CLINICAL VIGNETTE

Chronic Low Back Pain: Importance of Close Follow-Up with Additional History

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Introduction

Low back pain is one of the most common problems primary care physicians who treat adult patients are facing today. Up to 84% of adults will have back pain at some time in their lives.[1] For most adults, the diagnosis and treatment is straightforward with consideration of imaging studies reserved for those whose symptoms extend beyond four weeks.

Patients with pain lasting between 4 and 12 weeks are said to have subacute pain, while pain beyond 12 weeks is considered to have chronic pain. Occasionally patients with more serious etiologies are found and they require more detailed questioning and testing. This article outlines a rare but predictable cause of back pain. Table I outlines a number of these rare causes of back pain.

Case Report

A thirty-three-year-old Caucasian male presented to his primary care provider with a history of nine months of back pain, which was at first intermittent, then almost daily. He did heavy lifting as a heating and air conditioning repairman, and in his free time, had installed a stone pavers in his back yard. His physical exam, including careful back and neurologic exam were completely normal.

X-rays of his back, labs, including a CBC, CMP, LDH, HLA-B27, ANA, testing for monoclonal gammopathy and a urinalysis were all obtained and were normal.

He was given NSAIDs, a muscle relaxant, and extensive educational advice to help deal with his back pain. Due to his work schedule, physical therapy was not practical.

In a follow up four weeks later, he provided additional information, stating that the "back pain now awakened him from a sound sleep." In fact, he stated that it had awakened him every night for over one month, but did not think it was important, so had not mentioned it previously.

With this information, MRI of his spine was obtained showing a posterior mediastinal/anterior paraspinal mass, predominantly in the lower chest, extending on both sides of the thoracic spine, directly invading and destroying portions of the T8, T9, T10 vertebral bodies. The mass did not appear to extend into the neural foramina or central spinal canal. There was anterior displacement of the heart. The mass was about 8.4 cm antero-posteriorly and 9.6 cm transversally, and was at least 11 cm craniocaudally on the CT. On the MRI, it appeared to be 16 cm craniocaudally, extending from T6-7 to T12. Again, no extension was seen into the central canal. CT scan confirmed these findings.

He underwent a biopsy of this mass, which was interpreted as a high-grade sarcoma. A second pathological opinion confirmed the diagnosis of a high grade sarcoma, consistent with an osteosarcoma.

Discussion

Osteosarcomas are primary malignant bone tumors characterized by production of osteoid or immature malignant bone by malignant cells. Approximately 750-900 new cases are diagnosed in the United States each year, of which 400 arise in children younger than twenty years.[2] Prior to the use of chemotherapy, 80-90% of patients developed metastatic disease despite achieving local tumor control and died of their disease. It has been shown that the majority of patients had sub-clinical metastatic disease present at the time of diagnosis.

Almost all patients with osteosarcoma are treated with adjuvant chemotherapy. As a result, at least two-thirds of patients with non-metastatic extremity sarcomas will be long term survivors, many of them children, and 25% of patients with more extensive metastatic disease can have long term relapse free survival.[3]

Osteosarcomas in adults are often considered secondary neoplasms, attributed to sarcomatous transformation of Paget's Disease, secondary sarcomas in irradiated bones, or some other benign bone lesion.[4] Our patient probably had a primary osteosarcoma, which is more common in adult males than females.

Genetic factors are felt to play a role with both Paget's Disease and Pagetic osteosarcoma, as they are both associated with loss of heterozygosity of chromosome 18, possibly involving the same site of a potential tumor suppressor gene. There are several genetic syndromes associated with increased risk of osteosarcomas, including Li-Franneri Syndrome, Rothmund Syndrome (RTS), Bloom syndrome, and Werner Syndrome, all rare entities, with multiple and diverse cancers associated with them. It is important to take a careful family history when

assessing a patient with possible osteosarcomas to look for these connections.[5]

The majority of patients present with localized pain, typically of several months duration. Pain frequently begins after an injury, and may wax and wane over time. Systemic syndromes, such as fever, weight loss, and malaise, are generally not present. The most important finding on physical examination is a soft tissue mass and tenderness to palpation. Lab results are usually normal except for occasional elevations of LDH, alkaline phosphatase, and erythrocyte sedimentation rate.

There are several different staging systems for osteosarcomas. The Musculoskeletal Tumor Society (MSTS), which is primarily a surgical staging system, and the American Joint Commission of Cancer (AJCC) which is being updated to reflect separate staging for long bones, and the spine/pelvis. It is scheduled to be adopted as of January 1, 2018.

Conclusion

Low back pain is a common complaint in primary care office visits, and most providers have a conservative approach to diagnosis and treatment. However, it is important to follow patients carefully and consider a more extensive evaluation when pain persists.

This patient also had atypical features, even for an osteosarcoma. His presentation and initial testing were so generic that it was his response of pain awakening him from his sleep that prompted additional imaging which identified the underlying cause. There are other questions that would also indicate a more serious and possible life threatening cause, and each physician needs to review his or her clinical algorithm to include these when appropriate.

Table 1

SERIOUS SYSTEMIC ETIOLOGIES OF LOW BACK PAIN

1. Spinal cord or cauda equine compression
2. Metastatic cancer
3. Multiple myeloma
4. Pathological vertebral fractures
5. Abdominal aortic aneurism or other vascular causes
6. Spinal epidural abscess
7. Vertebral osteomyelitis
8. Ankylosing spondylitis
9. Conditions outside the spine (pancreatitis, herpes zoster, nephrolithiasis, pyelonephritis)

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