# A Noval approach for Bone cancer and its causes

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## ABSTRACT
Cancer is the uncontrolled growth of abnormal cells anywhere in a body. Cancer can start in any part of any bone. Cancer begins when healthy cells in the bone change and grow out of control, forming a mass called a tumor. A bone tumor can be cancerous or benign. Cancer that begins in the bone (known as primary bone cancer) is not the same disease as cancer that starts in another part of the body and spreads (or metastasizes) to the bone, called secondary bone cancer or metastatic cancer.

**KEYWORDS**: MM, MRI, CT, WD

## I. INTRODUCTION
Bone cancer occurs when a tumor, or abnormal mass of tissue, forms in a bone. A tumor may be malignant, which means it's growing aggressively and spreading to other parts of the body. A malignant tumor is often referred to as cancerous. Cancer that begins in the bones is rare.

## II. TYPES OF BONE CANCER

Primary bone cancers are the most serious of all bone cancers. Common types of primary bone cancers are

**1.Multiple Myeloma (MM)**

Multiple myeloma is the most common type of bone cancer. It occurs when cancer cells grow in the bone marrow and cause tumors in various bones. MM usually affects older adults. Among bone cancers, MM has one of the best prognoses, and many people who have it don't require treatment.

**2.Osteosarcoma (Osteogenic Sarcoma)**

Osteosarcoma, or osteogenic sarcoma, generally affects children and adolescents, but it can also occur in adults. It has a tendency to originate at the tips of the long bones in the arms and legs. Osteosarcoma may also start in the hips, shoulders, or other locations. It affects the hard tissue that provides the outer layer of your bones.

**3.Chondrosarcoma**

Chondrosarcoma may occur in the pelvis, thigh areas, and shoulders of older adults. It forms in the subchondral tissue, which is the tough connective tissue between your bones. This is the second most common primary cancer involving the bones.

**4.Ewing's Sarcoma**

Ewing's sarcoma is a rare cancer that either begins in the soft tissues surrounding the bones or directly in the bones of children and young adults. The long bones of the body, such as the arms and legs, and the pelvis are commonly affected.

## III. SYMPOMS OF BONE CANCER

The symptoms of bone cancer are:

- pain and swelling in the affected bones
- palpable hard mass in the long bones of the limbs
- feeling tired or fatigued

Less common symptoms include:

- easily broken bones
- weight loss

## IV. CAUSES OF BONE CANCER

The cause of bone cancer isn't exactly known, but there are certain factors that may contribute to or increase a person's chances of forming abnormal growths in the bone. These include:

**Abnormal Cellular Growth**

Healthy cells continually divide and replace older cells. After completing this process they die. Abnormal cells, however, continue living. They start forming masses of tissue that turn into tumors.

**Radiation Therapy**

Radiation therapy, which kills dangerous cancer cells, can be used to treat bone cancer. However, osteosarcoma may form in some people who receive the treatment. The use of high dosages of radiation may be a factor in this development

**Risk factors for Bone Cancer**

The following may be risk factors for bone cancer:

- having a family history of cancer, especially bone cancer
- having received radiation treatment or therapy in the past
- having Paget's disease, which is a condition that causes the bones to break down and then grow back abnormally
- currently or previously having had multiple tumors in the cartilage, which is the connective tissue in the bone

**Diagnosing Bone Cancer**

Doctors classify primary bone cancer in stages. These stages describe where the cancer is, what it's doing, and how much it has affected other parts of the body:

- Stage 1 bone cancer hasn't spread from the bone.
- Stage 2 bone cancer hasn't spread but may become invasive, making it a threat to other tissue.
- Stage 3 bone cancer has spread to one or more areas of the bone and is invasive.
- Stage 4 bone cancer has spread to the tissues surrounding the bone and to other organs such as the lungs or brain.

Your doctor may use the following methods to determine the stage of cancers in the bones:

- a biopsy, which analyzes a small sample of tissue to diagnose cancer

- a bone scan, which checks the condition of the bones
- a blood test
- imaging testing that includes X-rays, MRI scans, and CT scans to get in-depth views of the bones' structure

**Treatment for Bone Cancer**

Treatment depends on:

- the stage of cancer
- your age
- your overall health
- the size and location of the tumor

**Medications**

Medications that treat bone cancer include:

- chemotherapy drugs for multiple myeloma
- pain medications to relieve inflammation and discomfort
- bisphosphonates to help prevent bone loss and protect bone structure
- cytotoxic drugs to prohibit or stop the growth of cancerous cells

**Radiation Therapy**

Your doctor may recommend radiation therapy to kill the cancer cells.

**Surgery**

Your doctor may surgically remove tumors or affected tissue. Surgery to remove and replace damaged bone is an option to stop cancers that spread quickly. For extensive bone damage in the arms or legs, amputation may be needed.

**Alternative Therapy**

Your doctor may add alternative therapies that include herbal treatments to your care plan. However, this must be done with careful consideration as some alternative treatments may interfere with chemotherapy and radiation treatments.

## V. CONCLUSION

Bone cancer is a serious disease that afflicts many people throughout the world each year, causing numerous deaths and leaving many in pain each day. The outcome of cancer either results in a cure or death. Bone cancer in particular does not have a cure and most people infected with the disease will die (WD 5). However, scientists are constantly searching for a cure every day:

## VI. REFERENCES

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