

DECISIONS

A 24-year-old man with suspected sacroiliitis

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A 24-year-old man presents to his primary care physician with a six-month history of low back pain. He has no history of trauma, fever or weight loss, and his pain has not responded to nonsteroidal anti-inflammatory drugs (NSAIDs). The patient has joint stiffness for an hour each morning and says that he feels better with movement and worse with rest. On further inquiry, the patient has no other joint pain, eye symptoms, rash or change in bowel habits. There is no known family history of inflammatory arthritis or other autoimmune conditions. The result of a straight leg raising test is negative, and the patient's reflexes, gait, power and sensation in his extremities are normal. He has normal forward flexion of the back, but with pain.

What is the likely diagnosis?

The most common causes of back pain are lumbar strain, osteoarthritis of the spine and a herniated disc.¹ Red flags such as weight loss, fever and neurologic symptoms suggesting medical causes for back pain, such as cancer and infection, should be ruled out.² However, this patient's young age, the chronic and inflammatory nature of his back pain (i.e., morning stiffness, symptoms better with movement and worse with rest) suggest the possibility of inflammatory back arthritis or sacroiliitis.

Inflammatory back arthritis, also known as axial spondyloarthritis or ankylosing spondylitis, should be considered in a patient less than 45 years of age with back pain lasting more than three months.³ Inflammatory back pain in axial spondyloarthritis is characterized by insidious onset of back or buttock pain, morning stiffness lasting more than one hour, and pain that improves with activity but worsens with rest. Patients will often describe the pain waking them up at night after a few hours of sleep and relieved by getting up to walk around or stretch. They may have other spondyloarthritis features, including peripheral arthritis of small or large

joints, pain that responds to NSAIDs, enthesitis of any tendon, dactylitis or swollen "sausage" digits, psoriasis, uveitis, inflammatory bowel disease, a positive family history (the probability of ankylosing spondylitis developing in children with one affected parent is 10%),⁴ elevated C-reactive protein and presence of human leukocyte antigen B27 (HLA-B27) (Box 1).³

Does the patient require imaging?

As per the Choosing Wisely Canada recommendations, imaging should not be ordered in cases of low back pain that does not have red flags.⁵ However, in this patient's case, the chronic inflammatory nature of the symptoms, their duration of more than three months, and the patient's young age (< 45 yr) makes axial spondyloarthritis a possible diagnosis. A radiograph of the sacroiliac joints should be ordered. If the images are negative, and if the pretest probability is high, magnetic resonance imaging (MRI) of the sacroiliac joints with short T_1 inversion recovery sequences can be ordered; gadolinium contrast is not required.^{6,7}

Findings consistent with axial spondyloarthritis

Box 1: Features of axial spondyloarthritis from the Assessment of SpondyloArthritis International Society classification criteria³

- Inflammatory back pain
- Peripheral arthritis
- Enthesitis
- Uveitis
- Dactylitis
- Psoriasis
- Crohn disease or colitis
- Good response to nonsteroidal anti-inflammatory drugs
- Family history of axial spondyloarthritis
- Positive HLA-B27 test result
- Elevated C-reactive protein

Note: The handbook on assessing spondyloarthritis is available at www.asas-group.org/education/ASAS-handbook.pdf



tis on imaging include sacroiliitis on radiography or bone marrow edema along the sacroiliac joints on MRI. Lesions consistent with bone marrow edema on MRI are highly suspicious for axial spondyloarthritis.⁷ With a patient history of inflammatory back pain, laboratory evidence of inflammation (e.g., elevated C-reactive protein) and findings on imaging, the probability of spondyloarthritis increases to 90%.⁶

Should HLA-B27 testing be ordered at this appointment?

HLA-B27 testing is not useful as a single diagnostic test in a patient with low back pain without further signs or symptoms suggesting spondyloarthritis (Box 1). This is one of the Canadian Rheumatology Association's Choosing Wisely recommendations (Box 2).⁸ A positive result in this setting will not classify the person as having spondyloarthritis. In a patient with chronic low back pain, positive HLA-B27, and no other features of spondylitis, the post-test probability of inflammatory back disease would not exceed 30%.⁹ Between 5% and 10% of healthy people have positive test results for HLA-B27, varying with ethnicity, and inflammatory back arthritis will develop in only 2%–5% of those with a positive test result.^{6,7}

If imaging shows evidence of sacroiliitis in a young patient with chronic inflammatory back pain, there is no additional requirement of HLA-B27 testing for diagnosis. However, if imaging is negative in this situation, the HLA-B27 test can be helpful. For a diagnosis of axial spondylitis in a patient with a positive HLA-B27 test result and negative imaging, criteria from the Assessment of SpondyloArthritis International Society state that at least two other spondyloarthritis features must be present (Box 1).³ These criteria have a sensitivity of 83% and a specificity of 84%.³ About 85% of patients with ankylosing spondylitis have a positive result on HLA-B27 testing.^{6,7}

When would you refer this patient to a rheumatologist?

A patient with inflammatory back pain, sacroiliitis on radiography or a positive HLA-B27 test result should be referred to a rheumatologist for further assessment.⁶ The rheumatologist can evaluate for features of spondyloarthritis and order further imaging or testing if appropriate.

Case revisited

The physician ordered a C-reactive protein level and radiographs of the sacroiliac joints. The radiology report was equivocal, but the patient had elevated C-reactive protein. The physician ordered

Box 2: Choosing Wisely Canada recommendation on HLA-B27 testing⁸

Do not order an HLA-B27 test unless spondyloarthritis is suspected based on specific signs or symptoms.

- HLA-B27 testing is not useful as a single diagnostic test in a patient with low back pain without further signs or symptoms of spondyloarthropathy (e.g., inflammatory back pain more than three months in duration with age of onset less than 45 years, peripheral synovitis, enthesitis, dactylitis, psoriasis or uveitis), because the diagnosis of spondyloarthropathy in these patients is of low probability. If HLA-B27 testing is used, at least two signs or symptoms of spondyloarthropathy, or the presence of positive imaging results, need to be present to classify a patient as having axial spondyloarthropathy. There is no clinical use in ordering an HLA-B27 test in the absence of positive imaging or the minimally required signs or symptoms of spondyloarthropathy.

MRI of the sacroiliac joints with short T_1 inversion recovery sequences, which showed bone marrow edema. Given these results, the physician referred the patient to a rheumatologist for assessment without ordering HLA-B27 testing. With positive imaging and elevated C-reactive protein (a feature of spondyloarthritis), further testing by the primary care physician was not required.

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CMAJ is collaborating with Choosing Wisely Canada (www.choosingwiselycanada.org), with support from Health Canada, to publish a series of articles describing how to apply the Choosing Wisely Canada recommendations in clinical practice.