Dynamic Chiropractic

DIAGNOSIS & DIAGNOSTIC EQUIP

Horses or Zebras? A Case Challenge

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WHAT YOU NEED TO KNOW

- The phrase, “Think horses, not zebras,” is often used in health care training to emphasize that doctors should consider the most common and likely diagnoses.
- However, it is crucial for doctors to remain alert to the possibility of less common or even rare conditions, the “zebras,” particularly when the patient’s symptoms are atypical or do not respond to typical treatments.
- Ignoring uncommon, but important signs can lead to delayed or missed diagnoses, as this case study emphasizes.

The phrase, “Think horses, not zebras,” is often used in health care training to emphasize that doctors should consider the most common and likely diagnoses, rather than rare and exotic ones, when evaluating a patient’s symptoms. In other words, doctors should start with the most obvious and common explanations for a patient’s condition before considering more unusual or rare possibilities.

This approach is based on the principle of Occam’s razor, which suggests that the simplest explanation is usually the correct one. Most medical conditions encountered in everyday practice are relatively common and can be attributed to more frequent causes. Therefore, it is generally more prudent for doctors to initially focus on the common conditions, or “horses,” when diagnosing patients.

Although this principle serves as a practical guideline, it is also crucial for doctors to remain alert to the possibility of less common or even rare conditions, the “zebras,” particularly when the patient’s symptoms are atypical or do not respond to typical treatments. Ignoring uncommon, but important signs can lead to delayed or missed diagnoses, which can have serious consequences for patients.

Case Background

A 67-year-old woman describes fatigue and intermittent low back pain over the past 12 months. She gets relief with massage and NSAIDs. She reports that she has otherwise been in generally good health. She takes over-the-counter vitamin supplements, but no prescription medications.

Her travel history is not significant, except for a trip to Mexico about a month ago. She explains that since this trip, her backache has worsened. It is now waking her up at night. Sometimes, when she wakes, she feels feverish and sweaty. She reports that she has also lost a "few pounds." Concerned by these symptoms, she decided to consult with a doctor.

The patient's pain is confined to her lower back and is not relieved by heat or rest. She does not have any other bone aches or pains, or any joint pain or swelling. She has no other significant medical history. She consumes alcohol in moderation and does not use recreational drugs.

Physical Examination

The patient is a normally developed, normally nourished 67-year-old female. She stands 5 feet 4 inches tall. At the time of examination, she weighs 124 pounds, her temperature is 98.0 degrees, and her pulse rate is 78. Blood pressure is 126/79. The patient presents with normal posture and gait.

Neurological and orthopedic tests are performed on the patient, which results in the following findings: Babinski, Achilles reflex, patellar reflex, dorsalis pedis pulses and posterior tibia pulses, and ankle clonus are satisfactory. Straight-leg raising, Braggard's, femoral stretch, crossed femoral stretch, Ely's, Romberg, and passive lumbar extension are all within normal limits. Leg lowering is negative.

Patrick's Fabre and anterior and posterior dermatomes are also normal. There is no pain or restriction to lumbar range of motion. There is no muscle spasm, inflammation or pain, or tenderness to the lumbar spine.

Discussion

An older-aged woman with low back pain is a common clinical scenario, but all of the neurological and orthopedic tests are normal, and there is no pain on palpation or any motion, which is unusual. Additionally, this patient has persistent back pain, which wakes her from sleep, symptoms of fatigue, and an occasional fever. All of these factors (red flags) together signal a need for laboratory and radiographic testing.

Laboratory & Radiographic Testing

The patient's metabolic blood panel finds elevated serum creatinine and serum calcium levels (see Table 1). All other tests on the panel are within the reference range. Her complete blood cell counts shows lower levels of hemoglobin, hematocrit, RBC, and mean corpuscular volume (Table 1). All other tests on the panel are within the reference range. A urine examination reveals no leukocytes, red blood cells, or casts. Radiographic findings on the thoracic lumbar spine show a normal-age-related degenerative spine with no pathological signs. Based on these findings, what is the most likely diagnosis?

Table 1: Lab Findings
Creatinine: 2.3 mg/dL (0.67-1.17)

Calcium: 11.7 mg/dL (8.5-10.6)
Hemoglobin: 9.5 g/dL (14-18 g/dL)
Hematocrit: 32% (40-50%)

RBC: 3.7 mill/mm3 (4.6-6.1 mill/mm^3)

MCV: 71.4 um3 (79.0-95.0 um^3)
**Reference ranges in parentheses*

The Most Likely Diagnosis

Elevated serum calcium levels can suggest several possible underlying medical conditions, but certain types of cancer fit with the patient's symptoms. The higher level of creatinine indicates impaired kidney function or a reduced filtration rate. Lower levels of hemoglobin, hematocrit, RBC, and mean corpuscular volume suggest anemia.

This patient's cluster of findings suggests a diagnosis of multiple myeloma. Kyle, et al., reported in the *New England Journal of Medicine* that these four criteria likely indicate multiple myeloma: calcium elevation with renal dysfunction, anemia, and backache or bone pain (acronym CRAB).[1] All four criteria need not be present for a diagnosis to be made. An MRI and bone marrow biopsy confirm the diagnosis for this patient.[2]

The incidence of multiple myeloma has risen by 126% globally and over 40% in the US since 1990.[3] Although this diagnosis is uncommon, we should always be alert to the possibility of a zebra.

References

1. Kyle RA, Rajkumar SV. Multiple myeloma. *N Engl J Med*, 2004;351:1860-73.
2. International Myeloma Working Group. Criteria for the classification of monoclonal gammopathies, multiple myeloma and related disorders: a report of the International Myeloma Working Group. *Br J Haematol*, 2003;121:749-57.
3. Padala SA, Barsouk A, Barsouk A, et al. Epidemiology, staging, and management of multiple myeloma. *Med Sci*, 2021;9:3.