



*Hosts*

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## Treatment for Esophageal Cancer

### Guest Experts: Dan Boffa, MD

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## Yale Cancer Center Answers

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*Welcome to Yale Cancer Center Answers with doctors Francine Foss and Lynn Wilson. Dr. Foss is a Professor of Medical Oncology and Dermatology, specializing in the treatment of lymphomas. Dr. Wilson is a Professor of Therapeutic Radiology and an expert in the use of radiation to treat lung cancers and cutaneous lymphomas. If you would like to join the conversation, you can contact the doctors directly. The address is [canceranswers@yale.edu](mailto:canceranswers@yale.edu) and the phone number is 1-888-234-4YCC. This week, Lynn welcomes Drs. Nicholas Shaheen and Dan Boffa. Dr. Shaheen is Associate Professor of Medicine and Epidemiology at the University of North Carolina School of Medicine and School of Public Health and Director for the Center of Esophageal Diseases and Swallowing at the University of North Carolina. Dr. Boffa is Assistant Professor of Surgery in the Section of Thoracic Surgery at Yale School of Medicine.*

Wilson Let us start off by having you both tell us a little bit about what esophageal cancer is? Would you like to get us started Dr. Shaheen?

Shaheen Sure, esophageal cancer is a cancer that originates in your food tube, which is essentially the tube below your mouth and above your stomach, which is the conduit after you swallow something where the food passes before it hits your stomach. That area is exposed to a lot of different environmental insults especially if you smoke or drink, and of course, if you have reflux, all the acids and the things that are in your stomach splash up into your esophagus and all of those can have an effect that that can culminate in cancer in some unlucky people.

Wilson Tell us a little bit about your background and your training and how you became interested in this subject?

Shaheen I am a gastroenterologist and I am trained in epidemiology, and one of the really interesting things as I was going through my training was looking at this issue of this cancer that has been increasing dramatically in incidence in the United states and not really understanding why this was happening and trying to getting a handle on what is really going on. It became a natural area for somebody that works in the area I do to say, well that might be something interesting to study, so I became attracted to esophageal cancer because of this very unfavorable epidemiology. This cancer has gone up six fold since 1975, which is very unusual for cancers in the United States.

Wilson Tell us about your training. Did you have to do an internal medicine residency first then specialized training in gastroenterology?

Shaheen I did an internal medicine residency that was three years and then I did a GI fellowship and then I did an NIH fellowship in epidemiology, which is essentially the study of patterns of disease.

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- Wilson Dr. Boffa, tell us a little bit about some of the symptoms of esophageal cancer. What might a patient present with?
- Boffa With esophageal cancer most patients come to our attention because they are feeling the sensation of food not passing completely from the esophagus into the stomach, what we refer to as dysphagia, just the sensation of things getting stuck. It can also be painful to swallow, and a worsening in heartburn type symptoms can also come along with these symptoms. When patients do experience those symptoms and if there is weight loss associated with them, that is towards the more advanced stage, but certainly a stage that is still curable. Ideally we would rather capture patients when they are without symptoms. The way that we have able to do that is through screening programs where patients who have certain risk factors for esophageal cancer are specifically evaluated endoscopically, having a camera placed in their esophagus at regular intervals, and having biopsies taken. We are able to capture patients with esophageal cancer before symptoms develop, and as a result, it is at a stage where they are much more likely to be cured. I often tell patients that esophageal cancer is a tough cancer, and what I mean by that is at every stage, there's stage I, II, III, and IV, the chances of esophageal cancer shortening a life are higher, stage for stage, than most other cancers. Of all of the different tumor types where screening is potentially available, it is particularly appealing in esophageal cancer because it is such a tough cancer.
- Wilson Are there certain age groups where it is more common, and what about gender predilection?
- Boffa It is one of those things where the majority of patients are in their sixth or seventh decade, but patients are getting younger and younger and that matches some of the epidemiology of risk factors. People are having reflux earlier and for longer periods of time, people are becoming morbidly obese or significantly overweight earlier in their lives for a longer period of time, and I have unfortunately recently operated on patients with esophageal cancer in their 20s and 30s, something we really did not see much of 10 to 20 years ago.
- Wilson Dr. Shaheen, tell us a little bit about the Center for Esophageal Diseases and Swallowing at the University of North Carolina? Who's involved with that? What is the program? What is it like for a patient to come in the door of the program?
- Shaheen There are many physicians that are interested in esophageal diseases and they come from a variety of different backgrounds, people like myself and Dan, as well as ear, nose, and throat people, pulmonary specialists, and radiologists with a special interest in this part of the body. There are a variety of physicians that have an interest and give care to people with esophageal diseases. Unfortunately, for largely historical reasons, these people tend to be scattered in different

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departments throughout the major medical centers such as UNC or Yale. The goal behind the Center for Esophageal Disease and Swallowing was to bring all those people in one place. We serve a community that is very geographically spread out and it is very difficult for our patients to get in. Our hope was to consolidate care and give better care and have one stop shopping for these individuals by having everybody that has a special interest in these diseases meet in the same place, work on the same patients, have collaborative discussion, and as opposed to coming three different times to see three different people, they need one afternoon perhaps to get two consultations, plus a diagnostic test like an upper endoscopy or a barium study if that is necessary, and perhaps even be given an evaluation by ENT with a laryngoscopy. It is all about streamlining their care, improving their care by getting the right people to the right place at the right time, and hopefully making it a more patient centered experience.

Wilson Dr. Boffa, tell us a little about the Thoracic Oncology Program at Yale. It is a little bit different but the concept is similar, I think.

Boffa It is a streamlining of the various physicians who bring something to the table to care for certain disease processes. The Thoracic Oncology Program sees mostly patients with lung cancer, and lung cancer is much more common cancer than esophageal cancer. It really takes a commitment on the part of the hospital to organize multidisciplinary teams for tumor types that are less common like esophageal cancer. Just to give you some perspective, there are 200,000 new lung cancers a year in the United States where there are only 17,000 esophageal cancers, so to put together a team for that concentrated on rare tumor types really is a testament to the hospital's commitment to tackling the really challenging cancer types, esophageal cancer being one of them. Certainly the University of North Carolina has made that commitment and that is something Yale has done with esophageal cancer and other tumor types because I really think that is the only way to deliver complete care in a timely fashion, because people do not want to wait once you have the diagnosis of esophageal cancer, you want to move quickly.

Wilson We have talked a little bit about risk factors, but let's move ahead to making the actual diagnosis. Dr. Shaheen, say somebody has some difficulty swallowing, they get that sensation of food getting stuck, and their regular physician sends them to see you, as a gastroenterologist. What sort of procedure or recommendations would you make next?

Shaheen The initial investigation for somebody who has difficulty swallowing is usually an upper endoscopy. Someone who comes in with difficulty swallowing is demonstrating what we call an alarm symptom, meaning a symptom that you really need to be worried about because sometimes it is associated with a really bad problem such as esophageal cancer, such a patient would get a pretty timely investigation, and would probably get their first study within a week or two of

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presenting, and during that study, what we would do is put in an IV and give you a little medicine to make you sleepy, and after we get you nice and comfortable, we will have you swallow down the scope, which is about as big as your pinky finger, it has a light and a camera on the end of it, and it has got a channel that allows us to take tissue samples. We will go down and usually the inside of the lining of the esophagus is supposed to be nice and smooth, kind of like the palms of your hand, but what we see in people that have a cancer is almost like a little wart or nodular growth on the inside of the esophagus and it has a very characteristic appearance. The image is not enough to make a diagnosis. At that point, we would take the tissue samples, and generally speaking we would take multiple tissue samples, perhaps a dozen or even more, and that is done by means of a little tweezers type thing that goes through the scope. We would get those samples back, they would go to the pathologist, and the pathologists would tell us what we are dealing with. Occasionally, something can look like cancer, and not be a cancer, or not yet be a cancer, it could be just a little bit of nodularity, this is not dysplasia, but oftentimes, unfortunately, we get the word that the patient has cancer.

Wilson And then what would happen at that point?

Shaheen At that point, we would try to do more what is called staging. And what staging means is we now know that the patient has cancer, but what we do not know how advanced that cancer is, and as Dan was saying a minute ago, if you don't know the stage or the degree of seriousness of the cancer essentially, you do not really know the best way to treat it. So we would do a variety of tests including a PET/CT scan, which is essentially just a special kind of x-ray to show us if the tumor is very localized in just that little location or if it is occasional or if it is perhaps metastasized to another part of the body. We may do something called an endoscopic ultrasound, which is a very similar to ultrasounds that people have, for instance, when they are pregnant except the ultrasounds actually done from inside the patient from the end of an endoscope, and that lets us know the depth of invasion of the cancer, and whether not the lymph nodes or other problems. So when might do a variety of tests depending on the findings of those and the whole point of that would be to give an idea of how widely spread this cancer is, how deeply the cancer has invaded into the person's body.

Wilson So Dr. Boffa, at that point, after we have the staging information and say we have got a situation that is fairly localized to the esophagus, maybe just the neighboring lymph nodes, what would happen at that point? What are some of the treatment options? What kind of physicians might be involved in one of these multidisciplinary clinic evaluations?

Boffa Any cancer that is more than very, very shallow would be treated with a combination of surgery chemotherapy and radiation. Surgery and radiation attack the tumor where we can see it or where

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it started and chemotherapy travelling to the blood stream attacks the cancer where we cannot see it. Most patients, unless they have extremely shallow tumors, run a real risk of having lymph nodes involved and therefore, because the lymph nodes have been involved, we are concerned about microscopic cancer that we cannot see. So we would start off by giving them chemotherapy and radiation that usually lasts about six weeks, then we follow that up with another PET scan to make sure everything is okay, and then we talk to them about surgery and surgery is a big one.

Wilson We are going to take a short break for a medical minute. Please stay tuned to learn more information about esophageal cancer with Dr. Shaheen and Boffa.

*Medical  
Minute*

*This year over 200,000 Americans will be diagnosed with the lung cancer and in Connecticut alone there will be over 2000 new cases. More than 85% of lung cancer diagnoses are related to smoking and quitting even after decades of years can significantly reduce the risk of developing lung cancer. Each day patients with lung cancer are surviving. Thanks to increased access to advance therapies and specialized care. New treatment options and surgical techniques were giving lung cancer survivors more hope than they have ever had before. Clinical trials are currently underway at federally designated comprehensive cancer centers like the one at Yale to test innovative new treatments for lung cancer. An option for lung cancer patients in need of surgery at Yale Cancer Center is a video-assisted thoracoscopic surgery, also known as a VATS procedure, which is minimally invasive technique. This has been a medical minute. More information is available at [yalecancercenter.org](http://yalecancercenter.org). You are listening to the WNPR Health Forum on the Connecticut Public Broadcasting Network.*

Wilson Welcome back to Yale Cancer Center answers. This is Dr. Lynn Wilson and I am joined by my guests today, Dr. Shaheen and Dr. Boffa and we are discussing esophageal cancer. So Dr. Boffa tell us a bit more about what the operation entails, I know there are a variety of types of operations that can be used to manage the patient with esophageal cancer.

Boffa The operation this is most commonly performed for esophageal cancer is removing two thirds of the esophagus and about a third of the stomach, and it is one of the bigger operations that a human being can actually have performed on them, and it's hands down the most intimidating part of esophageal cancer care and one of the hardest things for the patients to face when this diagnosis is made. The good news is surgery for esophageal cancer has become a lot safer over the past ten years, and it has become less invasive. One of the real advances is the minimally invasive esophagectomy and much like, when you have your gallbladder removed, it is all done with cameras and little instruments. The entire esophagectomy can now be performed minimally invasively. That is done by making little incisions in the belly and little incisions in the chest and

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using the camera to accomplish the same goals, as we used to do through the bigger incision. The key of course with any cancer operation is to cure the cancer, and so it is very important to approach this with the same principles that have been born out of the past 50 years of cancer surgery, which is to get all the lymph nodes and to really clean out all the tissues around the esophagus. Esophageal cancer surgery is one of the operations that really should be done at centers that do the surgery often. It is one of the operations where the chances of having a bad outcome are much higher, if it is not done with some frequency, and we have built a real team at Yale and it involves the nurses, the respiratory care physicians, the nutritionists, the physician's assistants, all play a role in making the operation safe. The one question I am often asked is what is life after an esophagectomy like, because it is a big rearrangement of the plumbing, so to speak. The good news is ultimately, and it takes about six months to get there, but patients eat and drink very normally. They are able to resume a regular diet after a couple of weeks and it takes a while to transition because the stomach does not squeeze very well, but ultimately, they are able to return to a very normal lifestyle and resume their quality of life.

Wilson How long is the patient typically in the hospital for the operation"

Boffa After a minimally invasive esophagectomy, they typically spend seven nights in the hospital. After one using a traditional incision, it is usually about ten nights in the hospital. Once you get home, it takes two to three weeks to get back to about 80% of your baseline, meaning your strength stamina energy level, the last 20% takes a couple of months. There is a real long tail to the recovery, but you are able to do a lot at 80%. People can go back to work after six weeks, but it is very variable.

Wilson We have touched a little bit on risk factors, but Dr. Shaheen could you go over risk factors in a little bit more detail and tell us about Barrett's esophagus. What is that?

Shaheen There are two major kinds of cancers that Americans get. The first one is squamous cell cancer. That cancer has been relatively flat in incidence for a couple of decades. The main risk factors for squamous cell cancer are essentially smoking and drinking. This is because of chronic irritation to the esophagus caused by those substances and eventually those people can develop squamous cell cancer. The second kind of cancer that used to be quite rare in the United States but is actually now the most common kind of cancer, is esophageal adenocarcinoma. The main risk factor far and away for that cancer is reflux. We think the chronic irritation of the bottom of the esophagus from acid coming up into your chest, eventually with time that irritation becomes pre-cancerous and then cancerous. As Dr. Boffa was saying, unfortunately because of the epidemic of obesity in the United States we are having more and more people suffering more and more reflux earlier and earlier in life. So, they are having a lot more years essentially at risk for this cancer. The issue of

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that cancer in addition to reflux is also a gender predilection much more common in men than women, for reasons that are not entirely clear to us and are not completely explained by obesity because actually rates of obesity in between the genders are not all that dissimilar.

Wilson In countries where we have not identified obesity to the same level in the United States it is well documented that they have decreased risk of esophageal cancer, are they sort of going hand in hand with each other?

Shaheen That is exactly right.

Wilson: At least for adenocarcinoma.

Shaheen Adenocarcinoma is primarily a cancer of western societies that is exactly right.

Wilson What is Barrett's esophagus?

Shaheen A second ago I alluded to the precancerous change that occurs with this chronic reflux, and the precancerous change is termed Barrett's esophagus. Barrett's esophagus is essentially a change from one kind of lining on the inside of your esophagus to another kind. Your esophagus is usually lined by what we call squamous cells, which are similar to the cells that you have on the palms in your hand. After you get this change, this precancerous change, the cells much more closely resemble the cells of your small intestine. People would not care much about that except for the fact that change implies a risk of cancer that is at least 40 times and may be as much as 120 times the general population. So, this is clearly a predisposing factor. If you are found to have this factor, we start worrying about it and we want to monitor you to make sure that you do not go on to get cancer. Now, the majority of people who have Barrett's esophagus will never get cancer. Let me say that again, the majority of people who have Barrett's esophagus will never get cancer. So, if you are told you have Barrett's esophagus this is not a death sentence, it is just something that needs to be watched because the minority will go on. How many, different in different studies, probably somewhat between 5% and 10%.

Wilson When you identify the patient who has Barrett's esophagus, what sort of followup program do you put them on? Do they get routine endoscopies and then if you find changes what do you do at that point?

Shaheen That is exactly right. We are going to put you on a scheduled plan of endoscopies. So, depending on how worrisome your precancerous changes are, we may tell you, you need to come back on a yearly basis or you need to come back every three years. At that time, the endoscopist will take

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samples from the bottom of your esophagus and they will be looking at the condition of your esophagus. If things have stayed stable or have gotten better, then they will probably keep you on the same schedule that you are on. In the small percentage that do progress, as I mentioned before, we will probably make an intervention. Traditionally, the only intervention that was available to us was surgery, and the surgery that we did for folks back then is not the minimally invasive surgery that Dr. Boffa mentioned to you. This was a much more extensive surgery, and it was tough for people to go through, especially when you realize that many times these people are later in life and they have got other medical problems that make it very difficult for them go through a big surgery like that. One of the advantages, as the surgeries for esophageal cancer have advanced so have the endoscopic therapies and we are now many many times able to get rid of those precancerous cells without removing the entire organ. We do this through a series of procedures known as endoscopic ablation or endoscopic mucosal resection. These are just fancy terms which essentially say either destroying the precancerous cells or removing them without taking out the entire esophagus.

Wilson Is there medical therapy for patients who have Barrett's? Are there medicines that you may consider putting them on to help with their acid reflux if you think that is what the problem is?

Shaheen Most patients that have Barrett's esophagus will need to be on acid suppressants. These medications, the most commonly used ones are called proton pump inhibitors, and what these proton pump inhibitors are, are medications like omeprazole, esomeprazole, lansoprazole, dexlansoprazole, pantoprazole and rabeprazole and what they do is they essentially push down how much acid you make, and the idea is that we want to decrease the inflammation that is occurring in the Barrett's because we think that predisposes you to developing cancer in it. Now, some patients we will treat with those medicines, but some patients we will actually treat with a surgical solution to the same problem which is called a fundoplication, essentially tightening up the ring at the bottom of the esophagus to better resist the acid coming up. They are two solutions, but they have the same aim, which is to try to keep the acid off the precancerous area.

Wilson Who really needs to be screened?

Shaheen As I mentioned before this is primarily a disease of males. It is primarily a disease of people that have chronic reflux, so, if your accumulating risk factors, if you have two or more these risks factors, if you have obesity especially truncal obesity, meaning that you are fat right around your middle, that seems to be risk a factor. If you are a male, if you are over the age of 50, if you have chronic heartburn symptoms. Caucasians appear to be at higher risk than African Americans. These are all the risk factors for the kind of cancer, the adenocarcinoma that I was speaking about

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before, which is the most common kind of cancer that we have. If you have two or more of those risk factors, you should at least talk with your doctor about whether or not you should undergo an upper endoscopy.

Wilson Dr. Boffa, what are some of the new guidelines that have been developed for the treatment and diagnosis of esophageal cancer or another way to ask that is what has really changed say over the last decade in both diagnosis and treatment? You mentioned minimally invasive surgery, but tell us about guidelines and what has changed?

Boffa I would say the biggest thing has been the recognition of a stage of esophageal cancer that has a more indolent behavior, which is the very-very shallow tumors and the ability to treat them with things other than surgery. At the other end of the spectrum in later stage tumors, the use of chemotherapy and radiation prior to surgery has gained support through clinical trials and at the latest stage where cancer has spread in other parts your body, the role of agents that target pathways in which tumors are addicted to growth factors much as you hear with breast cancer and colon cancer and other tumor types were blocking certain pathways with what we call targeted therapy because we have identified things that tumors are addicted to, actually works in esophageal cancer. But, I would say that with all of these forms of therapy including surgery, chemotherapy, radiation, and the endoscopic therapies; you really need somebody to help you put it all together. Just as if your house had burned down, you would not be your own general contractor if you did not know what you were doing, you would not go hire an electrician, you count on somebody to put it all together for you, and at Yale we talk about every patient so that patients do not get treated without having the perspective of everybody involved because there is a best fit for every patient and it really is to the betterment of patients to be seen at centers that provide everything.

Wilson It sounds as though there might be two patients who have similar problems and similar level of disease, but they may be treated with two different treatment programs based on what is best for them, based on what the doctor thinks, based on with the patient is willing to consider is best for them based on the side effect profile of the treatments and so on?

Boffa I think that is fair to say, I think that patients and physicians make choices based on what would be the safety profile things in a specific patient and honestly the treatment goals of patients. As doctors we fixate on keeping people around as long as possible, the patients are a lot more clever and want to be living as well as possible as long as living a long time.

*Dr. Dan Boffa is Assistant Professor of surgery in the section of thoracic surgery at Yale School of Medicine. Dr. Nicholas Shaheen is Associate Professor of Medicine and Epidemiology of the University of North Carolina School of Medicine and School of Public Health and Director for the Center of Esophageal Diseases and Swallowing at the University of North Carolina. If you have questions or would like to add your comments, visit [yalecancercenter.org](http://yalecancercenter.org), where you can also get the podcast and find written transcripts of past programs. You are listening to the WNPR Health Forum on the Connecticut Public Broadcasting Network.*