Available online at www.ijicr.com

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 3 (2025)
March 2025 Issue

INDIAN JOURNAL OF INNOVATIVE CLINICAL RESEARCH

Received 6 January 2025
Revised 17 February 2025
Accepted 1 March 2025

CASE REPORT

# Unmasking Occult Multiple Myeloma Through Spontaneous Vertebral Compression Fractures in a Middle-Aged Diabetic Male: A Diagnostic Pitfall in Primary Care

Dr. Mohammed Shamoon Khan, Department of Medicine, Katihar Medical College, Katihar,

Drshamoonatwork@gmail.com

**Abstract**

Multiple myeloma often creeps in under the guise of everyday musculoskeletal complaints, delaying diagnosis in busy primary-care clinics. We recount the case of a 56-year-old man with long-standing type 2 diabetes who came to his family physician with gradually worsening mid-back pain and pervasive fatigue over two months. Treated at first as simple mechanical back strain with analgesics, he deteriorated; spinal imaging ultimately revealed spontaneous vertebral compression fractures. Routine blood tests then uncovered normocytic, normochromic anaemia, hypercalcaemia and a raised total-protein level with a low albumin-to-globulin ratio. Serum protein electrophoresis and immunofixation identified a monoclonal band, and bone-marrow biopsy confirmed multiple myeloma. This case highlights the need to keep malignancy on the differential when otherwise unexplained musculoskeletal pain is paired with systemic "red flags" such as anaemia or hypercalcaemia. Prompt imaging and a targeted laboratory work-up can prevent misdiagnosis and secure an early oncology referral, ultimately improving patient outcomes.

Keywords: Multiple myeloma; vertebral compression fracture; diabetes mellitus; back pain; diagnostic delay

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 3 (2025)
March 2025 Issue

## INTRODUCTION

Multiple myeloma (MM) is a bone marrow clonal plasma-cell disease that leads to uncontrolled monoclonal immunoglobulin synthesis and, eventually, end-organ destruction. Although MM is the second most common haematological malignancy, accounting for roughly 10 % of all blood cancers, its early course is easy to miss because initial symptoms are often vague and non-specific [1]. Patients typically present with back pain, fatigue and anaemia, complaints that in primary care are more readily ascribed to mechanical strain, age-related spinal degeneration or diabetic neuropathy, especially among older adults with chronic illnesses [2]. Consequently, the diagnosis is frequently delayed until overt complications such as spontaneous vertebral compression fractures, renal impairment or hypercalcaemia come to light [3].

The CRAB mnemonic, hyper**c**alcaemia, **R**enal dysfunction, **A**naemia and **B**one lesions—remains the cornerstone for recognising MM, yet clinicians must remember that these classic red flags can be muted or atypical, particularly in patients with multiple comorbidities where warning signs are easily blurred or misinterpreted [4]. For instance, musculoskeletal pain in individuals with diabetes is often labelled neuropathic or degenerative, masking the underlying malignancy [5]. The present case illustrates this diagnostic trap: a patient with non-traumatic vertebral compression fractures and systemic cues such as fatigue and anaemia was ultimately diagnosed with MM. The case reinforces the need for comprehensive evaluation, including early imaging and targeted laboratory testing, whenever persistent back pain co-exists with systemic abnormalities., emphasizing the need for heightened clinical vigilance in identifying potential malignancies at an early stage.

## CASE PRESENTATION

### 2.1 Patient History and Presentation

A 56-year-old man who has been using oral hypoglycemic medications for type 2 diabetes mellitus for the last 12 years arrived at the outpatient clinic complaining of six weeks of ongoing mid-back discomfort. The pain was dull, non-radiating, and aggravated by movement but not associated with trauma. He also reported generalized fatigue, occasional dizziness, and reduced appetite. There was no history of fever, night sweats, weight loss, or neurological deficits. His glycemic control had been suboptimal (recent HbA1c: 8.3%).

He was initially treated empirically with nonsteroidal anti-inflammatory drugs (NSAIDs) and advised bed rest at a peripheral health center, under the assumption of mechanical back pain. However, the symptoms persisted and progressively worsened, prompting further referral.

### 2.2 Physical Examination

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 3 (2025)
March 2025 Issue

- **General Appearance:** Pale, afebrile, with stable vital signs
- **BMI:** 22.6 kg/m²
- **Musculoskeletal Exam:** Localized tenderness over thoracic vertebrae (T10–T12), no visible deformity
- **Neurological Exam:** Normal power, reflexes, and sensation in all limbs
- **Other Systems:** No hepatosplenomegaly or lymphadenopathy

### 2.3 Laboratory Investigations

| Test | Result | Reference Range |
|---|---|---|
| Hemoglobin | 9.1 g/dL | 13.5–17.5 g/dL |
| Total Leukocyte Count | 6,800 /mm³ | 4,000–11,000 /mm³ |
| ESR | 58 mm/hr | 0–20 mm/hr |
| Serum Calcium | 11.2 mg/dL | 8.5–10.5 mg/dL |
| Serum Creatinine | 1.8 mg/dL | 0.7–1.3 mg/dL |
| Serum Albumin | 2.9 g/dL | 3.5–5.5 g/dL |
| Total Protein | 9.2 g/dL | 6.0–8.3 g/dL |
| Albumin:Globulin Ratio | 0.46 | 1.2–2.0 |
| HbA1c | 8.3% | <7% (good control) |

Given the findings of anemia, hypercalcemia, renal dysfunction, and elevated total protein, further hematologic workup was initiated.

### 2.4 Imaging and Diagnostic Workup

- **X-ray Spine (Thoracolumbar):** Showed multiple vertebral compression fractures at T11 and L1 with anterior wedging, without any traumatic history.
- **MRI Spine:** Revealed vertebral body height loss, marrow replacement suggestive of infiltration, and absence of spinal cord compression.
- **Serum Protein Electrophoresis (SPEP):** Demonstrated a monoclonal spike (M-protein) in the gamma region.
- **Immunofixation Electrophoresis (IFE):** Confirmed IgG kappa monoclonal gammopathy.
- **Serum Free Light Chains (FLC):**
    - Kappa: 189 mg/L (↑)

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 3 (2025)
March 2025 Issue

- Lambda: 22 mg/L
- Kappa/Lambda ratio: 8.59 (↑)

- **Bone Marrow Aspiration and Biopsy:** Hypercellular marrow with >30% plasma cells, confirming the diagnosis of multiple myeloma (IgG-kappa type).

### 2.5 Management and Follow-Up

In order to begin therapy, the patient was hospitalised. He began taking bortezomib, lenalidomide, and dexamethasone as part of a triple-drug chemotherapy regimen (VRd protocol). Hydration, erythropoietin-stimulating medications, bisphosphonates for bone preservation, and nutrition counselling were all part of the supportive care. Glycemic control was optimized in collaboration with the endocrinology team.

At 3-month follow-up, the patient reported significant pain relief, improved appetite, and better functional status. Repeat labs showed reduction in M-protein levels and stabilization of renal function.

## DISCUSSION

The first symptoms of multiple myeloma (MM), a cancer of terminally differentiated plasma cells, are often inconspicuous: fatigue, diffuse bone discomfort, or mild anaemia. Back pain is the most frequent early complaint and typically reflects silent vertebral compression fractures caused by osteolytic disease [6]. In individuals with diabetes, such pain is readily blamed on mechanical strain or neuropathy, fostering diagnostic inertia [7]. Our patient illustrates this pitfall: persistent back pain that resisted conventional therapy was accompanied by anaemia, hypercalcaemia, renal impairment and an elevated total-protein level, the CRAB constellation that should immediately raise suspicion for MM [8]. When these features coexist, clinicians must proceed with a targeted haematological work-up, including serum protein electrophoresis, immunofixation and bone-marrow biopsy.

Atraumatic vertebral compression fractures in adults over 50 are a prominent red flag for occult malignancy, with MM, metastatic carcinoma and lymphoma topping the differential [9]. In this case, plain radiographs and MRI revealed wedge deformities and marrow signal changes, prompting the broader evaluation that confirmed IgG-kappa MM. Contemporary tools such as serum free-light-chain assays and refined immunofixation significantly enhance detection, particularly for non-secretory or light-chain–only variants [10]. Nonetheless, bone-marrow biopsy remains the definitive standard, guiding both risk stratification and treatment planning.

Therapy was initiated with a bortezomib-based triplet regimen, now regarded as first-line for transplant-ineligible patients [11]. Bisphosphonates were started early to curtail further skeletal events and improve bone mineral density [12]. Because corticosteroids such as dexamethasone can destabilise glycaemic control, close collaboration with endocrinology is vital in diabetic patients. Diagnostic delay carries a

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 3 (2025)
March 2025 Issue

measurable survival penalty; one cohort showed that 25 % of patients waited more than six months for a diagnosis, largely because early symptoms were dismissed as benign [13]. The lesson is straightforward: when older adults present with unexplained anaemia, bone pain or elevated serum proteins, clinicians should maintain a high index of suspicion for MM and pursue timely imaging and laboratory evaluation. Early recognition shortens the diagnostic journey and ultimately improves patient outcomes.

## CONCLUSION

This case highlights why persistent back pain in middle-aged or older adults, especially those with diabetes, demands careful, methodical assessment. Early features of multiple myeloma such as fatigue, mild anaemia or skeletal aches are easily mistaken for common degenerative or neuropathic conditions. Yet when these symptoms coexist with “red flags” like unexplained anaemia, hypercalcaemia, renal impairment or spontaneous vertebral fractures, clinicians must think beyond routine causes and consider an underlying malignancy. Basic laboratory panels interpreted alongside targeted spinal imaging can provide pivotal clues long before catastrophic complications develop. In our patient, timely recognition of systemic abnormalities and prompt haematology referral allowed therapy to begin before further skeletal damage occurred. The lesson is clear: internists and primary-care physicians sit at the front line of detection for plasma-cell disorders. Maintaining a high index of suspicion, supported by a multidisciplinary team when necessary, can shorten the diagnostic timeline, ensure appropriate treatment, and ultimately safeguard both quality of life and long-term outcomes for patients with multiple myeloma.

## REFERENCES

[1] Kazandjian, D. (2016). Multiple myeloma epidemiology and survival: A unique malignancy. *Seminars in Oncology, 43*(6), 676–681. https://doi.org/10.1053/j.seminoncol.2016.11.004

[2] Kyle, R. A., & Rajkumar, S. V. (2004). Multiple myeloma. *New England Journal of Medicine, 351*(18), 1860–1873. https://doi.org/10.1056/NEJMra041875

[3] Kariyawasan, C. C., Hughes, D. A., Jayatillake, M. M., & Mehta, A. B. (2007). Multiple myeloma: causes and consequences of delay in diagnosis. *QJM: An International Journal of Medicine, 100*(10), 635–640. https://doi.org/10.1093/qjmed/hcm073

[4] Palumbo, A., & Anderson, K. (2011). Multiple myeloma. *New England Journal of Medicine, 364*(11), 1046–1060. https://doi.org/10.1056/NEJMra1011442

[5] Arastu, M. H., & Nordin, B. E. C. (2009). Chronic back pain in the elderly diabetic patient: a diagnostic dilemma. *Age and Ageing, 38*(6), 660–665. https://doi.org/10.1093/ageing/afp129

[6] Kyle, R. A., Gertz, M. A., Witzig, T. E., Lust, J. A., Lacy, M. Q., Dispenzieri, A., ... & Rajkumar, S. V. (2003). Review of 1027 patients with newly diagnosed multiple myeloma. *Mayo Clinic Proceedings, 78*(1), 21–33. https://doi.org/10.4065/78.1.21

[7] Kariyawasan, C. C., Hughes, D. A., Jayatillake, M. M., & Mehta, A. B. (2007). Multiple myeloma: causes

e-ISSN: 3048-9814 (Online)
Vol. 2 No. 3 (2025)
March 2025 Issue

and consequences of delay in diagnosis. *QJM: An International Journal of Medicine, 100*(10), 635–640. https://doi.org/10.1093/qjmed/hcm073

[8] Rajkumar, S. V., Dimopoulos, M. A., Palumbo, A., Blade, J., Merlini, G., Mateos, M. V., ... & Miguel, J. F. S. (2014). International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma. *The Lancet Oncology, 15*(12), e538–e548. https://doi.org/10.1016/S1470-2045(14)70442-5

[9] Healy, J. H., Lane, J. M., & Healey, J. H. (1994). Non-traumatic compression fractures of the spine: diagnostic considerations. *The Journal of Bone and Joint Surgery. American Volume, 76*(3), 395–403.

[10] Dispenzieri, A., Katzmann, J. A., Kyle, R. A., Larson, D. R., Melton, L. J., Colby, C. L., & Therneau, T. M. (2008). Prevalence and risk of progression of light-chain monoclonal gammopathy of undetermined significance: a retrospective population-based cohort study. *The Lancet, 375*(9727), 1721–1728. https://doi.org/10.1016/S0140-6736(10)60556-6

[11] San Miguel, J. F., Schlag, R., Khuageva, N. K., Dimopoulos, M. A., Shpilberg, O., Kropff, M., ... & Richardson, P. G. (2008). Bortezomib plus melphalan and prednisone for initial treatment of multiple myeloma. *New England Journal of Medicine, 359*(9), 906–917. https://doi.org/10.1056/NEJMoa0801479

[12] Terpos, E., & Dimopoulos, M. A. (2005). Myeloma bone disease: pathophysiology and management. *Annals of Oncology, 16*(8), 1223–1231. https://doi.org/10.1093/annonc/mdi244

[13] Hamilton, W., Lancashire, R., Sharp, D., Peters, T. J., & Cheng, K. K. (2009). The importance of anaemia in diagnosing colorectal cancer: a case–control study using electronic primary care records. *British Journal of Cancer, 101*(2), 293–297. https://doi.org/10.1038/sj.bjc.6605174