FACT SHEET — RED FLAG — MEDICAL

# Multiple Myeloma and Back Pain

*A blood cancer that primarily affects the bones — why it matters for back pain in the over-60s*

**■ See your GP if you have back pain alongside:**

- Age over 60 with persistent unexplained back pain
- Unexplained fatigue or anaemia
- Recurrent infections
- Unexplained weight loss
- Bone pain in multiple sites simultaneously
- Raised calcium symptoms: excessive thirst, confusion, constipation

## What multiple myeloma is

Multiple myeloma is a cancer of plasma cells — the white blood cells that produce antibodies. Abnormal plasma cells accumulate in the bone marrow and produce substances that dissolve bone, causing the characteristic lytic lesions (holes in bone) seen on imaging. The spine is one of the most commonly affected sites, making back pain a frequent presenting symptom.

Myeloma is most common in adults over 60. The median age at diagnosis is 70. It accounts for approximately 1% of all cancers but around 10% of blood cancers. It is treatable but not currently curable, though outcomes have improved significantly with newer therapies.

## How myeloma causes back pain

Myeloma cells in the vertebral bone marrow secrete substances that activate osteoclasts (bone-dissolving cells) and inhibit osteoblasts (bone-building cells). The result is progressive bone destruction producing lytic lesions that weaken vertebrae and can cause pathological fractures from minimal loading — similar in appearance to osteoporotic compression fractures but with a different underlying mechanism.

## Symptoms

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| **Bone pain** | Back and rib pain are the most common presenting symptoms. The pain is often constant, present at rest, and worse at night. |
| **Fatigue and anaemia** | Displacement of normal bone marrow by myeloma cells reduces red blood cell production. |
| **Recurrent infections** | Loss of normal antibody production increases susceptibility to bacterial infections, particularly pneumonia. |

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| **Kidney problems** | Abnormal proteins produced by myeloma cells can damage the kidneys. |
| **Hypercalcaemia** | Bone destruction releases calcium into the bloodstream, causing excessive thirst, confusion, constipation, and nausea. |
| **Pathological fractures** | Vertebral collapse and rib fractures from minimal trauma. |

## Investigation and treatment

Investigation includes blood tests (serum protein electrophoresis, immunoglobulins, free light chains, calcium, renal function, FBC), urine protein, whole body MRI or PET-CT, and bone marrow biopsy for definitive diagnosis.

Treatment has advanced significantly. Modern regimens include proteasome inhibitors, immunomodulatory drugs, monoclonal antibodies, and autologous stem cell transplant for eligible patients. Many patients achieve sustained remissions measured in years.

## Related fact sheets

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| **Spinal metastases** | The broader context of malignant bone involvement in the spine. |
| **Osteoporosis** | Bone fragility that can coexist with and mimic myeloma bone disease. |
| **Red flag back pain — overview** | Back pain features requiring medical investigation. |

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**Phone number**
*Best number to reach you*

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**Briefly describe your back pain**
*Main concern and duration*

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