

FAST FACTS AND CONCEPTS #431

COMMON NON-MALIGNANT CAUSES OF LOW BACK PAIN IN PATIENTS WITH SERIOUS ILLNESS

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Background: Nearly 25% of the population experience low back pain (LBP) in any given year with a lifetime prevalence of up to 85% (1). Even among cancer populations, a significant amount of LBP have non-malignant causes. This *Fast Fact* reviews common non-cancer etiologies of LBP which clinicians may encounter when caring for seriously ill patients.

Common non-malignant causes of back pain: It is important for clinicians who commonly care for patients with serious illness to be aware of common non-malignant causes of back pain. Many of these pain syndromes are clinical diagnosis where history and physical examination (PE) guide the diagnosis and treatment without the need for radiologic imaging. This contrasts with malignant causes of back pain which very frequently require radiologic imaging since the tissue destruction associated with spinal tumors worsens over time unless the underlying cancer is treated (e.g., radiation therapy or systemic cancer treatment). Conservative management (e.g., rest, stretching, heating pads, physical therapy, anti-inflammatory medications, anti-epileptics, or antidepressants) is usually effective. Referral to a pain management specialist or neurosurgeon may be necessary in refractory cases.

- **Sacroiliac (SI) dysfunction:** The SI joint is an L-shaped articulation between the sacrum and ilium. Pain is caused by hyper/hypomobile joints or repetitive loads contributing to misalignment. Clinical presentation often involves acute or gradual one-sided pain in the back, buttock, or groin with SI joint tenderness. Pain radiation into the ipsilateral extremity is common. Neurologic deficits are uncommon. The FABER (flexion, abduction, external rotation of the ipsilateral leg) test, sacral thrust (anterior pressure on the sacrum while prone), and SI joint compression are examples of PE maneuvers which can aid in diagnosis (reference #2 offers illustrations of these PE maneuvers). Rest, non-steroidal inflammatory medications (NSAIDs), and physical therapy are often effective treatments (3). Injection of steroid and a local anesthetic into the SI joint under ultrasound or fluoroscopic guidance can be considered if conservative approaches fail to control the pain (3,4).
- **Vertebral compression fractures** can result from osteoporosis, trauma, or cancer and often diagnosed via X-ray imaging. Common history includes a specific area of pain that may or may not include radiation into the extremities. Patients usually describe a specific area of pain or tenderness over a vertebra with an onset that range from being insidious (as in the case of cancer related fractures) to acute (e.g., trauma). *Fast Fact #202* provides for more information on vertebroplasty or kyphoplasty.
- **Facet arthropathy:** Facet joints are small articulating joints which limit motion and keep the posterior spine in alignment. These joints can wear down and put pressure on the spinal cord resulting in back pain without neurologic deficits or radiation that is exacerbated by rotation or extension. It can be difficult to distinguish facet arthropathy from discogenic pain. Facet joint loading in which the examiner reproduces pain by extending the patient's spine with a slight rotation to the right or left can be diagnostic. Treatments include physical therapy, a short course of anti-inflammatories, and/or skeletal muscle relaxants. Steroid injection or radiofrequency ablation of the medial branch of the dorsal rami at the effected vertebrae can be considered for refractory symptoms (4,5).
- **Discogenic:** This type of pain is caused by degeneration of intervertebral discs (pain from herniated intervertebral discs is described in lumbar radiculopathy). Flexion, sitting, coughing, or Valsalva maneuvers usually worsen the pain. Neurologic deficits are possible if the nerve root is affected leading to ipsilateral leg or arm numbness, tingling, pain, and/or less commonly weakness. Degenerative disc changes are often associated with facet arthropathy and spinal stenosis (see below), creating diagnostic overlap. Discogenic pain is usually managed with physical therapy, NSAIDs, acetaminophen, and neuropathic agents. Discectomy and spinal fusion surgery can be considered in refractory cases when neurologic symptoms are present (4).
- **Lumbar Radiculopathy:** Any condition which affects a lumbar nerve root can cause lumbar radiculopathy, the most common of which is lumbar disc herniation. Symptoms vary, but usually present as pain, numbness, tingling, and/or weakness radiating into the legs following a dermatomal distribution. Most common location is L4-5 and L5-S1. Depending upon prognosis and goals of care,

the presence of focal motor weakness should prompt urgent MRI imaging and neurosurgical referral (4). Treatment includes anti-inflammatories, neuropathic agents, and epidural steroid injections.

- **Lumbar spinal stenosis:** Degenerative changes in the spine can cause narrowing of the spinal canal and neural structures, most commonly in patients over 50 years old. Neurogenic claudication, pain in the bilateral buttocks, thigh, or leg with standing or walking that is relieved with sitting or leaning forward (spine flexion), usually manifests as numbness and weakness over the affected spinal segments. Spinal stenosis is usually more of an insidious process compared with lumbar radiculopathy or disc herniation (4,6). In general, treatment is similar to lumbar radiculopathy.
- **Muscle strain/sprain:** Commonly present as self-resolving muscle aches with associated spasm and guarding after an abrupt increase in activity (overuse) and a normal neurologic examination.

Back pain in patients with cancer: Before initiating an analgesic plan of care, clinicians should determine if the pain etiology is related to the cancer or a non-malignant etiology. The thoracic spine is the most common area of spinal metastatic disease. The primary cancers most frequently metastasizing to the spine are breast, lung, prostate, thyroid, and renal (7). Cancer-related back pain often worsens at night, does not improve with rest or lying down, and progresses with time (7). When associated with nerve root and/or spinal cord compression, urgent evaluation is required (see *Fast Facts* #62, 237, and 238).

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