

Effective Spine Triage: Patterns of Pain

Hamilton Hall, MD, FRCSC

Department of Surgery, University of Toronto, Toronto, Ontario, Canada

ABSTRACT

Background: The most common cause of recurring lost time from work, low back pain is a huge burden on society. Medical training dictates that we must establish a cause for pain before we can treat it and then base our treatment on a recognized and agreed-upon pathology. But in the overwhelming majority of low back pain cases, the issue is nothing more than a minor mechanical malfunction, the inevitable consequence of normal wear and tear. The severity of the pain does not reflect the benign nature of the underlying problem and its limited extent makes a definitive diagnosis impossible. One important component of the solution is improved spinal triage. Using patterns or syndromes in the initial assessment of low back pain is gaining renewed interest and clinical acceptance.

Methods: Identifying a patient's pain pattern is achieved primarily through an assessment of the patient's history. The patient interview begins with a series of questions to determine the specific syndrome. A subsequent physical examination supports or refutes the findings in history. Combining information from the history with the findings of the physical examination, the clinician has the ability to rule out a number of potentially grim diagnoses.

Results: More than 90% of back pain patients have benign mechanical problems and their pain can be classified into 4 distinct patterns: 2 back-dominant patterns and 2 leg-dominant patterns.

Conclusion: A clinical perspective capable of recognizing a defined syndrome at first contact will lead to a better outcome. Most patients with low back pain can be treated successfully

with simple, pattern-specific, noninvasive primary management. Patients without a pattern and those who do not respond as anticipated require further investigation and specialized care.

INTRODUCTION

Medicine has made great progress in the last 100 years. We have come to understand and to conquer, control, or eliminate diseases such as smallpox, diabetes, and even many forms of cancer. However, the most common cause of recurring lost time from work, low back pain (LBP), remains a huge burden on society.^{1,2} While some people experience short, often self-limited episodes, many others suffer extended periods of pain and many will almost inevitably experience further attacks. Whether due to the failure of our current medical system, the widespread misperceptions about back pain, or the misguided policies of the third-party payers, the problem continues to grow. Just 25% of the patients with LBP generate 75% of the financial and social costs for medical care and lost productivity.³

The conventional medical message about acute LPB is inconsistent with the typical clinical presentation.⁴ No treatment guideline deals adequately with the fear and uncertainty of persistent or recurrent back pain. Patient anxiety is reinforced by the lack of agreement among medical professionals on the exact source of the pain and therefore on the most appropriate management.⁵ The unhelpful and indeed detrimental diagnosis of “nonspecific low back pain” leads to ineffective one-size-fits-all treatment routines. Furthermore, the physicians' disagreements over the specific pathology focus attention and resources on the putative source rather than on techniques of immediate pain control. Our paradigm has medicalized what is, in fact, an almost universal human condition.⁶ Medical training dictates that we must establish a cause for pain before we can treat it and then base our treatment on a recognized and agreed-upon pathology. But in the overwhelming majority of cases, the issue is nothing more than a minor mechanical malfunction, the inevitable consequence of normal wear and tear. The severity of the pain does not reflect the benign nature of the underlying

Address correspondence to
Hamilton Hall, MD, FRCSC
Department of Surgery
University of Toronto
PO Box 434
Markdale, ON N0C 1H0
Canada
Tel: (519) 986-4444
Email: hhall@cbi.ca

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problem and its limited extent makes a definitive diagnosis impossible.⁷

Spinal imaging often adds to the challenge. Computed tomography (CT) has a 30% false-positive rate and magnetic resonance imaging (MRI) has a lack of specificity that exceeds 80%.⁸ Imaging does, however, substantially increase resource utilization.⁹ The direct cost of the investigation is compounded by the subsequent unnecessary expense of a specialist consultation or further investigations. Unfounded concerns produce the indirect costs of lost work time and needless physical restrictions. Explaining to a skeptical patient why a reported abnormality may not in fact be abnormal, need treatment, or even be related to the pain is difficult and time consuming. Of greater concern is the possibility that the primary healthcare provider (HCP) may also be unaware of the irrelevance of the test results. HCPs can unwittingly contribute to the problem instead of advancing the solution.

One important component of the LBP solution is improved spinal triage. One study suggests that only about 10% of referrals to a spine surgeon are appropriate for operative intervention.¹⁰ The majority of referrals are made as a result of the HCP's lack of confidence in assessing the nature of the back pain and resulting unwillingness to institute care. Much of this indecision stems from a lack of training, a misplaced emphasis on the bio portion of the recommended biopsychosocial guidelines, and a poor appreciation of the actual clinical course of LBP.¹¹ Current medical teaching stresses the red flags of back pain but devotes little time to dealing with the ubiquitous complaint of mechanical LBP. Even though fewer than 5% of LBP patients have a sinister explanation for the pain, such as inflammatory disease, infection, or malignancy,¹² most primary care providers faced with a picture of acute distress and grounded in an education emphasizing the serious but uncommon causes of back pain hesitate to offer reassurance or treatment. Investigating every patient for these relatively rare conditions will generate unwarranted concerns and unjustified expense while offering a minimal return for the effort. Yet these potentially significant diagnoses must not be missed; no one wants to be guilty of overlooking a spinal metastasis.

Another way exists. In 1987 the Quebec Task Force noted, "Distinct patterns of reliable clinical findings are the only logical basis for back pain categorization and subsequent treatment."¹³ The use of these patterns or syndromes in the initial assessment of LBP is gaining renewed interest and clinical acceptance. Such an approach avoids many of the pitfalls of the conventional medical model, particularly

the need to obtain a definitive pathoanatomical diagnosis (frequently a hopeless task) before proceeding with treatment. Unless physically invasive management such as surgery is required, the pain generator need not be unequivocally located. The choice of primary conservative therapy should not be determined by the presumed pathology but by the presenting symptoms and then directed by symptom response. The precise source of symptoms can be clinically irrelevant. Employing syndrome recognition allows the majority of patients with back pain to be sorted into 4 clearly defined groups, each with recognizable physical characteristics. This categorization sets apart, for further investigation, a much smaller cohort who present with atypical, possibly ominous symptoms.

SYNDROME RECOGNITION

A syndrome can be defined as a constellation of signs and symptoms appearing together in a consistent manner and responding to treatment in a predictable fashion. Reluctance to base treatment on a syndrome rather than on a certain disease may arise from a misunderstanding of the terms. The only difference between a syndrome and a disease is the former's lack of a clear etiology. Once the cause of the clinical picture is established, an entity originally categorized as a syndrome is classified as a disease. A syndrome does not repeatedly appear by chance; it has an etiology, albeit one that is still to be identified. Regardless of the title applied, the clinical presentation is the same. Discovering the cause of a problem will not alter the clinical picture or diminish the value of an effective treatment.

In LBP, the key is correctly identifying the presenting syndrome or pattern of pain.¹⁴ This identification depends on a precise history and a concordant physical examination. The third essential element of the process is progression to the anticipated treatment response. A mechanical pattern will respond to appropriate mechanical therapy within weeks, often within days. The inability to distinguish a clear pattern on first contact or a syndrome's failure to improve with the specified therapy demands reassessment, including a review of the signs and symptoms, additional physical tests, and, perhaps, ancillary investigations.¹⁵ Filtering out patients accurately identified with mechanical LBP and successfully managed with noninvasive physical treatment (more than 90% of the total) greatly increases the probability of discovering potentially menacing nonmechanical diagnoses among the remainder.^{15,16} Pain pattern recognition is a rapid, reliable, and efficient triage technique that increases diagnostic accuracy, enables patient-specific management, and decreases needless investigations.

Table 1. Patient Interview Questions

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|---|---|
| Determining the Patient's Pain Syndrome | 1. Where is your pain the worst? 2. Is your pain constant or intermittent? 3. Does bending forward increase your typical pain? |
| Mandatory: Determining the Patient's Bowel and Bladder Status | 4. Since the start of your pain, has there been any change in your bowel or bladder function? |
| Determining the Patient's Disability Level and Confirming Site of Dominant Pain | 5. What can't you do now that you could do before your pain started and why? |
| Assessing the Mechanical Aspects and History of the Patient's Pain | 6. What are the relieving movements or positions? 7. Have you had this type of pain before? 8. Have you had treatment in the past and was it effective? |

PATIENT INTERVIEW

Identifying the 4 patterns of pain is achieved primarily through an assessment of the patient's history. The patient interview is carefully structured to elicit the essential points with the most efficient routine. It begins with 3 questions (Table 1) to determine the specific syndrome.

Question 1 is "Where is your pain the worst?" Two of the pain patterns are back dominant and 2 exhibit back-related pain felt mainly in the legs. Back-dominant pain indicates pain most intense in the low back, in the buttocks, over the greater trochanters, or into the groin. Leg-dominant pain is felt along the lower edge of the buttocks around the gluteal fold and extends into the thigh, calf, ankle, or foot. Pain primarily in the back, buttocks, or around the pelvis is referred pain arising from a specific structure or structures within the spine but felt at a distance. Leg-dominant pain, around or below the gluteal fold, is pain associated with direct irritation of a spinal nerve root. This pain is correctly termed radicular pain. The demarcation between referred and radicular pain occurs at the bottom of the buttock and not around the knee. Common medical teaching suggests that pain felt above the knee is referred pain and any pain below the knee is radicular. In fact, referred pain can extend to the foot and radicular pain may be confined to the thigh.¹⁷

Because patients often will complain of pain in both the back and the leg, the history must identify the single site of the chief complaint. When straightforward questions like "Where do you hurt the most?" or "What is the number of your back pain on a scale of 0 to 10 compared to the number of your leg pain?" fail to clarify the situation, patients should be asked which pain they want treated at this visit. If they say "both," as they often do, the practitioner should make it clear that this session can focus on only 1 site and ask them to choose the pain location that they want fixed first. One imaginative suggestion for eliciting a pain

location is "I have a back-pain pill and a leg-pain pill. I can only give you one. Which one do you want?"

Question 2 asks "Is your pain constant or intermittent?" Patients enduring prolonged discomfort will often say "constant," both to emphasize their concerns and because over time the individual attacks do blur together. Determining if the pain is truly constant can be even more difficult than establishing its precise location. The patient must be given permission to admit the pain can subside without fearing that this admission will diminish the pain's seriousness in the mind of the practitioner. This question about pain constancy is best asked in 2 parts: (1) "At your best time of day and in your best position, is there ever a moment when the pain stops, just for a moment, even though it comes right back?" and (2) "When the pain stops, does it disappear completely; is it totally gone?" The duration of the pain-free interval is unimportant, but during that time the symptoms must be entirely absent, not just less intense. This issue is so important that it is wise to repeat to the patient exactly what was said to avoid mistakes. Truly intermittent back-dominant pain never results from spinal malignancy or active infection. The power of these questions, properly asked and answered, is enormous. At first contact without any additional investigations, clinicians can eliminate the possibility of 2 devastating pathologies.

Question 3 is deliberately direct: "Does bending forward increase your typical pain?" This single question is a distillation and deliberate simplification of the usual inquiries about the aggravating factors. All exacerbating activities can be identified but, for pattern recognition, the presence or absence of the typical pain on flexion separates the 2 back-dominant and the 2 leg-dominant syndromes from each other.

Question 4 is a mandatory question for all 4 patterns because it addresses the only surgical emergency in mechanical LBP: cauda equina syndrome.¹⁸ All patients, no matter what pattern is

suspected, must be asked about their urinary and rectal status. To retain focus on the current back problem, the question should be asked, “*Since the start of your pain*, has there been any change in your bowel or bladder function?” Asking the question in this way avoids unnecessary concerns over longstanding and unrelated gastrointestinal or genitourinary problems. If usual conditions have not varied, no further query about the exact nature of these functions is required. Any change, even the common complaint of constipation, must be pursued in the history. Acute cauda equina syndrome produces several hours of urinary retention followed by insensible, uncontrolled overflow. It causes fecal incontinence, often unrecognized due to the associated perineal numbness. These disturbances must not be missed. Every alteration must be considered.

Question 5 establishes the level of disability and suggests the intensity of treatment required: “What can’t you do now that you could do before your pain started and why?” Asking why the patient is unable to perform normally is an excellent check on the validity of Question 1. Someone who identifies back pain as the worst problem but gives leg pain as the reason for the present disability needs to be questioned again.

The remaining questions, “What are the relieving movements or positions?”, “Have you had this type of pain before?”, and “Have you had treatment in the past and was it effective?” round out the mechanical history. Back pain is a recurrent affliction¹⁹ and establishing the patient’s history, particularly the details of the previous episodes and the patient’s response to prior therapy, can be of great value.

PHYSICAL EXAMINATION

Identifying the pattern of pain is accomplished with the history; the patient’s story, carefully evaluated, takes precedence. But the physical examination must support the narrative. The physical examination is not an independent activity but should be designed specifically to support or refute the findings in the patient’s history. To minimize patient discomfort and maximize efficiency, the examination usually progresses from tests best done standing to tests done kneeling, then to those done sitting (first on a chair and then on the examining table), and finally lying down, supine and prone. This examination is not intended to be a full musculoskeletal or neurological examination but is an assessment directed by the patient’s particular complaints and designed to further reduce the chance of missing a serious nonmechanical diagnosis.

Direct nerve root irritation is uncommon but, when it occurs, 90% involves L4, L5, or S1 (including L3, the percentage increases to nearly 96%), so the neurological tests emphasize these levels.²⁰⁻²² With back-

dominant referred pain, 1 test for each nerve is generally sufficient. Patients with leg-dominant radicular pain may require a more detailed assessment.

The practitioner should observe the patient moving around the examining room. Do the patient’s activities—the ability to sit comfortably, for example—agree with what was said in the history? The back-specific observations include noting areas of discoloration, looking for scars from previously unreported spine surgery, and assessing spinal alignment and contour. In the back examination, subtle changes, such as a slight curvature, are rarely important. With mechanical back pain, palpating along the spine offers little additional information because muscle tenderness is common but not necessarily found at the site of the underlying painful structure. Spinal palpation may have value in less common traumatic or nonmechanical conditions, such as a vertebral compression fracture or spinal infection.

The third question in the history asks about the effect of forward bending on the typical pain. In the physical examination, the patient bends forward and backward while the examiner asks whether the movements reproduce the typical pain. Obviously a patient who says in the history that the pain is worse on bending forward should have increased pain when asked to try to touch the floor during the examination. A concordant physical examination is needed to confirm the history. Other back movements in addition to flexion and extension are tested as necessary. Range of movement measurement in a 1-time assessment is of no clinical importance.

While the patient is standing, further tests include taking 5 steps at maximum elevation on the heels (L4-L5) and toes (S1), the Trendelenburg test (L5), and repeated toe raises (S1).

Kneeling will accentuate the ankle reflexes (S1). Further reflex reinforcement is obtained by having the patient squeeze the back of the chair at the moment of the hammer strike on the Achilles tendon.

Sitting on a chair with the feet on the floor is the optimum position for testing the power of ankle dorsiflexion (L4-L5), great toe extension (L5), and great toe flexion (S1).

Sitting on the edge of the examining table with the legs hanging free is the best time to test the knee reflexes (L3-L4), accentuated by having the patient lock the fingers together and then try to pull the hands apart (the Jendrassik maneuver), and the quadriceps power (L3-L4).

Sitting on the edge of the exam table is also a convenient position for carrying out an upper motor test, checking for clonus or an abnormal plantar response. Performing an upper motor assessment is a mandatory part of the physical examination for every

LBP patient. Any upper motor finding demands a more detailed neurological workup, as it negates the diagnosis of mechanical LBP and is incompatible with any of the 4 patterns of pain.

The straight leg raise (SLR) is a staple of the low back examination.²³ SLR is a test for radicular pain arising from nerve root irritation (L4-S2) and is positive only in patients with leg-dominant pain. With the patient supine and the contralateral hip and knee flexed to minimize hamstring tightness, the examiner lifts the extended leg. A positive test reproduces the leg-dominant pain described by the patient. Back pain may occur but that does not qualify as a positive response. SLR is the perfect example of the physical examination substantiating the history. A patient with back-dominant pain cannot have a positive SLR. Either the test was wrongly interpreted, mistaking hamstring discomfort for true nerve root irritation, or the history was wrong and needs to be reviewed. The test is judged positive any time the patient's typical leg-dominant pain is exacerbated or reproduced. The test is positive regardless of the angle of elevation. Experiencing typical leg pain at 10 degrees indicates an extremely irritated nerve. Typical leg pain occurring when the leg is lifted above 80 degrees suggests a minor degree of involvement but it is still a positive test; only the clinical relevance has changed.

Two variations in the patient's response add confusion about the significance of a positive SLR. In the well-leg test, the examiner lifts the extended asymptomatic leg. Exacerbation or reproduction of the typical leg-dominant pain in the affected limb is a mark of a highly irritable nerve root. The test is positive in patients with severe leg-dominant pain and a very limited SLR on the painful side. The crossover sign is pain felt in the normally asymptomatic leg when the examiner carries out the SLR on the painful side. This pain is bilateral radicular pain from a single leg lift with pain radiating across the midline. Crossover suggests a central disc protrusion and is a warning of possible cauda equina syndrome. The patient with crossover pain needs further meticulous assessment and investigation for this potentially catastrophic complication.

While the patient is supine, practitioners easily can test sensation in the lower limbs and perform additional examinations of the hips, abdomen, and peripheral pulses as indicated.

The physical examination concludes with the patient prone on the examining table. The femoral stretch test (L2-L4) is essentially the SLR upside down. With the knee extended, the examiner lifts the leg into extension at the hip. A positive test is exacerbation or reproduction of the patient's typical anterior thigh pain. Back pain is common with this

maneuver but does not represent a positive test. The femoral stretch is indicated when the history of the pain location suggests the test may be useful and need not be routinely done. Assessing the gluteus maximus (S1) by having the patient repeatedly tighten and relax the buttocks while palpating for unilateral loss of tone is a very sensitive test of S1 function.

The final test in the low back examination is checking for saddle sensation (S2-S4). Like the upper motor test, checking for light touch in the perineum is mandatory for every patient. The test can be easily performed by checking sensation in the midline between the upper buttocks, the highest point of sacral sensory innervation. Decreased saddle sensation is another warning of possible cauda equina syndrome and demands a thorough reassessment of the patient's history of bowel and bladder difficulties and, if suspicion warrants, a rectal examination to check sphincter tone.

Combining information from the history with the findings of the physical examination, the clinician has the ability to rule out a number of potentially grim diagnoses. Intermittent back-dominant pain eliminates malignancy and active infection as causes of the pain. Normal upper motor tests rule out a cord lesion as the source of the symptoms. Unchanged bowel and bladder function, normal saddle sensation, and no crossover on SLR remove the possibility of cauda equina syndrome.

FOUR MECHANICAL PATTERNS OF PAIN

What remains is to consider the 4 mechanical patterns of pain (Table 2).²⁴ Less than 10% of the back pain population fail to fit a pattern and should be investigated for a nonmechanical diagnosis. The syndrome descriptions are comprehensive and cover all possible presentations of mechanical LBP.^{25,26} The syndromes are entirely clinical presentations and deliberately are not linked to explicit pathologies, but similarities to accepted anatomy-based diagnoses make some assumptions reasonable. The pattern, however, and not the presumed pain generator, determines the initial treatment. Each pattern has a well-defined management algorithm. Failure to respond as anticipated is another indication for further investigation.

Pattern 1 is back dominant and aggravated by back flexion, either by movement or by sustained position. The pain can be constant or intermittent. On physical examination, the patient's typical pain is always increased with flexion and may be aggravated or relieved by standing extension. The neurological examination is normal or, if findings are present, unrelated to the back problem. Pattern 1 affects the greatest number of patients and is, in all likelihood, discogenic in origin. This category is subdivided on

Table 2. Mechanical Patterns of Pain

| Pattern | Characteristics |
|---------------|--|
| Back Dominant | |
| Pattern 1 | <ul style="list-style-type: none"> • Constant or intermittent pain • Pain aggravated by back flexion • Normal neurological examination • Categorized as prone extension positive (PEP) or prone extension negative (PEN) |
| Pattern 2 | <ul style="list-style-type: none"> • Pain always intermittent • Pain never worse with flexion • Pain aggravated with extension • Normal neurological examination |
| Leg Dominant | |
| Pattern 3 | <ul style="list-style-type: none"> • Constant pain • Pain aggravated by back movement or certain back positions • Positive neurological findings |
| Pattern 4 | <ul style="list-style-type: none"> • Intermittent pain • PEP <ul style="list-style-type: none"> ○ Pain aggravated with flexion ○ Pain improved or abolished with unloaded extension ○ Variable neurological findings • PEN (neurogenic claudication) <ul style="list-style-type: none"> ○ Pain relieved with flexion ○ Pain aggravated with extension <ul style="list-style-type: none"> ■ Negative irritative tests |

the basis of the physical examination into Pattern 1 prone extension positive (PEP) and Pattern 1 prone extension negative (PEN).

The prone extension is an integral part of the physical assessment and an obligatory examination skill. The patient is instructed to lie facedown on the examining table with hands slightly above the head. The patient uses his or her arms to elevate the upper body until the elbows are fully extended and locked. The hips must remain on the table and cannot rise. This combination is achieved through the hand placement. The further the starting hand position is above the head, the smaller the elevation of the torso by the time the elbows lock. While briefly holding the maximum achievable extension, the patient concentrates on letting the low back sag. The complete sequence is repeated in a slow, rhythmic fashion.

Within 10 properly performed repetitions of the prone extension, the Pattern 1 PEP patient will experience a decrease or even complete abolition of the typical back pain: a prone extension positive response. This repeated movement is both diagnostic and, when applied frequently throughout the day, therapeutic. Pattern 1 PEP patients demonstrate a directional preference; their pain is aggravated in one direction of movement and relieved by the opposite action.²⁷ Conversely, a Pattern 1 PEN patient will have

a significant increase in the typical back pain with the prone extensions. The patient has no directional preference and will hurt on flexion (always the mark of a Pattern 1) and on extension as well: a prone extension negative result.

The second back-dominant pattern, Pattern 2, is never worse with flexion but is aggravated with extension. The pain is always intermittent. The physical examination confirms this pattern, showing painless flexion and the reproduction of the typical back pain on extension. As with Pattern 1, the neurological examination is normal or unrelated to the back pain. Pattern 2 is much less common than Pattern 1 and while the source of the pain remains obscure, most clinicians believe it arises from different locations in the posterior elements of the spine. One example is the acute pars defect in a young gymnast or football interior offensive lineman.

The remaining 2 patterns are leg dominant and represent direct neural involvement. Pattern 3 is the correct description of sciatica. In common usage, that term has unfortunately come to mean all back-related leg pain. Pattern 3 is constant leg-dominant pain aggravated by back movement or certain back positions. On physical examination, Pattern 3 demonstrates positive neurological findings. These findings may be confined to a positive irritative test, SLR,

or femoral stretch, or they may include demonstrable loss of motor, reflex, or sensory function. Regardless of the specific details, some positive physical finding is needed to confirm the diagnosis. The pain may vary in intensity but it must be constant. This pattern is clearly related to the acute compromise of 1 or more roots of the femoral or sciatic nerve.

Like Pattern 1, Pattern 4 is divided into PEP and PEN. The defining characteristic of any Pattern 4 is intermittent leg-dominant pain. Pattern 4 PEP is uncommon and can be seen in patients with subsiding Pattern 3 (sciatica) or with longstanding damage to normal nerve activity. The leg pain is intensified with flexion and improved or abolished with unloaded extension, such as the prone extensions described for Pattern 1. The neurological picture is variable; ordinarily normal, it can include a positive irritative test or conduction loss.

Neurogenic claudication in this pattern approach is labeled Pattern 4 PEN. Pattern 4 patients must have intermittent leg-dominant pain. In the case of neurogenic claudication, the leg pain is brought on by activity in extension (walking) and relieved by rest in flexion (sitting). Patients may complain of transient weakness during exercise, occasionally described as a loss of balance, but the neurological examination at rest is often normal. Pattern 4 PEN never has a positive irritative test as seen in Pattern 3, although permanent motor loss can occur. Repeated extensions cannot resolve and usually exacerbate the symptoms—hence the designation PEN, prone extension negative.

BENEFIT OF THE CLASSIFICATION SYSTEM

Pattern 4 PEN illustrates a major benefit of this classification system: clarity of definition. Neurogenic claudication is a syndrome recognized by its clinical features. The most common etiology of neurogenic claudication is spinal stenosis, narrowing of the spinal canal that compromises the nerve root's blood supply. In practice, the patient whose legs ache and give out on walking and who gains complete relief by bending forward or sitting is diagnosed as having spinal stenosis. This erroneous diagnosis is confirmed on CT or MRI. Spinal stenosis is not a diagnosis; it is an anatomical description, and not everyone with a narrow spinal canal has neurogenic claudication. When clinical acumen is supplanted by reliance on an investigation, disastrous results can ensue. An elderly man with pain on walking that subsides on sitting has an MRI that shows marked degenerative changes, facet hypertrophy, and spinal stenosis; he is treated with surgical decompression and it fails. An incomplete history has been overshadowed by an image.

The history required for determining the correct pattern for pain triage begins with the question “Where is your pain the worst?” In the case of the elderly man, the pain was entirely in the back, aggravated by extension on walking and relieved by flexion in sitting. The patient's pain was Pattern 2 because he experienced only intermittent, referred, back-dominant pain, not Pattern 4 PEN characterized by leg pain and a neurological deficit.

CONCLUSION

A clinical perspective capable of recognizing a defined syndrome at first contact will lead to a better outcome. More than 90% of back pain patients have benign mechanical problems and their pain can be separated into 4 distinct patterns based on their history and physical examination. Most patients with low back pain can be treated successfully with simple, pattern-specific, noninvasive primary management. Patients without a pattern and patients who do not respond as anticipated require further investigation and specialized care.

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