

Dr. Miguel Materin, A Focus on Ocular Oncology May 31, 2009 Welcome to Yale Cancer Center Answers with Dr. Ed Chu and Francine Foss, I am Bruce Barber. Dr. Chu is Deputy Director and Chief of Medical Oncology at Yale Cancer Center and he is an internationally recognized expert on colorectal cancer. Dr. Foss is a Professor of Medical Oncology and Dermatology and she is an expert in the treatment of lymphomas. If you would like to join the discussion, you can contact the doctors directly. The address is canceranswers@yale.edu and the phone number is 1888-234-4YCC. This evening Ed Chu welcomes Dr. Miguel Materin. Dr. Materin is an Assistant Professor of Ophthalmology at Yale School of Medicine. Chu Dr. Materin's specialty, in addition to the general field of ophthalmology, is focusing on eye cancers; cancers that specifically involve the eye. I would guess that many of our listeners probably aren't aware that the eye is an area of the body where cancer can develop. Miguel, let's start off by telling our listeners how commonly the eye is involved in terms of cancer. Materin First of all, I would like to emphasize that eye cancer is a rare condition. It's not very common; however, it can affect patients at any age and it can affect male or females equally. Chu What types of eye cancers are there? Materin Well, if we need to make a big division, we can divide eye tumors between primary tumors from the eye, which means that the tumor originates in the eye, and tumors coming from other sites of the body. Chu The purpose of our discussion this evening will be focusing on the primary eye cancers, but just briefly, can you mention a little bit about what types of cancer can spread to the eye that one would need to be aware of? Materin The most common cancers that can affect, or spread to the eye, are breast, lung, and skin cancers, skin melanoma, but I think that any cancer can spread into the eye. Chu Interesting. Let's focus on the primary eye cancers. What would be the most common primary eye cancers that you see? Materin I would like to say that 50% of the time that patient's are referred with the possibility of an eye cancer, they don't have an eye cancer. The most common intraocular cancer in adults is melanoma. The most common intraocular cancer in children is called retinoblastoma. Chu Are there any types of say chronic eye conditions that are associated with or can develop into an eye cancer? 3:23 into mp3 file [http://www.yalecancercenter.org/podcast/Answers\\_May-31-09.mp3](http://www.yalecancercenter.org/podcast/Answers_May-31-09.mp3) Materin Let's use the example of a nevus on the skin, they need to be checked by the dermatologist sometimes for life, most of the time for life. Well 6% of the white population can have a nevus in the back of the eye; only six out of a million can develop a melanoma. Chu You mentioned Caucasian's, how about say, African Americans? Materin We have seen melanomas in African Americans, in Hispanics, and even in Asians, but it is not as common as Caucasian's with blue eyes. Chu What would be the typical symptoms that an individual would present with? Materin Well, this is the hard part. I want to be very clear with everybody who is listening to this conversation. Sometimes there are no symptoms, sometimes the tumors can be found in a routine eye examination, or they can have any common ophthalmic symptoms. Now, I want to be clear, most of the time these symptoms are not due to a cancer. Chu You had mentioned that a large majority of the

patient's who would be referred to you don't have an eye cancer. What would be the reason for them being referred to you?Materin Most patients will go if they have a symptom, they will go to their local doctor, to the general ophthalmologist, and the general ophthalmologist will find the tumor and then they will refer the patient to the specialist in eye tumors.Chu Let's focus a little bit on ocular melanoma, which you say is the most common eye cancer in adults. When would it typically occur?Materin Usually it occurs at around 50 years of age. We have seen it in young kids and we have seen it in older people too, but the average age is around 50.Chu We typically think of melanoma as occurring on the skin. Is there a relationship between the melanoma in the eye, the ocular melanoma, and the skin melanoma?Materin That's a very important question, because even though they have the same name, they do not behave the same. 80% of the time melanoma occurs on the skin, and maybe 15% of the time they can occur in the eye. Most of the time they are intraocular, but they can affect any part of the eye.Chu And is the risk for developing ocular melanoma the same as the risk for developing skin melanoma?6:36 into mp3 file [http://www.yalecancercenter.org/podcast/Answers\\_May-31-09.mp3](http://www.yalecancercenter.org/podcast/Answers_May-31-09.mp3)Materin No, because to my knowledge there is a good relationship between sun exposure and skin melanoma, or any skin cancer, and it has not been proven that that is the same risk factor for ocular melanoma.Chu Do we know what causes ocular melanoma?Materin We don't know. There are certain rare conditions where the patient is at a higher risk of having a melanoma, but they are rare.Chu Are there moles, or nevus, discolorations within the eye that could predispose someone to melanoma of the eye?Materin There is a condition called melanocytosis and that's when patients have skin areas on the surface of the eye or in the back of the eye, and they have a higher risk of developing melanomas, but in general there are no other conditions.Chu We know for skin melanoma that there is a genetic component. Obviously, if a family member develops skin melanoma, then another relative is at higher risk potentially. What do we know about the genetics of ocular melanoma?Materin That's another important question. There are a lot of studies that are underway these days to find out if there is any genetic relationship. What I want to emphasize is that if a father or a mother has a melanoma, that does not mean that their offspring will have a melanoma. What has been studied is that there are some gene mutations, gene alternations, within the tumor, that look like they are a very important prognostic factor for the future of that patient.Chu Again, what are the typical symptoms that an individual who has ocular melanoma presents with?Materin There are no typical symptoms. No blurry vision, floaters, flashes, because they are very common symptoms in ophthalmology.Chu Unfortunately I see some of those floaters every day, so hopefully I don't have ocular melanoma.Materin I know, you don't.Chu But if someone has change in their vision, blurriness of vision, or floaters that just seem unusual in character, what should an individual then do?9:21 into mp3 file [http://www.yalecancercenter.org/podcast/Answers\\_May-31-09.mp3](http://www.yalecancercenter.org/podcast/Answers_May-31-09.mp3)Materin Go to their ophthalmologist and see the ophthalmologist, have a complete eye examination with dilation of the pupils and in a routine eye examination, if



the options for treatment. One option, probably the most common option in the world, is cryotherapy. Cryotherapy can be applied in two different forms, one is with what is called the plaque cryotherapy, or brachytherapy, and that consists of the application of the suture of a small 15:36 into mp3 file [http://www.yalecancercenter.org/podcast/Answers\\_May-31-09.mp3](http://www.yalecancercenter.org/podcast/Answers_May-31-09.mp3) device the size of a penny on the surface of the eye where the tumor is located. The plaque will stay in place for four or five days, depending on the size of the tumor and the amount of radiation required, and then on the second surgery the plaque is removed. Most of the time a few months later a laser called transpupillary thermotherapy will be done in the office, and that is done between two and four times; that is for local cryotherapy. The other option to develop cryotherapy to the eyes is an external cryotherapy and that is done by a radiation oncologist. Another option, unfortunately that we have to do sometimes, and it's an important option, is to remove the eye. Chu What would make you consider removal of the eye as opposed to radiation therapy? Materin Well, if the tumor is very large, for example filling 50% of the eye, or if there is no chance for vision in the future, then we will advise removing the eye. But the important thing here is that ophthalmology is the field to take care of vision. In ocular oncology, we have different priorities. The life is number one, the eye is number two, and vision is the third one. Chu With radiation therapy, is there a possibility that vision can be maintained or restored? Materin It depends on different factors such as location of the tumor, and size of the tumor, but on average, we expect that 50% of patient's will have some damage in that region. Chu Obviously if the patient needs to have their eye removed there is complete loss of vision, but is there anything that can be done afterwards in terms of cosmetics? Materin Yes, the patient will be referred to an ocularist who is an artist who will make the artificial eye, the plastic eye, trying to look make it look as much as possible like the opposite eye, and these days they have very good cosmetics. Chu For surgery, can this be done as an outpatient procedure or do patients need to be admitted as an inpatient? Materin Regarding removal of the eye, it can be done as an outpatient procedure. Chu Wow. Materin Regarding the plaques, that depends on the state regulations, some states require patients with the radioactive device to be in the hospital, in the room, and some states allow the patients to go home or to a hotel where they can be in the room for four or five days. 18:58 into mp3 file [http://www.yalecancercenter.org/podcast/Answers\\_May-31-09.mp3](http://www.yalecancercenter.org/podcast/Answers_May-31-09.mp3) Chu

What would be the general followup process, say for instance for either radiation therapy that has been done, or removal of the eye? Materin Well, since we are talking about melanoma, melanoma of the eye is a very strange condition, and my advice today would be to follow these patients for life. Chu How frequently would you as the ocular ophthalmologist be seeing these patient's in follow-up? Materin We like to work with the referring doctors. We like to see that the patient is being treated and that the early follow-ups are taken care of, then the patient needs to be seen twice a year. Chu We talked about the potential risk of ocular melanoma and skin melanoma. I am curious, since the eye is right there near the brain, is there ever an increased

risk for those patients to develop the metastasis to the brain?Materin Patient's with intraocular melanoma, when they develop, metastasis 90% of the time, and the first metastasis is usually the liver, not in the brain. The second place is the lungs, and the third place is the skin.Chu It's curious because one wouldn't think about some kind of connection between the eye and the liver. Is it known why, as you say, 90% of patients may present with metastatic involvement of the liver?Materin The spreading is through the blood, and it will go wherever it can; tumors can develop easily. I am not sure the reason why the liver is more common, but it spreads through the blood stream.Chu We have talked about ocular melanoma, let's talk briefly about the most common form of cancer in kids, which as you say is retinoblastoma. What age group do we need to worry about?Materin The most common age is the first two years of life. However, we have seen it in older kids, it's not common, but we have seen it. We could talk for days about retinoblastoma, but I will try to make things very simple for the audience. There are two different types of retinoblastoma and everything is based on the mutation in these patients. One type of mutation is called somatic mutation, and that means that the gene is wrong only in the retina. The other type of mutation is called germ line mutation, and that means that the mutation occurs very, very early and it can affect any cell of the body of those kids. This is22:27 into mp3 file [http://www.yalecancercenter.org/podcast/Answers\\_May-31-09.mp3](http://www.yalecancercenter.org/podcast/Answers_May-31-09.mp3) important because patients with the somatic mutation, it's only in the eye, and they do well. The patients who have the germ line mutation, they are at higher risk for other problems. I want to say that one hundred years ago, all these kids died. These days, more than 95% of these kids in first world countries will survive.Chu What has made such a big difference in that 100 year period?Materin The improvement in diagnosis and treatment. Sometimes, yes, we need to remove the eye in these kids, but we are saving the kids life, and they can have a very normal life seeing with one eye. They just need to wear protective glass, but they can play sports and they can have a normal life. The other options of treatment are chemotherapy, radiation, laser, and cryotherpay, and each patient, each eye, each tumor, will be treated accordingly based on the need. We are dealing with families who have reason to be concerned and to be anxious, but its teamwork and it involves the family, the pediatric oncologist, the radiation oncologist, and us.Chu Now, as you mentioned, there is a germ line mutation.Materin Yes.Chu In the retinoblastoma gene, so in theory that diagnosis could be made in the prenatal stage, or no?Materin Yes, there is debate about that too, but yes, the blood can be studied and there are good ultrasounds that can make a diagnosis early in life and everybody will be ready. But most of the time, if the father or the mother have a retinoblastoma, the kid should be seen early in life. It could be the first week, or the first month. The parents usually know they need to go to the eye doctor.Chu Miguel, could you tell our listeners, if in fact there is a concern about eye cancer or some eye condition associated with the treatment, how can they get in touch with you, how can they see you in your clinic?Materin I work at the Yale Eye Center, which is located on Temple Street in New Haven, and there

is a website where they can look for the department of ophthalmology and there is a section for ocular oncology. I also think in the near future we will be part of Yale Cancer Center's website too.

Chu In addition to seeing patients with eye cancer, we have talked in the past about how you also

26:01 into mp3 file [http://www.yalecancercenter.org/podcast/Answers\\_May-31-09.mp3](http://www.yalecancercenter.org/podcast/Answers_May-31-09.mp3) are actively involved in seeing our cancer patients who are getting various treatments that develop various eye disorders. Can you tell us a little bit about that?

Materin Yes, that's the second part of ocular oncology. The patients with systemic cancers that can spread to the eye, or they can have side effects from treatment; either radiotherapy or chemotherapy. They can have ocular side effects and we want, we would like, to take care of them too.

Chu One of the common side effects that I see in patient's with colorectal cancers, are patients who develop very dry eyes, or conjunctivitis of the eyes. What are your general recommendations in that setting?

Materin We will be working again as a team, everything in ocular oncology is a team. The cornea specialist will be involved if the orbit is involved, and I need to mention Dr. Bernardino as part of the ocular oncology team, he takes care of the orbit and eyelids, and I could mention the entire team. If we see a patient with retinoblastoma, we will be working, for example, with Dr. Salchow, who is the pediatric ophthalmologist at the eye center. If the patient has glaucoma, we will be working with Dr. Tsai, Dr. Mayer, and Dr. Shields, and I could continue with all the names. But yes, the entire group will be involved.

Chu Again, as you say, just as we deal with our disease specific cancers, with eye cancers it really is a multidisciplinary, interdisciplinary team that's involved.

Materin Yes. Absolutely.

Chu Which I think is critically important in trying to optimize the care of these patients.

Materin Yes absolutely, we totally agree with that and we spoke about this a lot and we are ready to go.

Chu Great. Real quick, what is the location of your clinic?

Materin It's 40 Temple Street, on the third floor, in New Haven.

Chu At the Yale Eye Center?

Materin Yes, at the Yale Eye Center.

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Chu You have been listening to Yale Cancer Center Answers and I would like to thank our guest expert this evening Dr. Miguel Materin for joining us.

Materin Thank you.

Chu Until next time, I am Ed Chu from Yale Cancer Center wishing you a safe and healthy week. If you have questions or would like to share your comments, go to [yalecancercenter.org](http://yalecancercenter.org) where you can also subscribe to our podcast and find written transcripts of past programs. I am Bruce Barber and you are listening to the WNPR Health Forum from Connecticut Public Radio.