

**SPEAKER:**

So a little bit of imaging. I think I'm talking slowly enough to make up for the fast time that everyone else went. But imaging is pretty important. But it's important for the surgeon only, just to remind you again. I'll go over just a few of the studies that are done.

The most commonly thought of parathyroid imaging study is called the Sestamibi scan. It's a nuclear imaging test. Maybe its correlative would be a PET scan or something like that. It used to be studied as a cardiac stress test, sort of like a [INAUDIBLE] or something like that, but they found that this particular tracer works better for parathyroid, so they start using it for that. Even so, it's only about 70% to 80% accurate. And the test itself takes about four to five hours, because you need to have the thing injected, you have their scan, then you wait a few hours and you come back and get the scan. Because you need to see how long the parathyroid may be holding onto this radiotracer.

The other traditional imaging study is the neck ultrasound, and you typically like to see this black oval shaped thing. And as you can imagine, sometimes that doesn't work. So that's also about 80% accurate, depending on what institution you're at.

Still, you use the combination of those two scans because they can be very helpful when they're positive, and they agree with one another. If they do, there's a 96% chance that that is the main guy. If you just make a small incision, and take that one out, the other glands are normal and the patient's cured.

I'll skip this slide

I did want to mention, one of the things that's great about our institution is that we can have multidisciplinary research efforts, and we're very excited about this new imaging study that's basically offered only at UCSF, in this country. It's called a PET/MRI. It's a combination of a PET, which is used typically for cancers, and an MRI scan. And we use a different kind of radiotracer, or not FDG but fluorocholine. And that was originally studied for prostate cancer in Europe, and then the investigators there started to see some false positive results high up in the neck in some patients that happen to have hypercalcemia.

So, guess what, they found that there was a pretty good tool for parathyroid disease. We're the one site in the country that's currently offering it, right now, under an FDA investigational exemption. And our first pilot studies have been remarkably good. We're hoping that this

becomes paradigm changing, potentially replacing some of the imaging studies that we're doing right now.

This is one of the examples. So the top three-- actually the bottom left, is a Sestamibi scan may give you. That's pretty non-specific. It's a negative study. The things that are lighting up are what normally would light up in the neck, so that's around here.

I direct you to the right side, on the right bottom, which is a fused PET and an MRI image, and you could basically see the light bulb. That's a parathyroid tumor that's located in an unusual location, again. Someplace where the first surgeon may not have looked at. This is high up next to the carotid artery, which is also a location that the parathyroid can be in.

Studies such as this, really, thankfully, supports our designation as one of the more advanced parathyroid centers in the country, and we have to also acknowledge the radiologists that have brought this technique in existence.