

What about Bone cancer

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The skeleton is the is part of the connective tissue one is a hard connective tissue that provides shape and support to the entire body, especially the fragile organs. Bone generally starts out as cartilage, a rubbery tissue that cushions bone and joints. While the month of February has been chosen for the prevention of Cancer, it becomes natural that I discuss a little on what risk factors may contribute to such pathology.

One can remember that the clavicle is one of our bones which is present at birth, benefiting from an early bone formation. Once the bone is formed, often at both ends remains some cartilage which will take a little more time for its maturation... especially at the knees or the shoulders. This remaining cartilage will form the articular surfaces allowing the formation of an articulation like the Knee or shoulder joint.

Different types of soft tissue cancer may spread to bone, like breast, prostate, lungs or bowels etc. Such expansion of the cancer is called a "Metastasis". Other cancer will start in the bone itself and will take the name of "Primary Cancer".

Many types of cancer (such as breast cancer, prostate cancer and lung cancer) frequently spread to the bones. This is called metastasis. This fact sheet only includes information about cancer that began in the bone (called primary bone cancer); cancers that began in other parts of the body and spread to the bone (metastases) are not included.

The most common primary bone cancer are Osteosarcoma, Chondrosarcoma and Ewing Sarcoma. We will bring some generalities on the subject.

An Osteosarcoma (Osteogenic Sarcoma) is the most common type and account for near 35% of all bone cancer in the United States. It often occurs at the end of the long

bones of the arms and legs (growth plates) among young people between the ages of 10–30-year-old. Rarely, it can be seen sporadically in an older person.

A Chondrosarcoma is the second most common primary cancer of bone and account for around 25% of all bone cancer in the United States. It is rarely seen among young people and occurs in adults over 50-year-old. Chondrosarcomas generally arising from the cartilage around the pelvis, the knee, shoulder or the upper thigh.

An Ewing Sarcoma is the third most common types of primary bone cancer and the second most common type among children. It usually involves the shaft of the long bones most often the hip, ribs, upper arm and thigh. It affects children and young adults between the age 10 and 30 and represent about 15% of all bone cancers in the United States.

Every year in the State of New York around 140 men and 100 women including children) are diagnosed with bone cancer and half of them will die from the disease. Bone cancer happens at any age but the two most common (Osteosarcoma and Ewing Sarcoma) are seen primarily in children and young adults. Although more often in men than women, Ewing sarcoma is rare in Blacks and Asians but more frequently seen in Caucasians. In Haiti, I have seen some during my three years of residency in Orthopedic and sporadically, they will come to the hospital during the month of February or March. We have unfortunately no fresh statistics to elaborate on the topic but some localities in the Artibonite has produced some cases.

Unfortunately, the family believes that it was a malediction of the Gods to have their sons so unfortunate but they will place him in a corner of the house with little care and when shortness of breath and poor condition complicate the picture, they will finally look for professional care and drop the patient at the General Hospital in the Service of Orthopedics. I have seen some coming by taxi or ambulance or on a wheelchair requesting for a miracle to be performed in such an advanced condition. I will submit some cases for your evaluation but I have to say that all I was aware of were young men with Ewing and Osteosarcoma.

Once such case seen in the orthopedic service, it become emergent that because of the foul smelling odor and the amount of necrotic tissue, that an operation of property should be performed. I wish we would have been able to know exactly the reasons that some will develop such tumors and why other would not.

Let us review a little why we believe that there are some risk factors to develop such tumors. If the etiology of bone tumors is not well understood, researchers have agreed that there may be certain factors which increase the risk of developing such pathology like:

- 1- Hereditary conditions and family history can include certainly some inherited familial diseases like Li-Fraumeni Syndrome, Rothmund-Thompson syndrome have shown an increased risk to bone cancer because of the presence of a mutation in the tumor suppressor gene (TP53). Another relation to hereditary Retinoblastoma whether treated with radiation therapy or not, has a tendency in developing a sarcoma of bone secondarily. A clear association between these two diseases has not been well elucidated but in the literature, cases have been found where Retinoblastomas treated with radiation therapy and Chemotherapy. This was sufficient to explain a strong correlation between the two diseases Retinoblastoma and Osteosarcoma. and bone cancer can't be explained.
- 2- People who received radiation treatment for other type of cancer like breast or have been exposed to a radiation plant, exposing them to radium, may develop a higher risk of getting bone cancer. In these treatments, high energy rays are being used to treat the tumors bringing secondary changes in the tissues, especially the bones.
- 3- Paget disease of bone is a condition of abnormal bone growth, in which people may remain asymptomatic for a long period of time but will finally have the tendency in developing bone deformity, back and extremity pain with pathologic fracture and joint stiffness. Often the involvement of the pelvis, back and lower extremities long bones will be seen complicating the picture. The disease has become less common in the past years but persistent low back pain may result in pinch nerves. When severe pain is also noted in the progression of this disease generally treated with Bisphosphonate to avoid the osteoporosis, one needs to think about a sarcoma of bone cancer as well.
- 4- Other risks factors are being studied especially when a bone marrow transplantation is used to treat a pathology. What are the genetic changes following such procedure? In another area of prosthetic devices for replacement in orthopedics or in the use of hardware to fix different fractures, bone cancers have been also discovered in relation to the longtime implantation used to restoring

mobility and fixation especially with the kind of metal being used (Nickel, Titanium, Stainless steel) etc.

- 5- It is important to know your family history and notify your primary care physician if any of relative has ever suffered from a malignancy and also discuss the benefits and discuss with him procedures recommended for cancer screenings. Radiologic Imaging like CT-Scan should be avoid unless necessary because unnecessary exposure to ionizing radiation, especially in children may be harmful.
- 6- Be sure to keep an ideal weight and maintain a healthy diet, in eating plenty of vegetables, fruits and whole grains. Avoid bacon, sausage, hot dogs and meats. This will be the best way to decrease the risk of developing some types of cancers.
- 7- Exercises regularly like walking or running or even playing a sport. Avoid smoking yourself as well as avoiding secondary hand smoke from others.

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