Primary Bone Cancer: Introduction

What is cancer?

Your body is made up of tiny building blocks called cells. Normal cells grow when your body needs them, and die when your body doesn't need them any longer. Cancer starts when cells in the body change and grow out of control.

Cancer is made up of abnormal cells that grow even though your body doesn't need them. In most cancers, the abnormal cells grow to form a lump or mass called a tumor. If cancer cells are in the body long enough, they can grow into (invade) nearby areas. They can even spread to other parts of the body (metastasize).

What is primary bone cancer?

Primary bone cancer is cancer that starts in your bones. It's sometimes just called bone cancer. It might also be called sarcoma.

Primary bone cancer is different from secondary, or metastatic, bone cancer. It's also different from cancers that start in the bone marrow.

- **Secondary bone cancer** starts in another part of the body and spreads to the bones. If the cancer starts somewhere else, it's not called bone cancer. Instead, it keeps the name of the organ where it started. For instance, lung cancer that spreads to the bone is still called lung cancer. It might be called metastatic lung cancer. The cancer cells in the bone look and are treated like the cancer cells in the lung. Many kinds of cancer tend to spread to bone.

- **Leukemia** is a different type of cancer that starts in the soft, inner parts of some bones. This inner part is called the bone marrow. Leukemia is a blood cancer, not a bone cancer.

- **Multiple myeloma** is another blood cancer that starts in bones. It start in plasma cells in the bone marrow, not bone cells. Still, it can destroy bone.

Primary bone cancers are quite rare in adults. Most of the time, when an adult has cancer in the bones, it's a metastatic cancer – it has spread there from another part of the body.

Primary bone tumors can be noncancerous (benign) or cancerous (malignant). Benign tumors don’t spread and are not usually life-threatening. They're often cured with surgery. Malignant bone tumors can spread and can be life-threatening.

Understanding the bones

The bones do many different things in the body:

- Some help protect our vital organs like the ribs around the heart and lungs.

- They give the body structure and form.

- Some bones, like those in the arms and legs, make a framework for our muscles that helps us move.

- Bones also are a place the body can store minerals, like calcium.

Two main types of cells in our bones help them stay strong and keep their shape:

- **Osteoblasts** are cells that build new bone by forming the bone matrix. This is the connective tissue and minerals, such as calcium, that give bone its strength.

- **Osteoclasts** are cells that break down and remove old bone matrix. This helps bones keep their correct shape.

Bone is a living tissue that's always changing. Old cells are broken down and new ones are made to keep bones strong and healthy. By putting in or taking out minerals from the bones, osteoblasts and osteoclasts also help control the levels of these minerals in the blood.

Like other tissues of the body, bones have many other kinds of living cells as well. Any one of these cells can develop into cancer.

What types of cancer can start in the bones?

Primary bone cancers are called sarcomas. Sarcomas can grow from bone, cartilage, fatty tissue, fibrous tissue, muscle, or nerve tissue.

The main types of bone cancer are:

- **Osteosarcoma.** This is the most common primary bone cancer. It usually starts in arm or leg bones near where new bone is made. Most people who get this cancer are between ages 10 and 30. But it can happen at any age. It tends to be more common in males than in females. Most tumors form near the knee, pelvis, or shoulder, but they can happen in any bone.

- **Chondrosarcoma.** This is the second most common primary bone cancer. It's most often seen in older adults. It's equally common in men and women. The cancer starts in cartilage cells and is most common around the arm, leg, and hip bones. But it can happen in any bone.

- **Ewing sarcoma.** This cancer affects mainly children and teenagers. It's also called Ewing tumor. Most of these tumors start in bone, but they can also start in the soft tissues of the limbs, like muscles. Ewing sarcoma usually is found in the legs, arms, pelvis, or chest wall. But can start in any bone.

- **Fibrosarcoma and malignant fibrous histiocytoma.** These cancers are most often found in soft tissues, such as ligaments, tendons, fat, and muscle around bone. They're rare in bones. They usually affect the legs, arms, or jaw. Middle-aged adults are most likely to get these cancers.

- **Giant cell tumors of bone.** These tumors are almost always benign (not cancer). But, in rare cases, they can be cancer. They're most often found around the knee or shoulder and sometimes other bones in young to middle-aged adults. They don't often spread to other distant sites but tend to come back to the place they started. This can happen even after they are surgically removed. With each return, the chances of the cancer spreading to other parts of the body increases. There's also a soft tissue tumor called giant cell tumor. It's not related to this bone tumor.

- **Chordoma.** This tumor usually grows at the base of the skull or in the bones of the spine. Less often, it starts in other parts of the spine. These tumors tend to grow slowly and rarely spread. But they often come back after surgery is done to remove them. Chordoma is most common in adults who are 30 years of age and older. It's about twice as common in men than in women.

Talk with your healthcare provider

If you have questions about bone cancer, talk with your healthcare provider. Your healthcare provider can help you understand more about this cancer.