

Diagnosing Low Back Pain -- Can You Identify Those Patients You Can Or Cannot Help Before You Start Therapy?

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Pain in the lower back remains one of the major causes of long-term disability and loss of earnings in all civilized societies. It is ranked second only to upper respiratory infections as a source of lost time from work. The frequency of low back pain in the adult population is estimated to be about 80 percent.

Certainly in the eye of the public, chiropractic doctors are admittedly recognized as practitioners who are adept at caring for patients with pain in the back. Because we as a profession enjoy this notoriety, it is imperative that each chiropractic physician employ superb differential diagnostic acumen so each and every patient that we are privileged to see does receive the very best health service available for their back complaint.

The purpose of this paper is to review and provide the reader with the most efficient strategy in arriving at the essential diagnostic elements that define the seriousness and extent of disease in the patient who complains of low back pain.

The natural history and long-term prognosis for low back patients are dependent on many factors. Defining a precise underlying cause is often difficult and frustrating. Unfortunately, not all back pain is the direct result of the vertebral subluxation complex. Unequivocally, periods of naturally occurring improvement and flare-ups are the rule regardless of the etiology. This is especially true in lumbar disk disease and lumbosacral strain and sprain, which represent most causes of low back pain. Finally, probably the most significant factor in the outcome of low back pain is the duration of persistent symptoms. Less than 50 percent of patients who experience low back pain for more than six months and seek professional help, ever return to gainful employment.

Simplistically, of course, the diagnosis of low back pain is made when a patient complains of an uncomfortable sensation in the lower region of the back. However, as in every patient that presents with a symptom, a decision must be made as to whether the patient should be treated or referred for consult. Low back pain is no exception.

In order to possess the facts to make this decision, it is imperative that certain data be obtained by taking a thorough in-depth history, conducting an appropriate physical examination, and ordering specific blood and urine tests when indicated.

History

The historical facts that comprise low back pain is often extremely complex, non-specific, and chronic, and for this reason a very detailed and carefully performed history is necessary. The chiropractic physician must investigate the chronology of events leading up to the development of the symptoms

and identify the characteristics of the pain.

Always inquire when and under what circumstances the pain began, and was it clearly associated with an injury? If the pain is injury-related, did the injury occur at work?

Has the pain progressed, regressed, or been stable since it was first experienced?

Has the location of the pain changed? Has the pain become more extensive (radiation to contiguous regions) or are there new areas of involvement? Is the pain intermittent or continuous and what factors seem to aggravate or improve the symptoms?

What types of treatment, including medications, supports such as lumbosacral corsets, and various modes of physical therapy, have been tried and with what results? Have they received chiropractic care in the past?

Does the pain result in absence from work or disturb sleep?

Quality of the Pain: Some helpful descriptions are: "burning" which occurs in nerve root pain, "lightening" pain in a herniated disk or tumor, or a deeper or "boring" pain often described in intrinsic bone disorders.

Reproducibility: Can the patient initiate the symptoms or exacerbate the pain by specific activities such as bending, twisting or coughing?

A search for historical clues to the presence of a systemic illness by conducting an organ system review is mandatory. Also, a patient's work history and personal habits are often revealing. There are seven specific etiological diagnostic categories that comprise back pain: 1) mechanical, 2) disk disease, 3) fracture, 4) infections, 5) inflammatory processes, 6) low back pain resulting from referred internal visceral disease, and 7) psychosomatic disorders. Without question, all must be differentiated.

The Seven Diagnostic Categories

Mechanical

Lumbosacral strain/sprain. The key diagnostic point is the "traumatic history, pain relieved by rest, and normal x-ray films." History of injury, sometimes minor, tenderness and spasm of paravertebral muscles with limitation of motion of the lower back, and unremarkable x-ray films are typical. Of course, if the pain and impairment is prolonged or atypical after the appropriate chiropractic care and physical therapy, then laboratory tests should be ordered and/or the patient referred for myelographic examination.

Degenerative Disk Disease

Here the key diagnostic points include "pain relieved by rest and typical osteoarthritic x-ray changes." The generalized x-ray changes of the lumbar spine are almost always of the L3-L4, L4-L5, and L5-S1 interspaces. Often coexisting osteoarthritic changes occur, including sclerosis, apophyseal joint narrowing, and eburnation.

Disk Herniation

Key points of diagnosis are "acute radicular pain following back trauma with sensory and motor

deficits." Severe pain with radiation down the leg and extending below the knee into the calf, accompanied by specific neurologic abnormalities confirmed by myelography or computerized axial tomography. It is important not to mistake pain in the leg due to symptoms referred from spinal joint disease from symptoms of radicular root pain due to disk compression.

Spondylolisthesis

"Slippage of L5 on S1 confirmed radiographically" is the key point. Often patients first discover this anomaly following simple back trauma and respond quite well with conservative chiropractic therapy.

Spinal Stenosis

There is "no" key diagnostic point. A trial period of conservative therapy with favorable results differentiates sprain/strain from this condition. The symptoms may mimic root pain or claudication. Peripheral vascular arterial occlusive disease can be identified by lower extremity Doppler ultrasound and/or blood pressure gradient studies. Spinal stenosis can be confirmed by myelography or transaxial tomography.

Fracture

Of course the key factor that points to the diagnosis is the "traumatic history suggestive of fracture accompanied by radiological evidence of fracture." Radiographic confirmation is imperative.

Infections

Key points in the early stages "positive culture from a peripheral source, blood, or aspirated disk accompanied by history of a pyogenic lesion." Usually these infections are due to a pyogenic or tuberculous vertebral osteomyelitis that later characteristically exhibits x-ray changes of narrowing of the disk space and ultimate destruction of the contiguous vertebral margins.

Inflammatory

Ankylosing spondylitis requires key findings of "classic x-ray features including bilateral sacroiliac involvement, block vertebra, plus a positive HLA-B27 blood test." Later a typical "bamboo" spine appearance on x-ray confirms the diagnosis.

Sacroiliitis may be unilateral, exhibit fluffy asymmetrical bridging on x-rays, and produce a positive HLA-B27 in addition to specific features of each disease, i.e., psoriatic skin and nail lesions, bowel inflammation, and the triad of conjunctivitis, non-gonococcal urethritis, and arthritis as indicated below.

Patients with psoriasis and arthritis coupled with spondylitis are easily identified.

Spondylitis associated with inflammatory bowel disease is common, and Reiter's syndrome (urethritis and conjunctivitis) should not be missed.

C-reactive protein and erythrocyte sedimentation rate (ESR) are beneficial in identifying those patients with inflammatory organic disease.

Visceral

Pyelonephritis, nephrolithiasis, pancreatitis, carcinoma of the pancreas, abdominal aortic aneurysm, and retroperitoneal neoplasm can refer pain to the back. The key to visceral etiologies consists of "pain not relieved by rest, the absence of trauma, and the presence of associated visceral symptomatology." Specific laboratory tests must be ordered to identify the individual pathologies.

Genitourinary conditions: In acute bacterial pyelonephritis, patients will be febrile, appear toxic, and often will require hospital admission for treatment.

Patients with back pain due to nephrolithiasis are easily identified. The key point is the "colicky, nauseous costovertebral pain often referred to the lower abdomen and groin with positive occult blood." Smaller stones that have existed from the renal pelvis and entered the ureter will produce classic symptoms of renal colic. Intense pain of rather sudden onset is experienced in the costovertebral angle and may radiate anteriorly to the lower quadrant. Often hematuria will be found on urinalysis.

With an obstructing stone, the patient is in severe pain and is often pale and diaphoretic. Gentle percussion of the costovertebral (flank) area elicits tenderness. Occasionally, lower quadrant abdominal tenderness is present when the stone is in the lower ureter.

Pancreatitis: Pain radiating to the back is encountered in roughly 25 percent of patients with pancreatitis. Key factors include "anorexia, acute pain referred to the area just inferior to the tip of the scapula (right when the head is involved and the left scapula with disease of the tail), a low grade fever, and an elevated serum amylase." Serum amylase level determination, a readily available blood test, has a 95 percent sensitivity and a 98 percent specificity in the diagnosis of acute pancreatitis. Later in the course of the disease, the pain becomes progressively more severe and is often located in the right upper quadrant and epigastrium. The supine position often increases this pain, while flexion of the back or crouching may relieve it. Anorexia, pain, steatorrhea, and diabetes may all be contributing factors.

Cancer: Unexplained weight loss of more than five percent of usual body weight in a patient with back pain can be an ominous sign. Weight loss is often the only physical finding prior to clinically apparent metastatic disease. The key diagnostic points are "non-traumatic history, pain unrelieved by bedrest, and unexplained weight loss." An elevated serum alkaline phosphatase, depressed serum cholesterol, hyperproteinemia could further incriminate malignant disease as the cause for the back pain. Various tumor markers and CAT scan should be ordered.

The male patient with adenocarcinoma of the prostate is often asymptomatic. Suspicious key points would be "non-traumatic intractable pain unrelieved by bedrest in a geriatric, symptoms of dysuria, dribbling, and difficulty in starting the stream." The serum acid phosphatase level may be elevated in six to 80 percent of patients with metastatic disease and in a small number of patients with advanced local disease. Prostate specific antigen will be positive in 90 percent of cases. Bone metastases may produce local pain or, if the spinal canal is involved, progressive paralysis.

Aortic Aneurysm: A "leaking" aortic aneurysm can refer pain to the lower back and buttock. Of course this is a medical emergency and the patient should be referred for immediate hospitalization and surgical care. Key diagnostic points include "lower extremity pulse deficits, pain not relieved by rest, and decreased 'high-thigh' blood pressure reading." Abdominal aortic aneurysm most commonly present in men in their seventh or eighth decades as an asymptomatic pulsatile mid-addominal mass that almost always is caused by atherosclerosis. Except in markedly obese individuals, an abdominal

aortic aneurysm of five centimeters or larger can generally be detected by palpation.

Calcification within the wall of the aneurysm may appear on plain abdominal films or lateral lumbar x-rays as a curved, opaque line. If sufficient calcification is evident on the lateral film, the anteroposterior transverse diameter of the aorta can be estimated with some accuracy, taking into account a 10 percent magnification factor due to technique. Usually, the low back symptoms, negative traumatic history, and findings on physical examination or abdominal x-rays, are sufficient to establish the diagnosis of back pain due to abdominal aortic aneurysm. However, if body habitus prevents satisfactory abdominal palpation and mural calcification is not visible on x-ray, additional studies will be required to confirm or rule out the diagnosis.

Psychosomatic

Of course the key points are "pain exaggeration, symptoms not compatible with the ability of the patient to move about when they are not aware of being observed, embellished or even negative orthopedic tests, obvious emotional overlay during the history, and the absence of abnormal blood findings." The behavioral section on computerized history questionnaires can be very helpful in identifying the emotionally charged patient with back pain

Summary

Although the majority of back problems experienced by patients seen in a chiropractic office is the result of non-pathological mechanical spinal joint dysfunction, it is ignominious to fail to at least suspicion other causes or associated factors when the patient presents with back pain. Diagnostic differentiation is not difficult provided the patient's symptoms and clinical findings are categorized and matched with the "key points" of diagnosis as presented herewith. Without question, a doctor who fails to differentially diagnose and identify a potentially serious and disabling process in his patients, is a doctor who is professionally obtuse.

References

A list of references are available on request from the author.

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