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## Healthline with Yale Cancer Center

*Hosts*

Edward Chu, MD Chief of Medical Oncology

Kenneth Miller, MD Director of Supportive Care

WTIC Newstalk 1080

### The Detection and Treatment of Sarcoma

#### Guest Expert:

**Gary Friedlaender, MD**

*The Wayne O. Southwick Professor and  
Chairman of the Department of Orthopedics  
Yale School of Medicine*

*Healthline with Yale Cancer Center is a weekly broadcast on WTIC Newstalk 1080  
Sunday Mornings at 8:30*

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*This is Healthline. A joint venture of WTIC NewsTalk 1080 and Yale Cancer Center. Yale Cancer Center is a resource for cancer programs throughout Connecticut, developing new advances in prevention, screening, diagnosis and treatment. On Healthline you will hear from some of the leading doctors in the country. Healthline is not intended to provide medical advice. Yale Cancer Center urges you to consult with a qualified physician in your community for diagnosis and answers to your medical questions. And now, our co-hosts Oncologists Ken Miller and Ed Chu*

Chu Good Morning and welcome to Healthline. My name is Dr. Ed Chu and I am chief of Medical Oncology here at the Yale Cancer Center in New Haven. My co-host, Dr. Ken Miller, is off today.

Healthline, with the Yale Cancer Center, is our way of providing you with the most up-to-date information on cancer care every Sunday Morning at 8:30 a.m. here on WTIC NewsTalk 1080. Our Healthline program features the nation's leading oncologists and cancer specialists who are in the forefront of the battle to fight cancer right here in Connecticut. Each week, Ken and I are joined by a different expert from the Yale Cancer Center. Together, we discuss the myths about cancer, the latest treatment available to cancer patients, and the latest clinical research. Our goal is to give you help and hope. If you would like to submit a question to us about cancer please e-mail us at [healthline@yale.edu](mailto:healthline@yale.edu), or call 1-888-234-4YCC, and we will try to answer your question on air or in a future broadcast. If you are interested in listening to past editions of Healthline, or if you would like to learn more about a specific kind of cancer, all of our shows are posted in audio and written format on the Yale Cancer Center website, [www.yalecancercenter.org](http://www.yalecancercenter.org). Today, our program focuses on advances in the diagnosis and treatment of sarcoma. Our special guest is Dr. Gary Friedlaender, Wayne O. Southwick Professor and Chairman of the Department of Orthopedics at Yale. He is also an expert in the treatment of sarcomas here at the Yale Cancer Center. Gary, thanks so much for being with us today on Healthline.

Friedlaender I am delighted to join you.

Chu Let's start off by having you explain what exactly a sarcoma is.

Friedlaender Our bodies are made up of wondrous groups of cells that are the building blocks for the tissues and organ systems of our body. Bones, muscles, tendons, and joints are very important cells which have the capacity to heal themselves when injured, and to replace or replenish themselves as they wear out. Occasionally, and for reasons we are just beginning to understand, some cells go haywire and they grow nasty. They become aggressive, and have the ability to spread to other parts of the body. This is what is known as metastasis, and is the core essence of cancer; this ability to metastasize. Cancers are generally divided into two major groups, carcinomas and sarcomas. Carcinomas are derived from epithelial cells. Epithelial cells line our skin, our digestive tract, blood vessels, ducts of glands in the breast, the prostate, lungs, and our kidneys. Sarcomas, on the other hand, are derived from supporting cells. Supporting cells help pull and hold our organ

systems together; bone, cartilage, muscle, fat, and ligaments for example. When these cells become aggressive they are referred to as sarcomas.

Chu Which of these support structures is most likely to be affected with a sarcoma?

Friedlaender Sarcomas that start in the bone are far more common than sarcomas that start in the tissues. In general, tumors that start in tissues are a small fraction of the overall burden of cancer on our society.

Chu Each year, here in Connecticut, how many patients will be diagnosed with sarcoma of the bone?

Friedlaender A sarcoma of bone, the most common of which is called osteosarcoma, occurs roughly in 1 out of 100,000 people each year. In Connecticut there are 3.3 million people, so we would expect to see 33 new cases of osteosarcoma in a year.

Chu Typically, what's the age distribution for patients who present with this kind of cancer?

Friedlaender Bone, as well as tissue sarcomas, can happen very early in life; under the age of 5. Infants, toddlers, and young children are susceptible to malignancies like rhabdomyosarcoma, a sarcoma of the skeletal muscle. They are also susceptible to osteosarcoma, which is a primary tumor of the bone. For young people under the age of 20, there is another type of aggressive bone cancer called Ewing sarcoma. For people that are middle aged, they are more likely to get chondrosarcoma, which is a malignancy of the cartilage. They are also prone to soft tissue sarcomas such as fibrosarcoma, a support tissue sarcoma, or liposarcoma, a cancer that is related to fat cells. For people over 60, you start to see more soft tissue sarcomas and more metastatic tumors that spread to the bone.

Chu There is a pretty broad range of cancers in this family. Are there any main risk factors that we need to be aware of for developing this kind of cancer?

Friedlaender There are clearly environmental associations with some cancers, lung cancers for example, but with bone and soft tissues it is less clear. Hopefully in the future people like you, and the groups that we work with at Yale, are going to help figure that out. There is one minor example with the disorder of bone called Paget's disease, which in and of itself is benign, but can be uncomfortable. For some reason the bone starts to become more active than normal, and people with this disorder have an increased incidence of osteosarcoma later in life.

Chu What do we know about the genetic aspects of sarcomas?

Friedlaender We know of correlations between many cancers and many genetic abnormalities. We are sorting out which of those are closely related, and those that are innocent bystander relationships. There is

this notion of the double hit phenomenon, which is not proved, but would suggest that some people are genetically more prone to develop certain kinds of cancers than others, but they need to be exposed to some additional element, perhaps in the environment, that causes the cancer to express itself. These correlations are rapidly becoming clearer.

Chu Is there some association or risk between an individual receiving radiation therapy and the development of sarcomas?

Friedlaender Yes, and what's even more interesting is that there are some cancers that benefit from irradiation, but have a higher incidence of developing a secondary cancer from radiation. These linkages are very clear, and as we progress we are learning more and more about them.

Chu I am aware of two cancers, breast cancer and Hodgkin's lymphoma, where patients have gotten radiation therapy, been cured, and then many many years later unfortunately develop a secondary malignancy; is this the case with sarcoma?

Friedlaender Yes, and as with lymphoma and leukemia, these secondary cancers often don't become apparent for 10 years or longer.

Chu At this point I would like to remind our listeners to e-mail their questions to [healthline@yale.edu](mailto:healthline@yale.edu) or call 1-888-234-4YCC. At this time we are going to take a short break for a medical minute. Please stay tuned to learn more information about the treatment and diagnosis of sarcoma with our special guest Dr. Gary Friedlaender.

#### *Medical minute*

*The American Cancer Society estimates that in 2006, over 11,000 people will be diagnosed with colorectal cancer in Connecticut alone. Early detection is key. When detected early, colorectal cancer is easily treated and highly curable. Men and women over the age of 50 should have regular colonoscopies to screen for the disease. Patients with colorectal cancer have more hope than ever before. Each day more patients are surviving the disease due to increased access to advanced therapies and specialized care. New treatment options and surgical techniques are giving colorectal cancer survivors more hope than they have ever had before. Clinical trials are currently underway at Yale Cancer Center, Connecticut's only federally designated comprehensive cancer center to test innovative new treatments for colorectal cancer. Patients enrolled in these trials are given access to newly available medicines, which have not yet been approved by the Food and Drug Administration. This has been a medical minute brought to you as a public service by Yale Cancer Center. For more information visit our website at [yalecancercenter.org](http://yalecancercenter.org).*

Chu Welcome back to Healthline, this is Dr. Ed Chu and I am in the WTIC studios with our guest Dr. Gary Friedlaender, an expert at the Yale Cancer Center in the treatment and diagnosis of sarcomas.

Before the break, we were going through some background relating to sarcomas. What are some common symptoms that are associated with sarcomas?

Friedlaender Often they are subtle, but the two primary symptoms are pain and the development of a lump.

Chu This leads me to an interesting e-mail that we have received from Brian in Manchester. He says,

*I recently noticed a lump in my back. It's about the size of a large marble. Is this something that should be taken seriously? My physician said that it was probably just a fatty deposit.*

Your thoughts Gary?

Friedlaender The answer is yes, you should to take it seriously, and yes your primary care physician was probably right. The important thing is to bring this to the attention of your primary care provider, and make smart decisions. The decision at this point may be to simply watch it.

Chu Suppose it continues to grow or causes pain? What would be the next step? What should be done in terms of deciding whether or not it is benign?

Friedlaender First of all the treatment, the care, the diagnosis of cancer, is a team approach. That's what I really love about Yale; the ability to work with my colleagues. I am a surgeon, but I need to work with my colleagues in medical oncology. I need to work with the diagnostic imaging folks, the people that take MRIs, x-rays and bone scans, the pathologists and the radiation oncologists; all of us work together. When I have patients referred to me by their primary physicians with a lump, there are 2 main things that I think about. One is physically, biologically, is this benign or malignant? And secondly, the emotional overlay of the patient. We tell people to be concerned about lumps so it is very important to prove whether something is benign, not just search out the malignancies. There are benign tumors and malignant tumors. I am delighted when I have an opportunity to tell someone that they have a benign tumor or "lump", which is far more common than a malignant tumor. To sort them out we use what we were trained to do in medical school; we listen to the patient's history, we examine the individual, and look for clues. We get laboratory tests that help us decide and very frequently, in my area, an x-ray. This may lead to other imaging like a CAT scan or an MRI. If there are still questions, a biopsy may be performed.

Chu When it comes to biopsies there is a needle aspirate, and there is a real biopsy, or a true cut biopsy. What are your thoughts as to what the optimal test for diagnosing the disease is?

Friedlaender This is a very important aspect of the diagnosis, and one that I am particularly passionate about. A biopsy is taking a small, and hopefully representative, piece of tissue from the tumor and putting it on a slide so the pathologist and I can identify what is going on. Getting the biopsy is critical. The number of options that you have to treat the tumor will depend on how the biopsy was performed;

especially surgically. The biopsy needle, if you decide to go this route, must be put in the right place to make an appropriate incision to take out the tumor. As you mentioned, you can biopsy tissues with a special needle, using Novocain this tends not to be too uncomfortable, and I can perform it in the office. It might take 2 or 3 days to get the results, and there are times when it is better to do the biopsy in the operating room through a small incision. In either case, where you place that biopsy is critical in getting the right answer, and in not interfering with the ability to use surgical procedures later on.

Chu So the ideal person to make that first diagnosis with a biopsy would be a surgeon like yourself, who has the skills and the experience to decide what's the most appropriate form of biopsy to do?

Friedlaender Usually the person who does the biopsy is the person who is going to be following up with definitive surgery, or the remainder of the treatment if needed. So you are going to want the best.

Chu After a diagnosis of sarcoma, what are the next steps to approach this patient using the multidisciplinary fashion, and to decide what the best treatment strategy is for the individual?

Friedlaender Let's use a bone sarcoma for an example. The first thing is to share the information with the patient and their support system. It is very important to engage the individual so that they understand their own disease. It is a hard thing to handle, but the more they know about it the better their information, and the less anxious they are going to feel about the next steps. Then you have to activate the team. I have the advantage of being able to easily consult with my colleagues in medical and radiation oncology. Together, we develop a plan and present it to the patient. For many tumors we begin with chemotherapy to stop the potential spread of the tumor. As a surgeon we now have the ability to remove the diseased portion of the skeleton, as large as it may be, and replace it in one of several ways to avoid amputation.

Chu When you do this limb-sparing procedure and you remove the tumor, how does the bone get repaired?

Friedlaender The first priority is to get the entire tumor out. We have a wonderful team here that is very experienced with this procedure. The second operation is putting things back together. There are very generous people in our society that donate body parts in a very special manner. We are familiar with heart, lungs, kidneys, and liver donations, but some people also donate bones when they pass away, which we can use. Those specially shaped bones replace what we have removed. Gradually, the body will begin to heal and replace that bone with its own bone.

Chu Are there any problems with rejection of that bone?

Friedlaender There is recognition by the body that these cells are foreign, but it does not interfere with the body's ability to heal and replace. It is different than a solid organ where the heart must continue

to beat, or where the original kidney must function immediately. With bone it is gradually replaced by our own skeletal structure. So the body recognizes it is foreign, but it does not reject it.

Chu At this time I would like to remind our listeners to e-mail your questions to [healthline@yale.edu](mailto:healthline@yale.edu) or call 1-888-234-4YCC. We are going to take a short break to listen to a survivor story. Please stay tuned to learn more information about the new treatment strategies for sarcoma with our guest, Dr. Gary Friedlaender.

#### *Survivor Story*

*A few years ago the diagnosis of cancer was a death sentence for many patients but today thanks to advances in clinical research we are turning the corner in the battle against cancer. There are over 10 million cancer survivors now living in the US. They are the true heroes in war against cancer. Here is the story of a hero from Milford.*

*My mother passed away last September after a recurrence of breast cancer. Three weeks later the results of an earlier biopsy came back as cancerous. My Yale based gynecologist Musa Speranza referred me to a wonderful surgeon at the Yale Breast Center, Donald Lannin. Dr. Speranza moved quickly, she gave me the news of the diagnosis on a Thursday and I had an appointment that Friday with Dr. Lannin. Sensing my distress and anxiety over the diagnosis, coupled with the recent death of my mother, Dr. Lannin also moved quickly to alleviate what fear he could and scheduled me for a lumpectomy that Monday. I was then introduced to my oncologist, Dr. Kenneth Miller at the Yale Cancer Center and Dr. Joanne Weidhaas who would become my radiation oncologist. I am fortunate. Dr. Miller and the wonderful nursing staff at the Yale Cancer Center got me through the entire ordeal healthy, well and feeling fabulous.*

*This survivor story has been brought to you by Yale Cancer Center.*

Chu Welcome back to Healthline. This is Dr. Ed Chu and I am here in the WTIC studios with our guest Dr. Gary Friedlaender, an expert in the detection and treatment of sarcoma, here at the Yale Cancer Center. Gary, before the break we were talking about some of the new innovative strategies for avoiding amputation for patients with bone sarcoma. In the remaining time we have left, could you highlight for our listeners some of the advances that are taking place right here at the Yale Cancer Center?

Friedlaender Absolutely. At the top of the list would be our continuing participation in national trials, where we are exploring, with other groups of outstanding oncologists, new approaches all the time. In a rigorous, scientific manner, we develop important information and figure out what works and what doesn't. Secondly, we have an absolutely outstanding group of bone biologists. In orthopedics we have more NIH funding for our research activity than any other institution in the country. These scientists are experts at understanding how cells of the musculoskeletal system work normally, and unraveling the mysteries of how they behave when they turn malignant. They also know ways to

manipulate them back to doing what is “normal”. We also have a very strong bioengineering unit that collaborates with our colleagues so that we are able to understand how to design better implants, which is the other way in which parts of the skeleton are replaced; with metals and plastics.

Chu Are there any long-term consequences of patients who have had prosthesis, and do they need to worry about having to replace parts down the road?

Friedlaender Just like having a hip or knee replaced for arthritis, we have special prostheses for replacing segments of bone after tumors, which are cemented in place. They work really well, very quickly, and the rehabilitation is short as opposed to using cadaver bones, but they do loosen over time. These are young people, and we want them to be active, we want them back at work, at school. Every 15-20 years perhaps they will have to be re-cemented, and that is easily done.

Chu It seems that physical therapy and rehab are a very important component of treatment for these patients.

Friedlaender You are absolutely correct.

Chu What do we provide here at the Yale Cancer Center with respect to these services?

Friedlaender We are outstanding on a spectrum of support needs. Some people call these ancillary services, but I think that belies their critical importance. From social services and psychological support groups to physical therapists and occupational therapists; they help design and monitor muscle-strengthening programs, which are very important.

Chu As you know my good friend and co-host, Dr. Ken Miller, heads our survivorship clinic. I think that the services he provides would encompass your patients with sarcoma as well. If you have questions for Dr. Gary Friedlaender, or for Healthline, we encourage you to visit our website, [www.YaleCancerCenter.org](http://www.YaleCancerCenter.org) for more information about cancer and the resources available to you. Before we sign off Gary, what are some key messages that you would like to share with listeners about sarcomas?

Friedlaender Lumps and bumps are very common and they are usually harmless, but you have to be your own advocate. You have to be aware of these changes when they occur, and you should bring them to the attention of your primary care physician so they can refer you to someone that will understand the nature of both benign and malignant lumps. The second message is that we have some outstanding solutions to some very difficult problems that exist today. When I started, the survivorship for osteosarcoma was 10%. Today it is 80-90%. I am very pleased and excited about the future.

Chu Gary, it's been great having you and we hope to hear more from you in the future. I would like to thank Dr. Gary Friedlaender for joining us today on Healthline. Remember, tune into WTIC NewsTalk 1080 every Sunday morning at 8:30 a.m. for Healthline with the Yale Cancer Center. Our next program will feature Dr. Jack van Hoff, discussing the issues surrounding pediatric oncology. Until then, this is Dr. Ed Chu from the Yale Cancer Center wishing you a safe and healthy week.