Welcome to Yale Cancer Answers with your host Dr. Anees Chagpar. Yale Cancer Answers features the latest information on cancer care by welcoming oncologists and specialists who are on the forefront of the battle to fight cancer. This week, it’s a conversation about thyroid cancer with Doctor Grace Lee.

As an endocrine surgeon I remove the thyroid, parathyroid in adrenal glands for various different disorders including cancer. My areas of clinical and research interest include different minimally invasive techniques and new imaging techniques for treatment of endocrine disorders. So let’s start off by talking a little bit about thyroid cancer.
cancer awareness month. 
So tell us a little bit more about the epidemiology of thyroid cancer. 
How many people get diagnosed? 
How many people succumb to their disease? 
How common is this? 
So thyroid cancer is number wise, about the eighth most common cancer in the US, however, it only accounts for about 4% of all the new cancers being diagnosed, and people who succumb to thyroid cancer annually we guesstimate at about 2000 so it is not as prevalent as breast cancer or colon cancer, but what’s interesting is that new diagnoses of thyroid cancers have tripled in the past three decades. It is one of the most rapidly increasing cancers in the US but we believe that much of the increase owes to the fact that we’re just catching them earlier and more frequently, as mentioned before, we utilized various diagnostic imaging to further elucidate many conditions and we just catch these incidental thyroid nodules while we are just looking
into our body for different diseases. So thyroid nodules are just being caught earlier and more frequently. Some of these imaging studies that patients get include CT scans after a car accident, PET CT to survey and other cancers such as breast cancer or Melanoma, or even carotid ultrasound, to examine narrowing of the carotid arteries.

Let’s dig a little bit more into that because I find that statistic of a tripling in the rate of thyroid cancers to be really quite an awesome, not in the sense of awesome ‘awesome’ but awesome in the sense of a huge number deserving of awe.

What are the risk factors for thyroid cancer? I appreciate that you said that we think that a lot of this is just because of an increasing rate of detection, but help us to understand what are the etiologic causes of thyroid cancer? That’s an excellent question, if we can actually get down to the bottom of why thyroid cancer happens perhaps we can even prevent it, so there have been many studies that have been performed to characterize who are the folks that are getting thyroid cancer.

Why we are catching
Some of the risk factors for thyroid cancer include being a woman and of the Asian race and age between 25 to 65 years old. Although we do see some extreme distribution of ages, such as pediatric population versus very advanced age population. And also having had prior radiation treatment to the head and neck area as a child or having had environmental radiation such as a nuclear accident. And having a family member with history of thyroid disease or enlarged thyroid or thyroid cancer. And again, the detection catches incidental thyroid nodules. Not necessarily thyroid cancer. So most of these thyroid nodules turn out to be benign nodules. But because we’re catching benign nodules, we are also seeing the increase of thyroid cancer. When you talk about the risk factors, a lot of the things you mentioned are things that we cannot change. Being a woman, your age,
your race or ethnicity, your family history. And the things that are other risk factors, exposure to radiation, nuclear accidents, thankfully, not many of us, I think, can claim to have that, and certainly sometimes when we're exposed to radiation due to CT scans or other things, those may be beyond our control as well.

Are there any factors that our audience might be interested in that increase or decrease your risk of thyroid cancer that you can control? Any role for that in terms of cancers? Any other factors that people could potentially control? That's very interesting question. I do occasionally have a patient who’s interested in modifying their diet to either combat the existing thyroid cancer or help their family members prevent from getting thyroid cancer. Iodine deficiency certainly can be the cause of a goiter,
an enlarged thyroid gland. But I do not believe there has been an established linkage between iodine supplementation and decreased rate of thyroid cancer. So at the current time point, I think detection and appropriate treatment will be the best course of action once one is found to have thyroid cancer.

Getting back to that original statistic, this tripling of thyroid cancers, it doesn’t seem that there has been a tripling of nuclear accidents. If anything, I think our nuclear exposures have generally declined, as safety protocols have improved, one wouldn’t think that there would have been a difference in terms of age or gender or race over the last few decades where we’ve seen this tripling and so that brings us to this whole area of detection, which you surmise is really the thing at the driving seat of this tripling of thyroid cancer. Has anybody looked at that? Has the rate at which we are imaging people increased at that same proportion? So in other words we all know that there’s been this burgeoning of technology. And we seem to do more imaging.
nowadays than we used to. At least that’s how it feels anecdotally. But has anybody looked at that to see whether these two trends are parallel?

Yeah, I believe so.

So in much of thyroid cancer literature, we always attribute the partial rapid increase in thyroid cancer being prevalent to essentially the detection, in leading to earlier diagnosis, not necessarily more aggressive treatment, we have been scaling back down on the resection of these thyroid cancers. So not all thyroid cancers lead to surgery, but it is certainly true that there is clear correlation between the utilization of imaging studies in multiple different aspects. And also perhaps patient awareness in clinician exam skills being improved lead to detection of the thyroid nodules and go down the pathway of thyroid cancer detection. Let’s talk a little bit about that because as you say, not all thyroid nodules that may be picked up incidentally, either on imaging or on physical exam are actually a cancer. So let’s suppose somebody does have a scan done for whatever reason.
and the thyroid nodule is found. How do we get from incidental thyroid nodule to making a diagnosis of cancer? How does that work? Yeah, so as we mentioned, it is not uncommon that we just stumble upon a thyroid nodule being mentioned on a CT scan that a patient may have gotten for neck pain or just to rule out lung nodules etc. So after initial detection of the thyroid nodule on a different modality, we do a comprehensive neck ultrasound as the gold standard exam. If the patient does not have recent thyroid function that was drawn with a routine yearly checkup. So after the ultrasound is obtained, we can then detect whether the thyroid nodule is of the appropriate size and if that nodule has specific ultrasound characteristics that make us worried about that thyroid nodule being cancerous. And if we give that thyroid nodule appropriate numbers and if we surmise that the nodule is meeting the biopsy criteria, then what we usually do is a fine needle aspiration biopsy under the guidance of ultrasound.
to have our pathologists then take a look at some of the cell samples obtained from their thyroid nodule. So let’s flush that out a little bit. You mentioned that there are some size criteria, some morphologic criteria that you look at in terms of a thyroid nodule to kind of gauge your suspicion as to whether this could be malignant or not, tell us a little bit more about what those criteria are. What are the things that make you worried that a thyroid nodule could be cancer? Yeah, so generally speaking we worry about bigger thyroid nodules. That’s generally speaking. And how big is big grade? We consider anything less than 1 centimeter as kind of microterritory and 1 centimeter or greater at least meets the size criteria. If the thyroid nodule looks worrisome enough on the ultrasound and some of the worrisome features are the thyroid nodule being solid rather than mostly fluid, what we call cystic and it has what we call hypoechoic characteristic we call hypoechoic characteristics onto ultrasound microcalcifications irregular borders taller than wide, etc.
So we radiologists are very familiar with assigning certain points to these thyroid nodules to see if this is thyroid nodule should then proceed to the biopsy stage or this thyroid nodule looks to be pretty innocuous. Although it is 2 centimeters or three centimeters, and perhaps we can watch it. And so we’re going to pick up on this conversation about what happens once that diagnosis of thyroid cancer is made right after we take a short break for a medical minute. Please stay tuned to learn more about the care of patients with thyroid cancer with my guest doctor Grace Lee. Support for Yale Cancer Answers comes from Smilow Cancer Hospital, where an individualized approach to prostate cancer screening is used to determine which men are eligible and would benefit from screening. To learn more, visit Yale Cancer Center dot org slash screening. Genetic testing can be useful for people with certain types of cancer that seem to run in their families. Genetic counseling is a process that
includes collecting a detailed personal and family history or risk assessment and a discussion of genetic testing options. Only about 5 to 10% of all cancers are inherited, and genetic testing is not recommended for everyone. Individuals who have a personal and or family history that includes cancer at unusually early ages, multiple relatives on the same side of the family with the same cancer, more than one diagnosis of cancer in the same individual, rare cancers or family history of a known altered cancer predisposing gene could be candidates for genetic testing. Resources for genetic counseling and testing are available at federally designated comprehensive cancer centers such as Yale Cancer Center and Smilow Cancer Hospital. More information is available at yalecancercenter.org. You’re listening to Connecticut Public Radio. Welcome back to Yale Cancer Answers. This is doctor Anees Chagpar and I’m joined tonight by my guest Doctor Grace Lee. We’re talking about the care of patients with thyroid cancer in
honor of Thyroid Cancer Awareness
Month and right before the break, Grace was telling us this amazing statistic that thyroid cancers have actually tripled in recent history, in large part due to an increase in standard imaging. So we're stumbling upon these incidental thyroid nodules, which, if they're large enough, and if they have certain morphologic features on ultrasound, are warranting a biopsy and that biopsy can sometimes reveal thyroid cancers. So Grace, before the break you were mentioning that thyroid cancer is not a uniform disease. It's not homogeneous. Not all thyroid cancers are treated the same. So tell us a little bit more about that. First of all, are there different kinds of thyroid cancer? And second of all, how does that impact what you do next? There are about four different major types of thyroid cancers. The good news is that the most common thyroid cancer known as papillary thyroid cancer actually carries the best prognosis.
So most people, about 90% of the patients that I treat come in with papillary thyroid cancer, and the rest, 10% comprise of other follicular medullary or anaplastic thyroid cancers. And other good news is that seven out of those ten patients recently diagnosed with thyroid cancer come in with the cancer that is well behaving, meaning their cancer has not actually spread outside of the thyroid. So most of the people who get the diagnosis of thyroid cancer, although it is quite terrifying, should be reassured that as long as we treat them the right way they’re going to be enjoying excellent prognosis. Tell us a little bit more about that, I mean 90% of patients have papillary cancers which have a good prognosis. Of those, 70% are well behaved, but these patients still require treatment, right? Or is it that thyroid cancer has now gone the way of other cancers in terms of watchful waiting? That’s a hotly debated very individualized choice, but the
mainstay treatment for thyroid cancer, first and foremost is surgical, or if the cancer has gone outside of the thyroid, then we would treat by removing the entire thyroid as well as the involved lymph nodes. Watchful waiting in the thyroid world, we call that active surveillance. We can sometimes employ that approach, which is another right answer to this thyroid cancer management. We can go active surveillance route if the papillary thyroid cancer, the well behaving thyroid cancer happens to be less than one centimeter. So if there is no risk of this cancer invading into the nerve or the cancer going outside of the thyroid is well cushioned by normal thyroid and the patient is very motivated and reliable to comply with this active surveillance program. We can certainly go that route, but any thyroid cancer that is between one centimeter to 4 centimeter can go either half of the thyroid containing that cancer or the entire thyroid to be removed. So there are multiple right answers. Let me just pick up a couple of things there.
So the first thing is in terms of active surveillance. This is for people who have papillary cancers that are well differentiated that are less than one centimeter.

What does active surveillance actually entail? Is this an ultrasound every six months to make sure that this thyroid nodule isn’t growing? Is it blood work? Is it CT scans?

It would mean actively monitoring the size or the growth changes of that biopsy known micro papillary thyroid cancer and is some clinician dependent, but usually about every six months to a year ultrasound exam and the thyroid cancer is not something that we follow on laboratory values. It’s heavily image independent and sometimes even a neck CT is utilized to pick up on lymph node spread a little bit more closely. It is what’s called a wolf in sheep clothing by one of my mentors because even micro papillary cancer can spread to nearby lymph nodes in the thyroid cancer world.
necessarily mean worse prognosis. However, it is more advanced or at least local, regionally advanced disease. So we treat those folks almost as equally as someone who has bigger cancer and the folks that I’m talking about are patients under active surveillance and by watching them carefully, it may earn them, or it may buy them an extra five years extra 10 years with their own thyroid. And surgical treatment always is an option. But generally speaking, if the size of that micro cancer changes by about 3 millimeters, we say, well, OK. I think it’s time to intervene, and most of the studies on active surveillance comes out of Japan and their long term result is actually quite excellent. So you really are watching these people very closely. I mean, even 3 millimeters doesn’t sound like a whole lot to the people who are listening to our show today, I’m sure, but really that is going to trigger you moving to a more aggressive surgical approach.
as opposed to active surveillance.

My next question has to do with that surgical approach. You mentioned that for people who have larger tumors, so larger than one centimeter, you could do a partial thyroidectomy, take out just that part of the thyroid that had the cancer. Or you could take out the whole thyroid and you said this is really a decision that’s made by the team and is personalized what factors go into deciding what kind of an operation a patient should have?

One would think that it’s a big difference between having only part of your thyroid removed and having your whole thyroid removed? Yes, this is a discussion that I get to have multiple times a week, so I usually talk about the benefits first. This is a change that the American Thyroid Association instituted in 2015 because there is such an increase in the prevalence of thyroid cancers, so perhaps a less aggressive approach is warranted, as I think what the experts were thinking, so the benefit of only removing half of the thyroid that contains cancer.
is that there is a pretty good chance that the remaining thyroid may be able to pick up the missing half and still give you enough thyroid hormone.

So if you lose the entire thyroid, you will have to take a thyroid hormone supplementation pill everyday. But if you have at least half of a thyroid, that is normal remaining in you, there is a pretty good chance that you may be able to avoid the medication aspect, so that’s one plus.

And although the thyroid surgery is very safe when done in expert hands and known to have very low complication rate it will double the amount of thyroid resection and obviously put you at double the risk of complications, so those are some of the things that we discuss.

Obviously if one thyroid nodule was biopsied happens to have some genetic mutations, such as a brief V600 E mutation. Or if the patient has Hashimoto’s thyroiditis, has a family history of thyroid cancer, or has another sizable nodule on the other side, then maybe it’s better for us
0:26:10.94 –> 0:26:13.6 to do an up front
0:26:13.6 –> 0:26:16.75 total removal of the thyroid so
0:26:16.75 –> 0:26:19.732 we can catch perhaps multiple
0:26:19.732 –> 0:26:22.308 spots of thyroid cancer,
0:26:22.31 –> 0:26:25.448 which is a pretty well known
0:26:25.448 –> 0:26:28.46 phenomenon in thyroid cancer patients.
0:26:28.46 –> 0:26:31.449 So those are some of the considerations
0:26:31.449 –> 0:26:33.883 when we discuss should we take
0:26:33.883 –> 0:26:36.668 out half or the entire thyroid?
0:26:36.668 –> 0:26:38.219 And of course,
0:26:38.22 –> 0:26:41.508 if the patient happens to have
0:26:41.51 –> 0:26:43.422 the lymph node spread
0:26:43.422 –> 0:26:45.334 already outside the thyroid
0:26:45.334 –> 0:26:48.077 and then the discussion is OK,
0:26:48.08 –> 0:26:51.352 we should just go ahead and remove the
0:26:51.352 –> 0:26:53.641 entire thyroid and the compartments
0:26:53.641 –> 0:26:56.86 where the diseased lymph nodes are and
0:26:56.87 –> 0:26:59.845 so it sounds like if the thyroid
0:26:59.845 –> 0:27:01.86 is otherwise pretty healthy,
0:27:01.86 –> 0:27:05.23 no Hashimoto’s, no other nodules
0:27:05.23 –> 0:27:09.715 and the thyroid cancer itself has
0:27:09.715 –> 0:27:13.11 not spread to lymph nodes.
0:27:13.11 –> 0:27:15.497 But still is more than one centimeter.
0:27:15.5 –> 0:27:17.29 It sounds like your general
0:27:17.29 –> 0:27:19.08 recommendation is a partial thyroidectomy.
0:27:19.08 –> 0:27:19.689 Is that right?
0:27:24.78 –> 0:27:26.748 So far we’ve been
0:27:26.748 –> 0:27:28.06 talking about papillary cancers,
0:27:28.06 –> 0:27:29.876 if it was one of the other kinds,
0:27:29.88 –> 0:27:31.88 the follicular, the medullary,
0:27:31.88 –> 0:27:32.88 the anaplastic,
0:27:32.88 –> 0:27:34.806 that 10% that we were talking
0:27:34.806 –> 0:27:36.999 about at the top of the show,
0:27:37 –> 0:27:38.35 does that change your mind?
0:27:38.9 –> 0:27:42.508 Yes, so in the case of medullary thyroid
0:27:42.508 –> 0:27:44.82 cancer, thank goodness is pretty rare,
0:27:44.82 –> 0:27:50.156 but there is a genetic disposition and the
0:27:50.16 –> 0:27:53.52 cancer itself portends to worse prognosis.
0:27:53.52 –> 0:27:57.28 We would be doing at minimum total thyroid
0:27:57.28 –> 0:28:00.541 surgery and what’s called central neck
0:28:00.541 –> 0:28:03.883 lymph node dissection from the get go.
0:28:03.89 –> 0:28:06.62 So the extent that we talk
0:28:06.62 –> 0:28:09.147 about for different types of
0:28:09.147 –> 0:28:11.599 thyroid cancer very drastically.
0:28:11.6 –> 0:28:14.197 And of course in the case of
0:28:14.197 –> 0:28:15.31 anaplastic thyroid cancer,
0:28:15.31 –> 0:28:19.076 if the patient is a surgical candidate,
0:28:19.08 –> 0:28:22.713 then we can certainly attempt to reset
0:28:22.713 –> 0:28:26.369 or debulk the bulk of the disease.
0:28:26.37 –> 0:28:29.345 But the unfortunate part is that anaplastic
0:28:29.345 –> 0:28:31.81 thyroid cancer is often incurable.
0:28:32.53 –> 0:28:34.833 Doctor Grace Lee is an assistant professor
0:28:34.833 –> 0:28:37.528 of surgery at the Yale School of Medicine.
0:28:37.53 –> 0:28:39.19 If you have questions,
0:28:39.19 –> 0:28:41.265 the addresses cancer answers at
0:28:41.27 –> 0:28:43.826 yale.edu and past editions of the
0:28:43.826 –> 0:28:46.345 program are available in audio and
0:28:46.345 –> 0:28:47.774 written form at yalecancercenter.org.
0:28:47.774 –> 0:28:50.366 We hope you’ll join us next week to
0:28:50.366 –> 0:28:52.338 learn more about the fight against
0:28:52.338 –> 0:28:53.933 cancer here on Connecticut Public
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