

**FACT SHEET: FOR USE ANYTIME**

**Media Contacts:** [PHYSICIAN NAME]  
[ORGANIZATION]  
[ADDRESS]  
[CITY, STATE ZIP]  
[PHONE]

## **CANCER AND SPINE FRACTURES**

### **Bone Metastasis and Multiple Myeloma**

There are many causes of spine fractures, including diseases that can cause the spine to weaken and eventually fracture. There are two types of cancer that do just that: bone metastasis and multiple myeloma. Below are facts and information about the correlation between cancer and spine fractures, which emphasize the importance for physicians to develop care plans that address all aspects of a patient's condition.

#### **What are bone metastasis and multiple myeloma?**

##### **Bone Metastasis:**

- Bone metastasis is cancer that spreads to the bone from another site; the cancer cells break off from the primary tumor, enter the bloodstream and travel to other areas of the body.
- Malignant cells can spread to the bone and cause two types of lesions; osteolytic and osteoblastic. Osteolytic lesions are destructive, increasing bone loss and decreasing bone strength and stiffness. This type of lesion is associated with bone fractures. The second type of lesion, osteoblastic, increases bone formation. Even though the bone density increases, the bone strength does not change and the stiffness of the bone decreases.
- Individuals diagnosed with cancers such as breast, prostate and lung, represent the majority of people who have bone metastasis.
- Bone metastasis has been reported to occur in half of all cancer patients whose cancer has spread to some other part of their body, which means that a large number of people per year have bone metastasis and suffer from their complications, which include fractures, pain, and spinal cord compression.
- Although bone pain is usually the earliest symptom, bone fractures can also be a sign of bone metastasis since it can often go undiagnosed until it has reached an advanced stage. The spine is one of the most common sites for bone fracture.

-more-

### **What is the connection between bone metastasis and vertebral fracture?**

- Approximately 17 to 50 percent of patients with breast carcinoma (malignant or advancing new cancer growth) metastatic to bone will experience new vertebral fractures each year<sup>1</sup>.
- Up to two-thirds of patients with bone metastasis experience severe pain and disability<sup>2</sup>.
- Up to 41 percent of patients receiving radiation to treat bone metastasis experience bone fractures<sup>3</sup>.

### **What is the survival rate of bone metastasis?**

- Today, there is an increase in survival with bone metastasis with a two-year median survival rate; approximately 10 percent of patients are still alive 5 to 10 years after they are first diagnosed<sup>1</sup>.

### **Is there a test to detect bone metastasis?**

- Imaging techniques help show evidence of the cancer's spread into the bones and include X-rays, radionuclide bone scan (radioactive material is injected to better identify the bone), Computed Tomography (CT) or Magnetic Resonance Imaging (MRI).
- Blood tests and needle biopsies are also used to detect bone metastasis. A surgical bone biopsy may be performed if needle biopsies do not provide an answer.

### **What treatments are available for vertebral fracture caused by bone metastasis?**

- In spinal fractures due to cancer, much of the pain is due to instability. To help reduce pain, stabilizing the spine is often required<sup>3</sup>.
- Some physicians may use an adjunctive, minimally invasive procedure such as Balloon Kyphoplasty to try to repair the vertebrae.

### **Multiple Myeloma?**

- Myeloma is a cancer of bone marrow plasma cells. These cells produce antibodies in the bone marrow.
- When the tumors grow in multiple areas of bone marrow, it is considered multiple myeloma.
- At any given time, approximately 75,000 to 100,000 people in the U.S. have multiple myeloma.
- Multiple myeloma is more common than most individual forms of leukemia.

## What is the connection between multiple myeloma and vertebral fracture?

- Certain cells in the bone marrow absorb old bone to make way for new bone (a natural process). However, in patients with multiple myeloma, plasma cell tumors can give off substances that “turn on” these cells and cause small areas of bone weakness or osteoporosis, which can increase the risk of broken bones from minor stress or injury.
- New vertebral fractures are reported to occur in approximately 15-30 percent of patients with multiple myeloma annually<sup>1</sup>.
- Approximately 75 percent of patients with multiple myeloma experience bone pain<sup>1</sup>.
- The correlation between back pain and vertebral fractures is greater than 50 percent when patients are first diagnosed with multiple myeloma<sup>1</sup>.

For additional information about cancer and spine fractures, visit:

<http://www.nof.org/> (National Osteoporosis Foundation)

<http://www.spine.org/> (North American Spine Society)

<http://www.cancer.org/docroot/home/index.asp> (American Cancer Society)

<http://www.myeloma.org> (International Myeloma Foundation)

###

---

<sup>1</sup> Body, J. (2003). “Effectiveness and Cost of Bisphosphonate Therapy in Tumor Bone Disease.” Cancer (supplement) **97** (3): 859-865

<sup>2</sup> Janjan, N. (2001). “Bone Metastases: Approaches to Management.” Seminars in Oncology **28** (4): 28-34.

<sup>3</sup> Coleman, R. (2001). “Metastatic bone disease: clinical features, pathophysiology and treatment strategies.” Cancer Treatment Reviews **27**: 165-176.

<sup>4</sup> Patel and DeGroot. (2001) “Evaluation of the Risk of Pathologic Fractures Secondary to Metastatic Bone Disease.” Orthopedics **24**:612-7.

Facts and figures not associated with a footnote were researched on the American Cancer Society’s Web site at: <http://www.cancer.org>.