[recurrent_disc_herniation](#)

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Last update: **2025/07/03 16:53**

