WEBVTT

NOTE duration:"00:58:12.2000000"

NOTE recognizability:0.806

NOTE language:en-us

NOTE Confidence: 0.835171654545454

00:00:00.000 --> 00:00:00.432 Introduce myself.

NOTE Confidence: 0.835171654545454

00:00:00.432 --> 00:00:02.580 I I think some of you know me already.

NOTE Confidence: 0.835171654545454

00:00:02.580 --> 00:00:03.462 I'm Karen traga.

NOTE Confidence: 0.835171654545454

00:00:03.462 --> 00:00:05.226 I'm one of the new surgical

NOTE Confidence: 0.835171654545454

00:00:05.226 --> 00:00:07.080 oncologists here and came as the

NOTE Confidence: 0.835171654545454

00:00:07.080 --> 00:00:08.580 division Chief of Surgical Oncology.

NOTE Confidence: 0.835171654545454

00:00:08.580 --> 00:00:10.677 So it's really nice to meet all of you.

NOTE Confidence: 0.835171654545454

00:00:10.680 --> 00:00:13.112 And it is also my privilege to introduce

NOTE Confidence: 0.835171654545454

00:00:13.112 --> 00:00:16.120 one of us who's going to be speaking today.

NOTE Confidence: 0.835171654545454

00:00:16.120 --> 00:00:17.830 It's my privilege to introduce

NOTE Confidence: 0.835171654545454

00:00:17.830 --> 00:00:18.856 Doctor Courtney Gibson.

NOTE Confidence: 0.835171654545454

00:00:18.860 --> 00:00:21.128 Doctor Gibson is an endocrine surgeon

NOTE Confidence: 0.835171654545454

00:00:21.128 --> 00:00:23.120 and associate professor of surgery

NOTE Confidence: 0.835171654545454

00:00:23.120 --> 00:00:25.340 at the Yale School of Medicine.

NOTE Confidence: 0.835171654545454

00:00:25.340 --> 00:00:26.804 Courtney is an accomplished

NOTE Confidence: 0.835171654545454

00:00:26.804 --> 00:00:28.634 clinical surgeon who takes care

NOTE Confidence: 0.835171654545454

00:00:28.634 --> 00:00:30.478 of diseases of the thyroid.

NOTE Confidence: 0.835171654545454

00:00:30.480 --> 00:00:32.550 Parathyroid and the adrenal gland,

NOTE Confidence: 0.835171654545454

00:00:32.550 --> 00:00:34.490 including minimally invasive laparoscopic

NOTE Confidence: 0.835171654545454

00:00:34.490 --> 00:00:36.430 retroperitoneal scopic surgeries and

NOTE Confidence: 0.835171654545454

00:00:36.430 --> 00:00:39.510 is also the fellowship director of our

NOTE Confidence: 0.835171654545454

00:00:39.510 --> 00:00:41.870 Endocrine Surgery Program Fellowship,

NOTE Confidence: 0.835171654545454

00:00:41.870 --> 00:00:43.970 one of the premier fellowships

NOTE Confidence: 0.835171654545454

00:00:43.970 --> 00:00:45.230 in the country.

NOTE Confidence: 0.835171654545454

00:00:45.230 --> 00:00:46.810 Courtney's research interests include

NOTE Confidence: 0.835171654545454

00:00:46.810 --> 00:00:48.785 outcomes after minimally invasive surgery,

NOTE Confidence: 0.835171654545454

00:00:48.790 --> 00:00:49.885 outpatient thyroidectomy and

NOTE Confidence: 0.835171654545454

00:00:49.885 --> 00:00:51.710 parathyroidectomy is so newer sort

NOTE Confidence: 0.835171654545454

00:00:51.710 --> 00:00:53.591 of ways of thinking about how

NOTE Confidence: 0.835171654545454

00:00:53.591 --> 00:00:55.229 we take care of these patients,

NOTE Confidence: 0.835171654545454

00:00:55.230 --> 00:00:57.186 intraoperative laryngeal nerve

NOTE Confidence: 0.835171654545454

00:00:57.186 --> 00:00:59.794 monitoring and endocrine oncology.

NOTE Confidence: 0.835171654545454

00:00:59.800 --> 00:01:01.720 Courtney obtained her MD from VCU

NOTE Confidence: 0.835171654545454

00:01:01.720 --> 00:01:03.437 and was a postdoctoral research

NOTE Confidence: 0.835171654545454

00:01:03.437 --> 00:01:05.699 fellow at Shop in Philadelphia and

NOTE Confidence: 0.835171654545454

00:01:05.699 --> 00:01:07.587 completed her training in general

NOTE Confidence: 0.835171654545454

00:01:07.587 --> 00:01:09.327 surgery at Saint Barnabas and

NOTE Confidence: 0.835171654545454

00:01:09.327 --> 00:01:11.193 endocrine surgery at Scott and White.

NOTE Confidence: 0.835171654545454

00:01:11.193 --> 00:01:12.548 So it's my privilege to

NOTE Confidence: 0.835171654545454

00:01:12.548 --> 00:01:13.470 introduce Doctor Gibson.

NOTE Confidence: 0.861575976

00:01:19.100 --> 00:01:21.228 All right. Good afternoon,

NOTE Confidence: 0.861575976

00:01:21.228 --> 00:01:22.835 everybody and I thank you for

NOTE Confidence: 0.861575976

00:01:22.835 --> 00:01:23.910 the opportunity to kind of

NOTE Confidence: 0.861575976

00:01:23.958 --> 00:01:25.218 present an important topic.

NOTE Confidence: 0.861575976

00:01:25.220 --> 00:01:27.050 I think it's some cutting edge

NOTE Confidence: 0.861575976

00:01:27.050 --> 00:01:29.039 work that's being done in the

NOTE Confidence: 0.861575976

00:01:29.039 --> 00:01:30.459 management of thyroid disease.

NOTE Confidence: 0.861575976

00:01:30.460 --> 00:01:32.368 And so we're excited to kind

NOTE Confidence: 0.861575976

00:01:32.368 --> 00:01:33.981 of be implementing this in

NOTE Confidence: 0.861575976

00:01:33.981 --> 00:01:35.655 the near future here at Yale.

NOTE Confidence: 0.861575976

00:01:35.660 --> 00:01:37.116 So today's talk is going to be

NOTE Confidence: 0.861575976

00:01:37.116 --> 00:01:39.020 on the a discussion about radio

NOTE Confidence: 0.861575976

00:01:39.020 --> 00:01:41.055 frequency ablation of thyroid nodules,

NOTE Confidence: 0.861575976

00:01:41.060 --> 00:01:43.100 what current indications are and

NOTE Confidence: 0.861575976

00:01:43.100 --> 00:01:46.030 where are we headed in the future.

NOTE Confidence: 0.861575976

00:01:46.030 --> 00:01:49.198 I have no disclosures.

NOTE Confidence: 0.861575976

00:01:49.200 --> 00:01:51.167 So what we're going to do is

NOTE Confidence: 0.861575976

00:01:51.167 --> 00:01:52.010 define radiofrequency ablation,

NOTE Confidence: 0.861575976

00:01:52.010 --> 00:01:53.825 the technique on what what

NOTE Confidence: 0.861575976

00:01:53.825 --> 00:01:54.914 exactly it entails.

NOTE Confidence: 0.861575976

00:01:54.920 --> 00:01:56.325 And we'll discuss some of

NOTE Confidence: 0.861575976

00:01:56.325 --> 00:01:57.168 the current guidelines,

NOTE Confidence: 0.861575976

00:01:57.170 --> 00:01:58.982 which are largely international,

NOTE Confidence: 0.861575976

00:01:58.982 --> 00:02:01.700 but there's been a concerted effort

NOTE Confidence: 0.861575976

00:02:01.768 --> 00:02:03.700 to kind of get a consensus on

NOTE Confidence: 0.861575976

00:02:03.700 --> 00:02:04.999 management treatment guidelines

NOTE Confidence: 0.861575976

00:02:04.999 --> 00:02:06.298 for this technique.

NOTE Confidence: 0.861575976

00:02:06.300 --> 00:02:08.295 We're going to go into some more

NOTE Confidence: 0.861575976

00:02:08.295 --> 00:02:09.537 specifics about the specific

NOTE Confidence: 0.861575976

00:02:09.537 --> 00:02:11.481 technique of how to perform a

NOTE Confidence: 0.861575976

00:02:11.481 --> 00:02:13.104 thyroid RFA ablation of thyroid

NOTE Confidence: 0.861575976

00:02:13.104 --> 00:02:14.584 nodules and then briefly we'll

NOTE Confidence: 0.861575976

00:02:14.584 --> 00:02:16.932 go over some other non-surgical

NOTE Confidence: 0.861575976

00:02:16.932 --> 00:02:19.110 ablative interventions that.

NOTE Confidence: 0.861575976

00:02:19.110 --> 00:02:21.174 Can be used and and see how they

NOTE Confidence: 0.861575976

00:02:21.174 --> 00:02:22.647 compare to radiofrequency ablation

NOTE Confidence: 0.861575976

00:02:22.647 --> 00:02:24.872 and then lastly we'll discover

NOTE Confidence: 0.861575976

00:02:24.872 --> 00:02:26.713 discuss some future potential

NOTE Confidence: 0.861575976

00:02:26.713 --> 00:02:28.938 indications in the treatment of

NOTE Confidence: 0.861575976

00:02:28.938 --> 00:02:30.718 thyroid disease and particularly

NOTE Confidence: 0.861575976

00:02:30.720 --> 00:02:33.410 thyroid cancer.

NOTE Confidence: 0.861575976

00:02:33.410 --> 00:02:34.054 So first,

NOTE Confidence: 0.861575976

00:02:34.054 --> 00:02:35.986 what exactly is radio frequency ablation?

NOTE Confidence: 0.861575976

00:02:35.990 --> 00:02:37.410 It's not a new technique,

NOTE Confidence: 0.861575976

00:02:37.410 --> 00:02:39.114 that's just a newer indication for

NOTE Confidence: 0.861575976

00:02:39.114 --> 00:02:41.268 it and the management of thyroid disease.

NOTE Confidence: 0.861575976

00:02:41.270 --> 00:02:42.130 And So what it is,

NOTE Confidence: 0.861575976

00:02:42.130 --> 00:02:45.058 is it's a procedure in which a part

NOTE Confidence: 0.861575976

00:02:45.058 --> 00:02:47.950 of the a tumor or other dysfunctional

NOTE Confidence: 0.861575976

00:02:47.950 --> 00:02:50.811 tissue is ablated using the heat

NOTE Confidence: 0.861575976

00:02:50.811 --> 00:02:53.307 generated from frequency medium

NOTE Confidence: 0.861575976

00:02:53.307 --> 00:02:55.179 frequency alternating current.

NOTE Confidence: 0.861575976

00:02:55.180 --> 00:02:56.808 The radiofrequency ablation destroys

NOTE Confidence: 0.861575976

00:02:56.808 --> 00:02:58.843 targeted tissue through a combination

NOTE Confidence: 0.861575976

00:02:58.843 --> 00:03:00.973 of frictional and conduction heat

NOTE Confidence: 0.861575976

00:03:00.973 --> 00:03:03.058 that's generated from high frequency

NOTE Confidence: 0.861575976

00:03:03.058 --> 00:03:04.539 alternating electrical current,

NOTE Confidence: 0.861575976

00:03:04.540 --> 00:03:06.945 and the oscillations are typically

NOTE Confidence: 0.861575976

00:03:06.945 --> 00:03:09.350 between 200 and 1200 kilohertz.

NOTE Confidence: 0.861575976

00:03:09.350 --> 00:03:11.723 Frictional heat is created when the RF

NOTE Confidence: 0.861575976

00:03:11.723 --> 00:03:13.610 waves passed through the electrode,

NOTE Confidence: 0.861575976

00:03:13.610 --> 00:03:15.318 and they then agitate tissue ions as

NOTE Confidence: 0.861575976

00:03:15.318 --> 00:03:17.437 they try to follow changes in the

NOTE Confidence: 0.861575976

00:03:17.437 --> 00:03:19.102 direction of the alternating current.

NOTE Confidence: 0.861575976

00:03:19.110 --> 00:03:20.755 The result is an increase in the

NOTE Confidence: 0.861575976

00:03:20.755 --> 00:03:21.810 temperature of the surrounding

NOTE Confidence: 0.861575976

00:03:21.810 --> 00:03:23.310 tissue within a few millimeters

NOTE Confidence: 0.861575976

00:03:23.310 --> 00:03:24.510 of the electrode tip,

NOTE Confidence: 0.861575976

00:03:24.510 --> 00:03:26.155 and then heat conduction from

NOTE Confidence: 0.861575976

00:03:26.155 --> 00:03:28.229 the ablated area yields a slower

NOTE Confidence: 0.861575976

00:03:28.229 --> 00:03:30.054 additional form of thermal damage

NOTE Confidence: 0.861575976

00:03:30.054 --> 00:03:32.319 to the target tissue and eventually

NOTE Confidence: 0.861575976

00:03:32.319 --> 00:03:34.545 tissue that is further away from

NOTE Confidence: 0.861575976

00:03:34.545 --> 00:03:35.287 the electrode.

NOTE Confidence: 0.861575976

00:03:35.290 --> 00:03:37.425 So immediate coagulation necrosis is

NOTE Confidence: 0.861575976

00:03:37.425 --> 00:03:39.560 achieved by friction heat generated

NOTE Confidence: 0.861575976

00:03:39.629 --> 00:03:41.585 in the vicinity of the electrode.

NOTE Confidence: 0.861575976

00:03:41.590 --> 00:03:41.890 However,

NOTE Confidence: 0.861575976

00:03:41.890 --> 00:03:43.390 the tumor tissue remote to

NOTE Confidence: 0.861575976

00:03:43.390 --> 00:03:45.070 the electrode is also ablated,

NOTE Confidence: 0.861575976

00:03:45.070 --> 00:03:47.338 but at a much slower rate due

NOTE Confidence: 0.861575976

00:03:47.338 --> 00:03:48.310 to conductive heat.

NOTE Confidence: 0.861575976

00:03:48.310 --> 00:03:50.240 Friction heat is more powerful

NOTE Confidence: 0.861575976

00:03:50.240 --> 00:03:51.784 than conduction conduction heat,

NOTE Confidence: 0.861575976

00:03:51.790 --> 00:03:53.755 and although conduction heat near

NOTE Confidence: 0.861575976

00:03:53.755 --> 00:03:56.135 blood vessels is more affected by

NOTE Confidence: 0.861575976

00:03:56.135 --> 00:03:58.543 a heat sink effect whereby the heat

NOTE Confidence: 0.861575976

00:03:58.543 --> 00:04:00.388 dissipates pretty quickly because of

NOTE Confidence: 0.861575976

00:04:00.388 --> 00:04:02.929 the flow of blood through those vessels,

NOTE Confidence: 0.861575976

00:04:02.930 --> 00:04:04.856 the ablation range or the friction

NOTE Confidence: 0.861575976

00:04:04.856 --> 00:04:07.133 heat is very narrow and focused and

NOTE Confidence: 0.861575976

00:04:07.133 --> 00:04:09.296 is limited to just a few millimeters

NOTE Confidence: 0.861575976

00:04:09.364 --> 00:04:11.266 beyond the tip of the electrode,

NOTE Confidence: 0.861575976

00:04:11.270 --> 00:04:12.914 so therefore the majority of the

NOTE Confidence: 0.861575976

00:04:12.914 --> 00:04:14.889 nodule is ablated by conduction heat.

NOTE Confidence: 0.861575976

00:04:14.890 --> 00:04:16.836 This technique has been used for decades,

NOTE Confidence: 0.861575976

00:04:16.840 --> 00:04:18.478 at least 20 years or longer,

NOTE Confidence: 0.803017723333333

00:04:18.480 --> 00:04:20.104 in the non-surgical treatment

NOTE Confidence: 0.803017723333333

00:04:20.104 --> 00:04:22.134 of various solid organ tumors,

NOTE Confidence: 0.803017723333333

00:04:22.140 --> 00:04:23.502 but has only recently been applied

NOTE Confidence: 0.803017723333333

00:04:23.502 --> 00:04:25.294 to tumors of the thyroid gland and

NOTE Confidence: 0.803017723333333

00:04:25.294 --> 00:04:26.684 with the most robust experience,

NOTE Confidence: 0.803017723333333

00:04:26.690 --> 00:04:28.466 has been occurring in South Korea.

NOTE Confidence: 0.70727884

00:04:32.350 --> 00:04:34.135 For this approach, typically there's

NOTE Confidence: 0.70727884

00:04:34.135 --> 00:04:36.240 a transit ethnic approach that's used,

NOTE Confidence: 0.70727884

00:04:36.240 --> 00:04:38.616 and so in this approach the entire length

NOTE Confidence: 0.70727884

00:04:38.616 --> 00:04:41.007 of the electrode can be visualized.

NOTE Confidence: 0.70727884

00:04:41.010 --> 00:04:42.774 There's minimal exposure of the heat

NOTE Confidence: 0.70727884

00:04:42.774 --> 00:04:44.535 tip to critical structures such as

NOTE Confidence: 0.70727884

00:04:44.535 --> 00:04:46.131 the recurrent laryngeal nerve or the

NOTE Confidence: 0.70727884

00:04:46.131 --> 00:04:47.787 esophagus in the left cervical neck.

NOTE Confidence: 0.70727884

00:04:47.790 --> 00:04:48.532 And additionally,

NOTE Confidence: 0.70727884

00:04:48.532 --> 00:04:50.387 because the electrode passes through

NOTE Confidence: 0.70727884

00:04:50.387 --> 00:04:52.509 an ample amount of thyroid tissue,

NOTE Confidence: 0.70727884

00:04:52.510 --> 00:04:54.046 this prevents a change in position

NOTE Confidence: 0.70727884

00:04:54.046 --> 00:04:56.007 of the electrode as a patient speaks

NOTE Confidence: 0.70727884

00:04:56.007 --> 00:04:57.487 or swallows during the procedure,

NOTE Confidence: 0.70727884

00:04:57.490 --> 00:05:00.997 and it also prevents the leakage of

NOTE Confidence: 0.70727884

00:05:00.997 --> 00:05:03.160 ablated thyroid liquified tissue.

NOTE Confidence: 0.70727884

00:05:03.160 --> 00:05:04.400 So here you see,

NOTE Confidence: 0.70727884

00:05:04.400 --> 00:05:05.640 through the transmit approach

NOTE Confidence: 0.70727884

00:05:05.640 --> 00:05:07.285 the electrode is being introduced

NOTE Confidence: 0.70727884

00:05:07.285 --> 00:05:09.217 through the isthmus and headed over,

NOTE Confidence: 0.70727884

00:05:09.220 --> 00:05:12.676 in this case to the right thyroid lobe.

NOTE Confidence: 0.70727884

00:05:12.680 --> 00:05:14.584 And the needle is inserted a few

NOTE Confidence: 0.70727884

00:05:14.584 --> 00:05:16.073 millimeters from the border of

NOTE Confidence: 0.70727884

00:05:16.073 --> 00:05:16.997 that thyroid nodule.

NOTE Confidence: 0.70727884

00:05:17.000 --> 00:05:18.914 Because again the heat generated is

NOTE Confidence: 0.70727884

00:05:18.914 --> 00:05:21.019 going to extend beyond electrode tip.

NOTE Confidence: 0.70727884

00:05:21.020 --> 00:05:23.180 And then successively the and

NOTE Confidence: 0.70727884

00:05:23.180 --> 00:05:25.340 matters of millimeters of distance,

NOTE Confidence: 0.70727884

00:05:25.340 --> 00:05:27.671 the electrode tip is moved back to

NOTE Confidence: 0.70727884

00:05:27.671 --> 00:05:30.042 ablate the area and then it continues on

NOTE Confidence: 0.70727884

00:05:30.042 --> 00:05:32.290 to get the majority of the nodule ablated.

NOTE Confidence: 0.842458696153846

00:05:34.490 --> 00:05:36.450 In this manner you avoid this what

NOTE Confidence: 0.842458696153846

00:05:36.450 --> 00:05:38.508 we call the triangle of danger.

NOTE Confidence: 0.842458696153846

00:05:38.510 --> 00:05:40.687 So this is where the recurrent laryngeal

NOTE Confidence: 0.842458696153846

00:05:40.687 --> 00:05:42.582 nerve is located in the tracheal

NOTE Confidence: 0.842458696153846

00:05:42.582 --> 00:05:44.682 esophageal groove and on the left side.

NOTE Confidence: 0.842458696153846

00:05:44.690 --> 00:05:46.378 This depiction is actually

NOTE Confidence: 0.842458696153846

00:05:46.378 --> 00:05:47.644 the cervical esophagus.

NOTE Confidence: 0.842458696153846

00:05:47.650 --> 00:05:49.022 It's very mobile and so it can

NOTE Confidence: 0.842458696153846

00:05:49.022 --> 00:05:50.598 be on the left or right side,

NOTE Confidence: 0.842458696153846

00:05:50.600 --> 00:05:51.780 and it's important to know

NOTE Confidence: 0.842458696153846

00:05:51.780 --> 00:05:52.488 your anatomic structures,

NOTE Confidence: 0.842458696153846

00:05:52.490 --> 00:05:53.525 but typically it lies in

NOTE Confidence: 0.842458696153846

00:05:53.525 --> 00:05:54.353 the left cervical neck.

NOTE Confidence: 0.776916800666667

00:05:57.040 --> 00:05:59.476 In addition to the transmit approach,

NOTE Confidence: 0.776916800666667

00:05:59.480 --> 00:06:00.885 there's a technique called the

NOTE Confidence: 0.776916800666667

00:06:00.885 --> 00:06:02.290 moving shot technique which I

NOTE Confidence: 0.776916800666667

00:06:02.345 --> 00:06:03.660 kind of started to describe.

NOTE Confidence: 0.776916800666667

00:06:03.660 --> 00:06:05.136 And in this technique,

NOTE Confidence: 0.776916800666667

00:06:05.136 --> 00:06:07.350 the thyroid nodule is conceptually divided

NOTE Confidence: 0.776916800666667

00:06:07.411 --> 00:06:09.396 into multiple small ablation units,

NOTE Confidence: 0.776916800666667

00:06:09.400 --> 00:06:11.332 so these units are smaller at the

NOTE Confidence: 0.776916800666667

00:06:11.332 --> 00:06:13.539 periphery and then get larger as you get

NOTE Confidence: 0.776916800666667

00:06:13.539 --> 00:06:15.559 to more centralized areas of that nodule.

NOTE Confidence: 0.776916800666667

00:06:15.560 --> 00:06:18.376 The RFA procedures then perform unit by unit,

NOTE Confidence: 0.776916800666667

00:06:18.380 --> 00:06:20.585 moving the electrode tip from the most

NOTE Confidence: 0.776916800666667

00:06:20.585 --> 00:06:23.183 distal or deep location to a more

NOTE Confidence: 0.776916800666667

00:06:23.183 --> 00:06:25.173 superficial location and although this

NOTE Confidence: 0.776916800666667

00:06:25.173 --> 00:06:27.119 technique can successfully prevent.

NOTE Confidence: 0.776916800666667

00:06:27.120 --> 00:06:29.010 Nodule regrowth in a majority

NOTE Confidence: 0.776916800666667

00:06:29.010 --> 00:06:30.144 of thyroid nodules,

NOTE Confidence: 0.776916800666667

00:06:30.150 --> 00:06:31.806 there can be some undertreated portions,

NOTE Confidence: 0.776916800666667

00:06:31.810 --> 00:06:33.990 particularly if you are concerned

NOTE Confidence: 0.776916800666667

00:06:33.990 --> 00:06:35.734 about surrounding critical structures.

NOTE Confidence: 0.776916800666667

00:06:35.740 --> 00:06:37.148 So you want to be a little bit

NOTE Confidence: 0.776916800666667

00:06:37.148 --> 00:06:38.428 away from the the very border,

NOTE Confidence: 0.776916800666667

00:06:38.430 --> 00:06:40.200 the very margin margin of that

NOTE Confidence: 0.776916800666667

00:06:40.200 --> 00:06:40.790 thyroid nodule.

NOTE Confidence: 0.776916800666667

00:06:40.790 --> 00:06:42.908 So in cases of recurrence is

NOTE Confidence: 0.776916800666667

00:06:42.908 --> 00:06:43.967 usually marginal regrowth,

NOTE Confidence: 0.776916800666667

00:06:43.970 --> 00:06:45.770 but oftentimes it's not significant,

NOTE Confidence: 0.776916800666667

00:06:45.770 --> 00:06:48.078 significant enough to cause

NOTE Confidence: 0.776916800666667

00:06:48.078 --> 00:06:50.963 recurrence of symptoms in patients.

NOTE Confidence: 0.776916800666667

00:06:50.970 --> 00:06:53.484 Undertreated portions of the nodule so

NOTE Confidence: 0.776916800666667

00:06:53.484 --> 00:06:56.130 near that triangle of doom can occur,

NOTE Confidence: 0.776916800666667

00:06:56.130 --> 00:06:58.610 or in cases where the nodules are larger,

NOTE Confidence: 0.776916800666667

00:06:58.610 --> 00:07:00.686 so larger than like 20 millimeters,

NOTE Confidence: 0.776916800666667

00:07:00.690 --> 00:07:02.295 and sometimes they require more

NOTE Confidence: 0.776916800666667

00:07:02.295 --> 00:07:03.258 than one treatment.

NOTE Confidence: 0.90548972875

00:07:05.720 --> 00:07:07.024 Let's see, hopefully this

NOTE Confidence: 0.90548972875

00:07:07.024 --> 00:07:08.328 video will show here.

NOTE Confidence: 0.90548972875

00:07:08.330 --> 00:07:10.442 So this is just showing the

NOTE Confidence: 0.90548972875

00:07:10.442 --> 00:07:11.850 actual moving shot technique.

NOTE Confidence: 0.90548972875

00:07:11.850 --> 00:07:13.800 So in this approach the transmit

NOTE Confidence: 0.90548972875

00:07:13.800 --> 00:07:15.939 approach and movie shot technique are

NOTE Confidence: 0.90548972875

00:07:15.939 --> 00:07:18.273 used in combination and they're record

NOTE Confidence: 0.90548972875

00:07:18.273 --> 00:07:20.328 recommended as a standard procedure.

NOTE Confidence: 0.90548972875

00:07:20.330 --> 00:07:21.975 But it's important to note that the

NOTE Confidence: 0.90548972875

00:07:21.975 --> 00:07:23.965 best approach is the one in which the

NOTE Confidence: 0.90548972875

00:07:23.965 --> 00:07:25.205 operator is most comfortable with.

NOTE Confidence: 0.90548972875

00:07:25.210 --> 00:07:27.408 As a thyroid surgeon and in my

NOTE Confidence: 0.90548972875

00:07:27.408 --> 00:07:30.066 training we learned to do fine needle

NOTE Confidence: 0.90548972875

00:07:30.066 --> 00:07:32.126 aspirations through a different approach,

NOTE Confidence: 0.90548972875

00:07:32.130 --> 00:07:33.866 not going through the isthmus but facing

NOTE Confidence: 0.90548972875

00:07:33.866 --> 00:07:35.878 the patient so that the left side of that.

NOTE Confidence: 0.90548972875

00:07:35.880 --> 00:07:36.815 Question is what you see

NOTE Confidence: 0.90548972875

00:07:36.815 --> 00:07:37.563 on the ultrasound screen.

NOTE Confidence: 0.90548972875

00:07:37.570 --> 00:07:39.750 So whatever you're most comfortable

NOTE Confidence: 0.90548972875

00:07:39.750 --> 00:07:41.965 and way in performing your ultrasound

NOTE Confidence: 0.90548972875

00:07:41.965 --> 00:07:44.107 and your fine needle biopsy is

NOTE Confidence: 0.90548972875

00:07:44.107 --> 00:07:45.647 typically the way that you're

NOTE Confidence: 0.90548972875

00:07:45.647 --> 00:07:47.699 going to perform the RFA ablation.

NOTE Confidence: 0.90548972875

00:07:47.700 --> 00:07:49.452 The electrode is inserted via the

NOTE Confidence: 0.90548972875

00:07:49.452 --> 00:07:51.345 isthmus and the midline to lateral

NOTE Confidence: 0.90548972875

00:07:51.345 --> 00:07:53.010 direction to approach the target

NOTE Confidence: 0.90548972875

00:07:53.010 --> 00:07:54.603 nodule through either the right

NOTE Confidence: 0.90548972875

00:07:54.603 --> 00:07:56.472 or left thyroid lobe and then the

NOTE Confidence: 0.90548972875

00:07:56.472 --> 00:07:57.944 ablation proceeds from the deepest

NOTE Confidence: 0.90548972875

00:07:57.944 --> 00:08:00.108 and most remote portion of the to

NOTE Confidence: 0.90548972875

00:08:00.108 --> 00:08:01.588 the most superficial portion of

NOTE Confidence: 0.90548972875

00:08:01.588 --> 00:08:03.379 the nodule by slowly pulling back

NOTE Confidence: 0.90548972875

00:08:03.379 --> 00:08:05.297 on the electrode tip and this is

NOTE Confidence: 0.90548972875

00:08:05.297 --> 00:08:07.180 known as a moving shot technique.

NOTE Confidence: 0.90548972875

00:08:07.180 --> 00:08:08.790 So during ablation echogenic bubbles

NOTE Confidence: 0.90548972875

00:08:08.790 --> 00:08:10.984 are generated from the active tip and

NOTE Confidence: 0.90548972875

00:08:10.984 --> 00:08:12.568 the location of the electrode should

NOTE Confidence: 0.90548972875

00:08:12.568 --> 00:08:13.886 always be continuously monitored

NOTE Confidence: 0.90548972875

00:08:13.886 --> 00:08:15.741 by real time ultrasound guidance

NOTE Confidence: 0.90548972875

00:08:15.741 --> 00:08:17.560 during the procedure to prevent.

NOTE Confidence: 0.90548972875

00:08:17.560 --> 00:08:18.960 Possible thermal thermal damage

NOTE Confidence: 0.90548972875

00:08:18.960 --> 00:08:20.360 to other important structures.

NOTE Confidence: 0.8526488875

00:08:22.830 --> 00:08:25.098 So more recently the.

NOTE Confidence: 0.8103289275

00:08:28.130 --> 00:08:29.360 Marginal venous ablation

NOTE Confidence: 0.8103289275

00:08:29.360 --> 00:08:31.410 technique has been added on.

NOTE Confidence: 0.8103289275

00:08:31.410 --> 00:08:33.454 And so most of these nodules have

NOTE Confidence: 0.8103289275

00:08:33.454 --> 00:08:35.334 a feeding vessel that is along

NOTE Confidence: 0.8103289275

00:08:35.334 --> 00:08:37.206 the periphery of the nodule right.

NOTE Confidence: 0.8103289275

00:08:37.210 --> 00:08:39.577 And so we found that a lot of the

NOTE Confidence: 0.8103289275

00:08:39.577 --> 00:08:41.177 recurrences occur because there's

NOTE Confidence: 0.8103289275

00:08:41.177 --> 00:08:43.733 not been an appropriate amount of

NOTE Confidence: 0.8103289275

00:08:43.733 --> 00:08:45.569 devascularization of that thyroid nodule.

NOTE Confidence: 0.8103289275

00:08:45.570 --> 00:08:48.210 So by ablating the feeding vessel,

NOTE Confidence: 0.8103289275

00:08:48.210 --> 00:08:50.646 you decrease the risk of recurrence.

NOTE Confidence: 0.8103289275

00:08:50.650 --> 00:08:53.098 And so in a similar way to the actual

NOTE Confidence: 0.8103289275

00:08:53.098 --> 00:08:54.729 ablation of the thyroid nodule,

NOTE Confidence: 0.8103289275

00:08:54.730 --> 00:08:56.320 the marginal vein is punctured

NOTE Confidence: 0.8103289275

00:08:56.320 --> 00:08:58.440 by the electrode tip and ablated.

NOTE Confidence: 0.8103289275

00:08:58.440 --> 00:08:59.856 Let's see if this shows here.

NOTE Confidence: 0.8103289275

00:08:59.860 --> 00:09:01.505 And So what you'll see is that

NOTE Confidence: 0.8103289275

00:09:01.505 --> 00:09:03.014 air bubbles start to feel that

NOTE Confidence: 0.8103289275

00:09:03.014 --> 00:09:04.514 that marginal vein of the nodule,

NOTE Confidence: 0.8103289275

00:09:04.520 --> 00:09:06.188 and initially the air bubbles flow

NOTE Confidence: 0.8103289275

00:09:06.188 --> 00:09:07.887 pretty rapidly along the marginal vein

NOTE Confidence: 0.8103289275

00:09:07.887 --> 00:09:10.031 as long as there's a remaining venous flow.

NOTE Confidence: 0.8103289275

00:09:10.040 --> 00:09:11.027 But over time,

NOTE Confidence: 0.8103289275

00:09:11.027 --> 00:09:12.672 the venous flow gradually decreases

NOTE Confidence: 0.8103289275

00:09:12.672 --> 00:09:14.400 and eventually it stops completely,

NOTE Confidence: 0.8103289275

00:09:14.400 --> 00:09:16.353 and so the air bubbles stay inside the veins,

NOTE Confidence: 0.8103289275

00:09:16.360 --> 00:09:17.744 and that indicates complete

NOTE Confidence: 0.8103289275

00:09:17.744 --> 00:09:19.820 ablation of that of that vein.

NOTE Confidence: 0.8103289275

00:09:19.820 --> 00:09:21.644 The tip of the electrode is located at

NOTE Confidence: 0.8103289275

00:09:21.644 --> 00:09:23.610 the main vessel that's feeding the nodule

NOTE Confidence: 0.8103289275

00:09:23.610 --> 00:09:25.560 in the Hypoechoic area over this way,

NOTE Confidence: 0.8103289275

00:09:25.560 --> 00:09:27.288 and then it's a blade for a few

NOTE Confidence: 0.8103289275

00:09:27.288 --> 00:09:28.579 seconds and during ablation.

NOTE Confidence: 0.8103289275

00:09:28.580 --> 00:09:29.668 Echogenic bubbles are generated

NOTE Confidence: 0.8103289275

00:09:29.668 --> 00:09:30.756 from the active tip.

NOTE Confidence: 0.762455511428571

00:09:34.770 --> 00:09:36.190 So why thyroid RFA?

NOTE Confidence: 0.762455511428571

00:09:36.190 --> 00:09:37.255 So in general,

NOTE Confidence: 0.762455511428571

00:09:37.260 --> 00:09:38.720 thyroid nodules are a prevalent,

NOTE Confidence: 0.762455511428571

00:09:38.720 --> 00:09:39.923 prevalent clinical problem.

NOTE Confidence: 0.762455511428571

00:09:39.923 --> 00:09:42.766 So up to 70% of the population

NOTE Confidence: 0.762455511428571

00:09:42.766 --> 00:09:44.826 has one or more nodules.

NOTE Confidence: 0.762455511428571

00:09:44.830 --> 00:09:46.850 Thyroid nodule detection on ultrasound.

NOTE Confidence: 0.762455511428571

00:09:46.850 --> 00:09:48.178 And although most benign

NOTE Confidence: 0.762455511428571

00:09:48.178 --> 00:09:49.838 nodules can be safely observed,

NOTE Confidence: 0.762455511428571

00:09:49.840 --> 00:09:51.958 there's a good portion of the

NOTE Confidence: 0.762455511428571

00:09:51.958 --> 00:09:53.370 nodules that require definitive

NOTE Confidence: 0.762455511428571

00:09:53.432 --> 00:09:55.080 management for various reasons

NOTE Confidence: 0.762455511428571

00:09:55.080 --> 00:09:57.140 and significant increase in size,

NOTE Confidence: 0.762455511428571

00:09:57.140 --> 00:09:59.947 you know, continued growth of a nodule,

NOTE Confidence: 0.762455511428571

00:09:59.950 --> 00:10:00.912 compressive symptoms,

NOTE Confidence: 0.762455511428571

00:10:00.912 --> 00:10:02.836 some cosmetic concerns or

NOTE Confidence: 0.762455511428571

00:10:02.836 --> 00:10:04.279 autonomously functioning nodules

NOTE Confidence: 0.762455511428571

00:10:04.279 --> 00:10:06.180 that lead to hyperthyroidism.

NOTE Confidence: 0.762455511428571

00:10:06.180 --> 00:10:07.636 So surgical election surgical

NOTE Confidence: 0.762455511428571

00:10:07.636 --> 00:10:09.456 resection has long been the

NOTE Confidence: 0.762455511428571

00:10:09.456 --> 00:10:11.207 mainstay of treatment for these

NOTE Confidence: 0.762455511428571

00:10:11.207 --> 00:10:12.531 benign but problematic nodules

NOTE Confidence: 0.762455511428571

00:10:12.531 --> 00:10:14.469 and in fact of approximately,

NOTE Confidence: 0.762455511428571

00:10:14.470 --> 00:10:15.418 you know,

NOTE Confidence: 0.762455511428571

00:10:15.418 --> 00:10:17.788 140 to 170,000 thyroid procedures

NOTE Confidence: 0.762455511428571

00:10:17.788 --> 00:10:20.600 performed annually in the United States.

NOTE Confidence: 0.762455511428571

00:10:20.600 --> 00:10:23.078 2/3 of them are for benign disease.

NOTE Confidence: 0.762455511428571

00:10:23.080 --> 00:10:24.468 And although they're associated

NOTE Confidence: 0.762455511428571

00:10:24.468 --> 00:10:26.550 with an excellent outcomes in low

NOTE Confidence: 0.762455511428571

00:10:26.613 --> 00:10:28.537 complications and experienced hands,

NOTE Confidence: 0.762455511428571

00:10:28.540 --> 00:10:30.352 thyroidectomy still carries a

NOTE Confidence: 0.762455511428571

00:10:30.352 --> 00:10:32.164 significant risk of complications,

NOTE Confidence: 0.762455511428571

00:10:32.170 --> 00:10:33.943 although it's low,

NOTE Confidence: 0.762455511428571

00:10:33.943 --> 00:10:35.983 most importantly including injury

NOTE Confidence: 0.762455511428571

00:10:35.983 --> 00:10:37.298 to the recurrent or superior.

NOTE Confidence: 0.762455511428571

00:10:37.300 --> 00:10:39.118 Imperial Erential nerve or in the

NOTE Confidence: 0.762455511428571

00:10:39.118 --> 00:10:40.330 cases of total thyroidectomy,

NOTE Confidence: 0.762455511428571

00:10:40.330 --> 00:10:42.134 the requirement of lifelong

NOTE Confidence: 0.762455511428571

00:10:42.134 --> 00:10:43.487 thyroid hormone supplementation

NOTE Confidence: 0.762455511428571

00:10:43.490 --> 00:10:45.034 even in thyroid lobectomy,

NOTE Confidence: 0.762455511428571

00:10:45.034 --> 00:10:45.806 you know,

NOTE Confidence: 0.762455511428571

00:10:45.810 --> 00:10:47.959 we as thyroid surgeons often quote a

NOTE Confidence: 0.762455511428571

00:10:47.959 --> 00:10:50.236 a potential risk of lifelong thyroid

NOTE Confidence: 0.762455511428571

00:10:50.236 --> 00:10:53.121 hormone supplementation of about 15% or so,

NOTE Confidence: 0.762455511428571

00:10:53.121 --> 00:10:55.056 but the true reported incidence

NOTE Confidence: 0.762455511428571

00:10:55.056 --> 00:10:57.267 is probably more closer to 30%.

NOTE Confidence: 0.762455511428571

00:10:57.270 --> 00:10:58.884 So that's not insignificant and a

NOTE Confidence: 0.762455511428571

00:10:58.884 --> 00:11:00.630 lot of our colleagues in medical

NOTE Confidence: 0.762455511428571

00:11:00.630 --> 00:11:02.170 endocrinology can attest to that.

NOTE Confidence: 0.762455511428571

00:11:02.170 --> 00:11:03.946 And so even after a lobectomy,

NOTE Confidence: 0.762455511428571

00:11:03.950 --> 00:11:05.917 those patients are in need of some

NOTE Confidence: 0.762455511428571

00:11:05.917 --> 00:11:07.940 form of thyroid hormone replacement.

NOTE Confidence: 0.762455511428571

00:11:07.940 --> 00:11:09.808 Which is not insignificant.

NOTE Confidence: 0.762455511428571

00:11:09.808 --> 00:11:12.143 RFA ablation pretty much eliminates

NOTE Confidence: 0.762455511428571

00:11:12.143 --> 00:11:14.678 that risk when performed properly.

NOTE Confidence: 0.762455511428571

00:11:14.680 --> 00:11:16.740 There's no requirement for thyroid

NOTE Confidence: 0.762455511428571

00:11:16.740 --> 00:11:19.839 hormone as long as the patients have

NOTE Confidence: 0.762455511428571

00:11:19.839 --> 00:11:22.713 been properly vetted for the procedure.

NOTE Confidence: 0.762455511428571

00:11:22.720 --> 00:11:24.890 So in the past couple of years,

NOTE Confidence: 0.762455511428571

00:11:24.890 --> 00:11:26.576 there's been a great enthusiasm for

NOTE Confidence: 0.762455511428571

00:11:26.576 --> 00:11:28.661 RFA in the United States and its

NOTE Confidence: 0.762455511428571

00:11:28.661 --> 00:11:30.171 potential role in the management

NOTE Confidence: 0.762455511428571

00:11:30.171 --> 00:11:32.368 of benign and in some cases for

NOTE Confidence: 0.762455511428571

00:11:32.368 --> 00:11:33.289 potentially malignant lesions

NOTE Confidence: 0.762455511428571

00:11:33.289 --> 00:11:34.430 of the thyroid gland.

NOTE Confidence: 0.798649910769231

00:11:36.840 --> 00:11:39.843 So the first RF ablation of a

NOTE Confidence: 0.798649910769231

00:11:39.843 --> 00:11:41.646 thyroid nodule actually occurred

NOTE Confidence: 0.798649910769231

00:11:41.646 --> 00:11:45.080 back in 2002 and Seoul, South Korea,

NOTE Confidence: 0.798649910769231

00:11:45.080 --> 00:11:46.838 and shortly after that the first

NOTE Confidence: 0.798649910769231

00:11:46.838 --> 00:11:48.710 case series was was reported by

NOTE Confidence: 0.798649910769231

00:11:48.710 --> 00:11:50.760 that group of researchers in 2006.

NOTE Confidence: 0.798649910769231

00:11:50.760 --> 00:11:52.960 After that, the Korean Korean

NOTE Confidence: 0.798649910769231

00:11:52.960 --> 00:11:54.720 Society of Thyroid Radiology,

NOTE Confidence: 0.798649910769231

00:11:54.720 --> 00:11:57.720 which is an organization of thyroid

NOTE Confidence: 0.798649910769231

00:11:57.720 --> 00:11:59.516 radiologists primarily involved in the

NOTE Confidence: 0.798649910769231

00:11:59.516 --> 00:12:01.460 diagnosis and management of thyroid nodules.

NOTE Confidence: 0.798649910769231

00:12:01.460 --> 00:12:03.664 They proposed some preliminary

NOTE Confidence: 0.798649910769231

00:12:03.664 --> 00:12:06.618 recommendations for thyroid RFA in 2009.

NOTE Confidence: 0.798649910769231

00:12:06.618 --> 00:12:08.862 And this primarily focused on indications

NOTE Confidence: 0.798649910769231

00:12:08.862 --> 00:12:11.130 and efficacy and since that time

NOTE Confidence: 0.798649910769231

00:12:11.130 --> 00:12:12.945 their guidelines have been revised,

NOTE Confidence: 0.798649910769231

00:12:12.950 --> 00:12:16.002 first in 2012 and then again in 2017

NOTE Confidence: 0.798649910769231

00:12:16.002 --> 00:12:18.112 based on newer evidence obtained

NOTE Confidence: 0.798649910769231

00:12:18.112 --> 00:12:20.072 from some clinical studies of

NOTE Confidence: 0.798649910769231

00:12:20.072 --> 00:12:22.250 RFA in patients with both benign

NOTE Confidence: 0.798649910769231

00:12:22.250 --> 00:12:23.834 and malignant thyroid disease.

NOTE Confidence: 0.798649910769231

00:12:23.840 --> 00:12:25.148 Shortly after that,

NOTE Confidence: 0.798649910769231

00:12:25.148 --> 00:12:26.892 our similar guidelines were

NOTE Confidence: 0.798649910769231

00:12:26.892 --> 00:12:28.789 developed in Europe in 2020.

NOTE Confidence: 0.786884358461538

00:12:31.110 --> 00:12:33.903 Right. So indications for thyroid RFA are

NOTE Confidence: 0.786884358461538

00:12:33.903 --> 00:12:36.768 largely for benign but symptomatic disease.

NOTE Confidence: 0.786884358461538

00:12:36.770 --> 00:12:38.558 So you know the majority of

NOTE Confidence: 0.786884358461538

00:12:38.558 --> 00:12:39.750 thyroid nodules are benign.

NOTE Confidence: 0.786884358461538

00:12:39.750 --> 00:12:42.210 In general, some nodules can cause

NOTE Confidence: 0.786884358461538

00:12:42.210 --> 00:12:44.416 some cosmetic problems or pressure

NOTE Confidence: 0.786884358461538

00:12:44.416 --> 00:12:47.255 symptoms that I described earlier, pain,

NOTE Confidence: 0.786884358461538

00:12:47.255 --> 00:12:49.180 dysphasia, foreign body sensation or

NOTE Confidence: 0.786884358461538

00:12:49.180 --> 00:12:51.470 some can be autonomously functioning.

NOTE Confidence: 0.786884358461538

00:12:51.470 --> 00:12:53.330 And in these cases radiofrequency

NOTE Confidence: 0.786884358461538

00:12:53.330 --> 00:12:55.973 ablation is a good technique that can

NOTE Confidence: 0.786884358461538

00:12:55.973 --> 00:12:58.133 improve the clinical problem by reducing

NOTE Confidence: 0.786884358461538

00:12:58.133 --> 00:13:00.687 the nodule size and in in management

NOTE Confidence: 0.786884358461538

00:13:00.687 --> 00:13:02.457 and assessment of these patients.

NOTE Confidence: 0.786884358461538

00:13:02.460 --> 00:13:03.220 Symptom scores,

NOTE Confidence: 0.786884358461538

00:13:03.220 --> 00:13:05.500 typically created by using a visual

NOTE Confidence: 0.786884358461538

00:13:05.500 --> 00:13:07.570 analog scale and a cosmetic score,

NOTE Confidence: 0.786884358461538

00:13:07.570 --> 00:13:09.148 is measured by the treating physician,

NOTE Confidence: 0.786884358461538

00:13:09.150 --> 00:13:11.406 with a score ranging between one and four,

NOTE Confidence: 0.786884358461538

00:13:11.410 --> 00:13:13.075 one being no palpable mass

NOTE Confidence: 0.786884358461538

00:13:13.075 --> 00:13:15.345 appreciated and four being a readily

NOTE Confidence: 0.786884358461538

00:13:15.345 --> 00:13:16.980 detectable cosmetic concern.

NOTE Confidence: 0.71827982

00:13:19.450 --> 00:13:22.117 So prior to performing a thyroid RFA,

NOTE Confidence: 0.71827982

00:13:22.120 --> 00:13:24.528 thyroid nodule should be confirmed as benign

NOTE Confidence: 0.71827982

00:13:24.528 --> 00:13:27.158 on at least two ultrasound guided F and

NOTE Confidence: 0.71827982

00:13:27.158 --> 00:13:29.738 a biopsies or one core needle biopsy 1.

NOTE Confidence: 0.71827982

00:13:29.740 --> 00:13:32.113 Caveat to that is that if the

NOTE Confidence: 0.71827982

00:13:32.113 --> 00:13:33.130 characteristics on ultrasound

NOTE Confidence: 0.71827982

00:13:33.193 --> 00:13:35.149 clearly look like a benign nodule,

NOTE Confidence: 0.71827982

00:13:35.150 --> 00:13:37.094 you can get by with just one F and

NOTE Confidence: 0.71827982

00:13:37.094 --> 00:13:39.180 a biopsy showing benign disease.

NOTE Confidence: 0.71827982

00:13:39.180 --> 00:13:41.708 The reason for the 2nd biopsy has largely

NOTE Confidence: 0.71827982

00:13:41.708 --> 00:13:44.215 been because in cases of larger thyroid

NOTE Confidence: 0.71827982

00:13:44.215 --> 00:13:46.030 nodules greater than 3 centimeters,

NOTE Confidence: 0.71827982

00:13:46.030 --> 00:13:48.310 3 or 4 centimeters, there's about a 10%.

NOTE Confidence: 0.71827982

00:13:48.310 --> 00:13:51.006 This other false negative F and a biopsy.

NOTE Confidence: 0.71827982

00:13:51.010 --> 00:13:53.154 So we always like to have a second

NOTE Confidence: 0.71827982

00:13:53.154 --> 00:13:55.273 biopsy to confirm that we truly

NOTE Confidence: 0.71827982

00:13:55.273 --> 00:13:56.793 dealing with benign disease.

NOTE Confidence: 0.71827982

00:13:56.800 --> 00:13:57.155 However,

NOTE Confidence: 0.71827982

00:13:57.155 --> 00:13:59.640 in the area of molecular molecular testing,

NOTE Confidence: 0.71827982

00:13:59.640 --> 00:14:01.740 there's now you know opportunity to

NOTE Confidence: 0.71827982

00:14:01.740 --> 00:14:03.849 kind of downgrade nodules even when

NOTE Confidence: 0.71827982

00:14:03.849 --> 00:14:05.781 they have an indeterminate look on

NOTE Confidence: 0.71827982

00:14:05.781 --> 00:14:07.888 imaging and those patients can go on

NOTE Confidence: 0.71827982

00:14:07.888 --> 00:14:11.150 to have RFA treatment as an option.

NOTE Confidence: 0.71827982

00:14:11.150 --> 00:14:13.825 Ultrasound examination is important to

NOTE Confidence: 0.71827982

00:14:13.825 --> 00:14:15.970 characterize the nodules or recurrent

NOTE Confidence: 0.71827982

00:14:15.970 --> 00:14:18.130 cancers in some cases and to evaluate the

NOTE Confidence: 0.71827982

00:14:18.180 --> 00:14:20.228 surrounding critical anatomic structures.

NOTE Confidence: 0.71827982

00:14:20.230 --> 00:14:22.804 So you want to see the nodule in question,

NOTE Confidence: 0.71827982

00:14:22.810 --> 00:14:24.166 where is it proximity,

NOTE Confidence: 0.71827982

00:14:24.166 --> 00:14:25.861 proximity to the critical structures

NOTE Confidence: 0.71827982

00:14:25.861 --> 00:14:26.950 that we mentioned,

NOTE Confidence: 0.71827982

00:14:26.950 --> 00:14:28.126 the recurrent laryngeal nerve

NOTE Confidence: 0.71827982

00:14:28.126 --> 00:14:29.008 or the esophagus,

NOTE Confidence: 0.71827982

00:14:29.010 --> 00:14:31.060 and also how close it is to the surface of

NOTE Confidence: 0.71827982

00:14:31.118 --> 00:14:33.029 the actual thyroid capsule in the skin.

NOTE Confidence: 0.71827982

00:14:33.030 --> 00:14:34.752 Some people have very bulky necks

NOTE Confidence: 0.71827982

00:14:34.752 --> 00:14:36.912 and you have more leeway where others

NOTE Confidence: 0.71827982

00:14:36.912 --> 00:14:38.808 have very thin necks and there's

NOTE Confidence: 0.71827982

00:14:38.808 --> 00:14:40.927 not a lot of tissue separating the.

NOTE Confidence: 0.71827982

00:14:40.930 --> 00:14:42.960 Actual skin area from the thyroid lesion.

NOTE Confidence: 0.71827982

00:14:42.960 --> 00:14:44.256 That's important when you're using a,

NOTE Confidence: 0.71827982

00:14:44.260 --> 00:14:46.540 you know, heated probe.

NOTE Confidence: 0.71827982

00:14:46.540 --> 00:14:48.148 Laboratory tests are important

NOTE Confidence: 0.71827982

00:14:48.148 --> 00:14:50.158 and usually include a CBC,

NOTE Confidence: 0.71827982

00:14:50.160 --> 00:14:51.488 blood coagulation battery and

NOTE Confidence: 0.71827982

00:14:51.488 --> 00:14:52.816 some thyroid function testing.

NOTE Confidence: 0.794869386

00:14:56.210 --> 00:14:59.258 So on ultrasound, some benign features

NOTE Confidence: 0.794869386

00:14:59.258 --> 00:15:01.290 are typical hyper echogenicity,

NOTE Confidence: 0.794869386

00:15:01.290 --> 00:15:02.914 so looking a little bit more Gray

NOTE Confidence: 0.794869386

00:15:02.914 --> 00:15:04.090 than the surrounding structure,

NOTE Confidence: 0.794869386

00:15:04.090 --> 00:15:06.350 hypervascularity or a lack of

NOTE Confidence: 0.794869386

00:15:06.350 --> 00:15:08.610 vascularity to the thyroid nodule,

NOTE Confidence: 0.794869386

00:15:08.610 --> 00:15:10.520 macro calcification, so larger than

NOTE Confidence: 0.794869386

00:15:10.520 --> 00:15:12.430 3 millimeters and smooth borders.

NOTE Confidence: 0.794869386

00:15:12.430 --> 00:15:14.455 And if the nodules have

NOTE Confidence: 0.794869386

00:15:14.455 --> 00:15:15.670 these these characteristics,

NOTE Confidence: 0.794869386

00:15:15.670 --> 00:15:18.764 then 1F and a biopsy is reasonable.

NOTE Confidence: 0.794869386

00:15:18.770 --> 00:15:20.745 Whereas some concerning features on

NOTE Confidence: 0.794869386

00:15:20.745 --> 00:15:23.310 thyroid ultrasound would be the opposite.

NOTE Confidence: 0.794869386

00:15:23.310 --> 00:15:25.695 Hypo echogenicity, hypervascularity.

NOTE Confidence: 0.794869386

00:15:25.695 --> 00:15:28.875 Microcalcifications or irregular borders?

NOTE Confidence: 0.6917266075

00:15:32.150 --> 00:15:34.255 After RFA for non functioning

NOTE Confidence: 0.6917266075

00:15:34.255 --> 00:15:35.518 benign thyroid nodules,

NOTE Confidence: 0.6917266075

00:15:35.520 --> 00:15:37.984 again you want to look at the clinical

NOTE Confidence: 0.6917266075

00:15:37.984 --> 00:15:39.710 laboratory and imaging checklist.

NOTE Confidence: 0.6917266075

00:15:39.710 --> 00:15:41.444 RF should be terminated when the

NOTE Confidence: 0.6917266075

00:15:41.444 --> 00:15:43.261 entire area of the nodule becomes

NOTE Confidence: 0.6917266075

00:15:43.261 --> 00:15:45.361 a transient hyper coag zone of grey

NOTE Confidence: 0.6917266075

00:15:45.361 --> 00:15:47.357 on grayscale ultrasound and then

NOTE Confidence: 0.6917266075

00:15:47.357 --> 00:15:49.397 grayscale ultrasound and dot color

NOTE Confidence: 0.6917266075

00:15:49.397 --> 00:15:51.826 Doppler should be used to identify any

NOTE Confidence: 0.6917266075

00:15:51.826 --> 00:15:53.510 remaining vascularity to the lesion

NOTE Confidence: 0.6917266075

00:15:53.510 --> 00:15:55.463 so that you can continue to perform

NOTE Confidence: 0.6917266075

00:15:55.463 --> 00:15:57.450 RFA to ensure the best outcome.

NOTE Confidence: 0.6917266075

00:15:57.450 --> 00:15:59.268 After RFA the nodule related symptom

NOTE Confidence: 0.6917266075

00:15:59.268 --> 00:16:01.070 score again you know neck pain,

NOTE Confidence: 0.6917266075

00:16:01.070 --> 00:16:02.519 dysphasia foreign body.

NOTE Confidence: 0.6917266075

00:16:02.519 --> 00:16:04.598 Sensation is assessed, you know,

NOTE Confidence: 0.6917266075

00:16:04.598 --> 00:16:06.482 reported by the patient and the

NOTE Confidence: 0.6917266075

00:16:06.482 --> 00:16:08.218 cosmetic score reported by the

NOTE Confidence: 0.6917266075

00:16:08.218 --> 00:16:10.222 physician to evaluate the effectiveness

NOTE Confidence: 0.6917266075

00:16:10.222 --> 00:16:11.874 of that RFA therapy.

NOTE Confidence: 0.6917266075

00:16:11.880 --> 00:16:13.672 Following RFA of autonomously

NOTE Confidence: 0.6917266075

00:16:13.672 --> 00:16:15.016 functioning thyroid nodules,

NOTE Confidence: 0.6917266075

00:16:15.020 --> 00:16:17.312 thyroid function should be monitored by

NOTE Confidence: 0.6917266075

00:16:17.312 --> 00:16:19.915 measurement of the TSH T3 and free T4

NOTE Confidence: 0.6917266075

00:16:19.915 --> 00:16:22.977 at each follow up and based on TSH changes,

NOTE Confidence: 0.6917266075

00:16:22.980 --> 00:16:23.916 antithyroid medication

NOTE Confidence: 0.6917266075

00:16:23.916 --> 00:16:26.256 can be reduced or stopped.

NOTE Confidence: 0.6917266075

00:16:26.260 --> 00:16:28.414 The therapeutic response of the patient

NOTE Confidence: 0.6917266075

00:16:28.414 --> 00:16:30.651 depends on their initial drug dosage

NOTE Confidence: 0.6917266075

00:16:30.651 --> 00:16:32.501 required and is typically classified

NOTE Confidence: 0.6917266075

00:16:32.501 --> 00:16:34.722 into 3 categories for autonomous

NOTE Confidence: 0.6917266075

00:16:34.722 --> 00:16:36.818 autonomously functioning thyroid nodules.

NOTE Confidence: 0.6917266075

00:16:36.820 --> 00:16:38.385 So a complete response means

NOTE Confidence: 0.6917266075

00:16:38.385 --> 00:16:39.637 that after this treatment,

NOTE Confidence: 0.6917266075

00:16:39.640 --> 00:16:39.926 usually,

NOTE Confidence: 0.6917266075

00:16:39.926 --> 00:16:42.214 you know two to four months afterwards that

00:16:42.214 --> 00:16:44.129 patient is no longer on any anti thyroid.

00:16:44.130 --> 00:16:44.477 Medication.

00:16:44.477 --> 00:16:46.559 A partial response is that that

00:16:46.559 --> 00:16:48.043 patient still requires some

00:16:48.043 --> 00:16:49.189 anti thyroid medication,

00:16:49.190 --> 00:16:50.820 but it's significantly reduced and

00:16:50.820 --> 00:16:52.905 then no response as the patient

00:16:52.905 --> 00:16:54.875 is still deemed hyperthyroid and

00:16:54.875 --> 00:16:55.582 requires medication.

00:16:55.582 --> 00:16:57.766 And in those cases they get pushed

00:16:57.766 --> 00:16:59.830 on to a further intervention,

00:16:59.830 --> 00:17:02.021 whether that be a second RFA treatment

00:17:02.021 --> 00:17:03.855 or more definitive treatment with

00:17:03.855 --> 00:17:05.935 radioactive iodine therapy or surgery.

00:17:08.700 --> 00:17:11.160 On the ultrasound examination post procedure,

NOTE Confidence: 0.798456865

00:17:11.160 --> 00:17:13.059 you want to look for changes in size of

NOTE Confidence: 0.798456865

00:17:13.059 --> 00:17:15.036 the nodule or the volume of the nodule,

NOTE Confidence: 0.798456865

00:17:15.040 --> 00:17:17.375 intranodal vascularity and echogenicity I

NOTE Confidence: 0.798456865

00:17:17.375 --> 00:17:20.714 am and if the thyroid function symptoms

NOTE Confidence: 0.798456865

00:17:20.714 --> 00:17:22.718 are incompletely resolved again you know

NOTE Confidence: 0.798456865

00:17:22.718 --> 00:17:25.140 repeat RFA or another treatment such as

NOTE Confidence: 0.798456865

00:17:25.140 --> 00:17:27.180 medication or surgery may be required.

NOTE Confidence: 0.798456865

00:17:27.180 --> 00:17:29.172 You also want to look at the thyroid

NOTE Confidence: 0.798456865

00:17:29.172 --> 00:17:30.632 function of non functioning thyroid

NOTE Confidence: 0.798456865

00:17:30.632 --> 00:17:32.739 nodules as well too because one of

NOTE Confidence: 0.798456865

00:17:32.799 --> 00:17:34.515 the great benefits that is being

NOTE Confidence: 0.798456865

00:17:34.515 --> 00:17:36.344 reported is that these patients do

NOTE Confidence: 0.798456865

00:17:36.344 --> 00:17:38.054 not end up being hypothyroid.

NOTE Confidence: 0.798456865

00:17:38.060 --> 00:17:39.092 After these interventions,

NOTE Confidence: 0.798456865

00:17:39.092 --> 00:17:40.468 unlike fairy lobectomy where

NOTE Confidence: 0.798456865

00:17:40.468 --> 00:17:42.319 they may end up hypothyroid,

NOTE Confidence: 0.798456865

00:17:42.320 --> 00:17:43.958 so if a patient has normal thyroid

NOTE Confidence: 0.798456865

00:17:43.958 --> 00:17:45.170 function pre RFA procedure,

NOTE Confidence: 0.798456865

00:17:45.170 --> 00:17:46.580 they should also have a preservation

NOTE Confidence: 0.798456865

00:17:46.580 --> 00:17:48.249 of that youth thyroid state afterwards.

NOTE Confidence: 0.798456865

00:17:48.250 --> 00:17:50.469 So it's important to check a TSH.

NOTE Confidence: 0.798456865

00:17:50.470 --> 00:17:51.890 And along those lines too,

NOTE Confidence: 0.798456865

00:17:51.890 --> 00:17:53.570 if there's any concern that that

NOTE Confidence: 0.798456865

00:17:53.570 --> 00:17:55.110 patient may have autoimmune disease,

NOTE Confidence: 0.798456865

00:17:55.110 --> 00:17:56.855 that should be further investigated

NOTE Confidence: 0.798456865

00:17:56.855 --> 00:17:58.991 pre procedure with a check for

NOTE Confidence: 0.798456865

00:17:58.991 --> 00:18:00.651 thyroglobulin or antibody levels to

NOTE Confidence: 0.798456865

00:18:00.651 --> 00:18:02.805 see if that patient actually has

NOTE Confidence: 0.798456865

00:18:02.805 --> 00:18:04.720 autoimmune disease of the thyroid

NOTE Confidence: 0.798456865

00:18:04.720 --> 00:18:06.958 gland because they're at a higher risk

NOTE Confidence: 0.798456865

00:18:06.958 --> 00:18:08.318 of requiring thyroid hormone after.

NOTE Confidence: 0.798456865

00:18:08.320 --> 00:18:10.630 Any intervention, including surgery and RFA.

NOTE Confidence: 0.804621731666667

00:18:14.580 --> 00:18:16.536 I think I may have skipped.

NOTE Confidence: 0.83014101

00:18:21.330 --> 00:18:22.570 OK, here we go.

NOTE Confidence: 0.83014101

00:18:22.570 --> 00:18:24.430 So in terms of the management

NOTE Confidence: 0.83014101

00:18:24.501 --> 00:18:27.026 of cystic thyroid nodules or

NOTE Confidence: 0.83014101

00:18:27.026 --> 00:18:29.046 predominantly cystic thyroid nodules,

NOTE Confidence: 0.83014101

00:18:29.050 --> 00:18:30.765 these nodules are amenable to

NOTE Confidence: 0.83014101

00:18:30.765 --> 00:18:32.480 ethanol ablation and it's been

NOTE Confidence: 0.83014101

00:18:32.541 --> 00:18:34.226 proven to be extremely effective

NOTE Confidence: 0.83014101

00:18:34.226 --> 00:18:36.890 in the treatment of cystic thyroid nodules.

NOTE Confidence: 0.83014101

00:18:36.890 --> 00:18:38.738 Beck at all back in 2015 carried

NOTE Confidence: 0.83014101

00:18:38.738 --> 00:18:40.290 out a single blind randomized

NOTE Confidence: 0.83014101

00:18:40.290 --> 00:18:42.372 trial to compare the efficacy of

NOTE Confidence: 0.83014101

00:18:42.372 --> 00:18:44.235 RA versus ethanol ablation and

NOTE Confidence: 0.83014101

00:18:44.235 --> 00:18:46.455 the treatment of these cystic or

NOTE Confidence: 0.83014101

00:18:46.455 --> 00:18:49.494 primarily cystic nodules and inclusion

NOTE Confidence: 0.83014101

00:18:49.494 --> 00:18:51.340 criteria included patients with

NOTE Confidence: 0.83014101

00:18:51.340 --> 00:18:52.870 thyroid nodules that were at least.

NOTE Confidence: 0.83014101

00:18:52.870 --> 00:18:55.919 50% and no more than 90% cystic who had

NOTE Confidence: 0.83014101

00:18:55.919 --> 00:18:58.184 compressive symptoms from these nodules.

NOTE Confidence: 0.83014101

00:18:58.190 --> 00:18:59.702 Benign cytology was confirmed with F

NOTE Confidence: 0.83014101

00:18:59.702 --> 00:19:01.849 and a biopsy or corneal biopsy and

NOTE Confidence: 0.83014101

00:19:01.849 --> 00:19:03.664 normal thyroid function was demonstrated.

NOTE Confidence: 0.83014101

00:19:03.670 --> 00:19:04.177 Biochemically,

NOTE Confidence: 0.83014101

00:19:04.177 --> 00:19:06.712 the mean volume reduction reported

NOTE Confidence: 0.83014101

00:19:06.712 --> 00:19:09.730 was around 87% for RA and 82%

NOTE Confidence: 0.83014101

00:19:09.730 --> 00:19:11.164 for ethanol ablation,

NOTE Confidence: 0.83014101

00:19:11.164 --> 00:19:13.076 indicating no significant difference

NOTE Confidence: 0.83014101

00:19:13.076 --> 00:19:15.290 between the two techniques.

NOTE Confidence: 0.83014101

00:19:15.290 --> 00:19:17.500 And regarding the secondary outcomes,

NOTE Confidence: 0.83014101

00:19:17.500 --> 00:19:19.560 therapeutic success means symptom and

NOTE Confidence: 0.83014101

00:19:19.560 --> 00:19:22.350 cosmetic scores also showed no difference.

NOTE Confidence: 0.83014101

00:19:22.350 --> 00:19:24.144 There also were no major complications

NOTE Confidence: 0.83014101

00:19:24.144 --> 00:19:26.372 in either group and so these authors

NOTE Confidence: 0.83014101

00:19:26.372 --> 00:19:27.672 concluded that the therapeutic

NOTE Confidence: 0.83014101

00:19:27.672 --> 00:19:28.647 efficacy of RA.

NOTE Confidence: 0.83014101

00:19:28.650 --> 00:19:30.547 Is not superior to that of ethanol

NOTE Confidence: 0.83014101

00:19:30.547 --> 00:19:32.391 ablation and so that ethanol ablation

NOTE Confidence: 0.83014101

00:19:32.391 --> 00:19:34.666 might be more preferable as first line

NOTE Confidence: 0.83014101

00:19:34.724 --> 00:19:36.429 treatment for cystic or primarily

NOTE Confidence: 0.83014101

00:19:36.429 --> 00:19:38.384 cystic thyroid nodules due to the

NOTE Confidence: 0.83014101

00:19:38.384 --> 00:19:40.092 ease of the technique and the low

NOTE Confidence: 0.83014101

00:19:40.092 --> 00:19:41.650 lower cost of ethanol ablation.

NOTE Confidence: 0.776148407

00:19:45.760 --> 00:19:48.378 A prospective study out of Italy evaluated

NOTE Confidence: 0.776148407

00:19:48.378 --> 00:19:51.443 the safety and efficacy of RF in the

NOTE Confidence: 0.776148407

00:19:51.443 --> 00:19:53.313 treatment of solid thyroid nodules.

NOTE Confidence: 0.776148407

00:19:53.320 --> 00:19:56.456 In this study, there were 84 patients who

NOTE Confidence: 0.776148407

00:19:56.456 --> 00:19:58.759 with symptomatic and cytologically benign

NOTE Confidence: 0.776148407

00:19:58.759 --> 00:20:01.164 solid nodules were randomly assigned

NOTE Confidence: 0.776148407

00:20:01.164 --> 00:20:04.221 to either a single Rs RA session for

NOTE Confidence: 0.776148407

00:20:04.221 --> 00:20:06.516 Group A or surveillance for Group B.

NOTE Confidence: 0.776148407

00:20:06.516 --> 00:20:08.700 And again inclusion criteria was a solid

NOTE Confidence: 0.776148407

00:20:08.767 --> 00:20:10.682 thyroid nodule or predominantly solid

NOTE Confidence: 0.776148407

00:20:10.682 --> 00:20:13.408 with meeting less than that 30% fluid

NOTE Confidence: 0.776148407

00:20:13.408 --> 00:20:15.680 component normal thyroid function.

NOTE Confidence: 0.776148407

00:20:15.680 --> 00:20:17.360 No evidence of autoimmune disease and

NOTE Confidence: 0.776148407

00:20:17.360 --> 00:20:18.970 no previous thyroid gland treatment,

NOTE Confidence: 0.776148407

00:20:18.970 --> 00:20:20.167 surgery or otherwise.

NOTE Confidence: 0.776148407

00:20:20.167 --> 00:20:22.561 3 subgroups were formed according to

NOTE Confidence: 0.776148407

00:20:22.561 --> 00:20:25.089 the baseline volumes of the nodules,

NOTE Confidence: 0.776148407

00:20:25.090 --> 00:20:27.498 so a small nodule was considered to be

NOTE Confidence: 0.776148407

00:20:27.498 --> 00:20:29.967 a volume of less than 12 milliliters.

NOTE Confidence: 0.776148407

00:20:29.970 --> 00:20:32.427 A large nodule was considered to be

NOTE Confidence: 0.776148407

00:20:32.427 --> 00:20:35.269 greater than 30 milliliters in in volume,

NOTE Confidence: 0.776148407

00:20:35.270 --> 00:20:37.105 and intermediate was in between

NOTE Confidence: 0.776148407

00:20:37.105 --> 00:20:38.206 those two parameters.

NOTE Confidence: 0.776148407

00:20:38.210 --> 00:20:41.296 And then the RFA group they RA

NOTE Confidence: 0.776148407

00:20:41.296 --> 00:20:43.054 was performed in a single session

NOTE Confidence: 0.776148407

00:20:43.054 --> 00:20:44.970 using the moving shot technique.

NOTE Confidence: 0.776148407

00:20:44.970 --> 00:20:46.925 The volume and local symptom

NOTE Confidence: 0.776148407

00:20:46.925 --> 00:20:49.342 changes were evaluated at one and

NOTE Confidence: 0.776148407

00:20:49.342 --> 00:20:51.307 six months after the procedure.

NOTE Confidence: 0.776148407

00:20:51.310 --> 00:20:53.038 So in Group A,

NOTE Confidence: 0.776148407

00:20:53.038 --> 00:20:55.198 the volume decreased from 24

NOTE Confidence: 0.776148407

00:20:55.198 --> 00:20:57.385 milliliters to 9.5 at six months post

NOTE Confidence: 0.776148407

00:20:57.385 --> 00:20:59.335 RFA and the greatest volume reduction

NOTE Confidence: 0.776148407

00:20:59.335 --> 00:21:01.567 was found in the smaller nodules,

NOTE Confidence: 0.776148407

00:21:01.570 --> 00:21:04.265 those being 12 million milliliters in volume.

NOTE Confidence: 0.776148407

00:21:04.270 --> 00:21:05.870 The pressure symptom score improved

NOTE Confidence: 0.776148407

00:21:05.870 --> 00:21:07.470 significantly only for the medium

NOTE Confidence: 0.776148407

00:21:07.519 --> 00:21:09.217 and large nodules and that's largely

NOTE Confidence: 0.776148407

00:21:09.217 --> 00:21:11.009 because they were larger and large

NOTE Confidence: 0.776148407

00:21:11.009 --> 00:21:12.539 enough to cause compressive symptoms

NOTE Confidence: 0.776148407

00:21:12.539 --> 00:21:13.826 or more significant compressive

NOTE Confidence: 0.776148407

00:21:13.826 --> 00:21:15.290 symptoms in those patients,

NOTE Confidence: 0.776148407

00:21:15.290 --> 00:21:17.595 whereas the cosmetic score improved

NOTE Confidence: 0.776148407

00:21:17.595 --> 00:21:20.569 in all treated patients in Group B,

NOTE Confidence: 0.776148407

00:21:20.570 --> 00:21:21.914 the surveillance group.

NOTE Confidence: 0.776148407

00:21:21.914 --> 00:21:24.154 The nodule volume remained unchanged,

NOTE Confidence: 0.776148407

00:21:24.160 --> 00:21:25.938 but the symptoms go are worsened at

NOTE Confidence: 0.776148407

00:21:25.938 --> 00:21:27.900 the six month time point evaluation.

NOTE Confidence: 0.776148407

00:21:27.900 --> 00:21:30.336 And in terms of any complications,

NOTE Confidence: 0.776148407

00:21:30.340 --> 00:21:33.620 there's only one patient who

NOTE Confidence: 0.776148407

00:21:33.620 --> 00:21:35.750 experienced vocal cord palsy due to

NOTE Confidence: 0.776148407

00:21:35.750 --> 00:21:37.220 a recurrent laryngeal nerve injury.

NOTE Confidence: 0.860600385

00:21:40.650 --> 00:21:43.194 So in terms of longer term

NOTE Confidence: 0.860600385

00:21:43.194 --> 00:21:44.890 efficacy of RFA treatment,

NOTE Confidence: 0.860600385

00:21:44.890 --> 00:21:46.890 results still remain favorable.

NOTE Confidence: 0.860600385

00:21:46.890 --> 00:21:49.890 Deandrea and his group evaluated a

NOTE Confidence: 0.860600385

00:21:49.968 --> 00:21:52.058 cohort of 215 patients who underwent

NOTE Confidence: 0.860600385

00:21:52.058 --> 00:21:53.818 single session RFA for benign

NOTE Confidence: 0.860600385

00:21:53.818 --> 00:21:55.405 thyroid nodules and then followed

NOTE Confidence: 0.860600385

00:21:55.405 --> 00:21:57.532 them for at least three years post

NOTE Confidence: 0.860600385

00:21:57.532 --> 00:21:59.102 procedure and they found significant

NOTE Confidence: 0.860600385

00:21:59.102 --> 00:22:00.908 shrinkage of the nodules throughout

NOTE Confidence: 0.860600385

00:22:00.908 --> 00:22:02.404 the entire observational period.

NOTE Confidence: 0.860600385

00:22:02.410 --> 00:22:04.330 And in particular the medium volume

NOTE Confidence: 0.860600385

00:22:04.330 --> 00:22:06.032 observed over six months after

NOTE Confidence: 0.860600385

00:22:06.032 --> 00:22:07.480 the procedure was significantly

NOTE Confidence: 0.860600385

00:22:07.480 --> 00:22:08.928 lower than at baseline.

NOTE Confidence: 0.860600385

00:22:08.930 --> 00:22:09.758 Progressive volume reduction

NOTE Confidence: 0.860600385

00:22:09.758 --> 00:22:11.414 was also seen at the one.

NOTE Confidence: 0.860600385

00:22:11.420 --> 00:22:13.904 Two year follow-up time points and

NOTE Confidence: 0.860600385

00:22:13.904 --> 00:22:16.081 also compressive symptoms and cosmetic

NOTE Confidence: 0.860600385

00:22:16.081 --> 00:22:18.799 concerns improved after the RFA therapy.

NOTE Confidence: 0.860600385

00:22:18.800 --> 00:22:20.535 There was a significant reduction

NOTE Confidence: 0.860600385

00:22:20.535 --> 00:22:22.643 in compressive symptoms at one year

NOTE Confidence: 0.860600385

00:22:22.643 --> 00:22:24.188 post procedure and this remains

NOTE Confidence: 0.860600385

00:22:24.188 --> 00:22:26.192 stable at five years and similarly

NOTE Confidence: 0.860600385

00:22:26.192 --> 00:22:27.957 COSMESIS was improved and remained

NOTE Confidence: 0.860600385

00:22:27.957 --> 00:22:30.046 stable over that same time period.

NOTE Confidence: 0.860600385

00:22:30.046 --> 00:22:31.756 No major complications occurred in

NOTE Confidence: 0.860600385

00:22:31.756 --> 00:22:33.882 the treatment group and the authors

NOTE Confidence: 0.860600385

00:22:33.882 --> 00:22:35.617 concluded that reliable and durable

NOTE Confidence: 0.860600385

00:22:35.617 --> 00:22:37.705 shrinkage of the benign non functioning

NOTE Confidence: 0.860600385

00:22:37.705 --> 00:22:39.390 thyroid nodules with improvement of

NOTE Confidence: 0.860600385

00:22:39.390 --> 00:22:41.646 subjective symptoms can be obtained with.

NOTE Confidence: 0.860600385

00:22:41.650 --> 00:22:42.860 Radiofrequency ablation.

NOTE Confidence: 0.800780685714286

00:22:45.820 --> 00:22:47.810 Now functional thyroid nodules are

NOTE Confidence: 0.800780685714286

00:22:47.810 --> 00:22:50.623 a little bit more difficult to treat

NOTE Confidence: 0.800780685714286

00:22:50.623 --> 00:22:52.513 whether it's surgery or medication

NOTE Confidence: 0.800780685714286

00:22:52.513 --> 00:22:54.620 or non surgical interventions,

NOTE Confidence: 0.800780685714286

00:22:54.620 --> 00:22:56.660 but they can also be targeted

NOTE Confidence: 0.800780685714286

00:22:56.660 --> 00:22:57.680 with radiofrequency ablation.

NOTE Confidence: 0.800780685714286

00:22:57.680 --> 00:23:00.158 It should be noted though that resolution

NOTE Confidence: 0.800780685714286

00:23:00.158 --> 00:23:02.147 of hyperthyroidism is less predictable

NOTE Confidence: 0.800780685714286

00:23:02.147 --> 00:23:04.312 than after radioactive iodine therapy

NOTE Confidence: 0.800780685714286

00:23:04.312 --> 00:23:06.120 for hyperthyroidism or surgery.

NOTE Confidence: 0.800780685714286

00:23:06.120 --> 00:23:07.855 And so reported success rates

NOTE Confidence: 0.800780685714286

00:23:07.855 --> 00:23:09.590 of RFA are very variable,

NOTE Confidence: 0.800780685714286

00:23:09.590 --> 00:23:11.516 ranging from anywhere from 24 to

NOTE Confidence: 0.800780685714286

00:23:11.520 --> 00:23:13.806 72% because the efficacy is is

NOTE Confidence: 0.800780685714286

00:23:13.806 --> 00:23:15.870 associated with the nodule volume.

NOTE Confidence: 0.800780685714286

00:23:15.870 --> 00:23:18.062 Reduction of 80% or greater RFA is best

NOTE Confidence: 0.800780685714286

00:23:18.062 --> 00:23:20.208 suited for patients with small nodules,

NOTE Confidence: 0.800780685714286

00:23:20.210 --> 00:23:21.650 so those that are three centimeters

NOTE Confidence: 0.800780685714286

00:23:21.650 --> 00:23:23.586 or less and a single autonomously

NOTE Confidence: 0.800780685714286

00:23:23.586 --> 00:23:24.969 functioning thyroid nodule,

NOTE Confidence: 0.800780685714286

00:23:24.970 --> 00:23:26.780 as opposed to toxic multinodular

NOTE Confidence: 0.800780685714286

00:23:26.780 --> 00:23:28.712 goiter or Graves' disease center.

NOTE Confidence: 0.800780685714286

00:23:28.712 --> 00:23:31.238 Graphy is also recommended to confirm

NOTE Confidence: 0.800780685714286

00:23:31.238 --> 00:23:33.228 the presence of an autonomous,

NOTE Confidence: 0.800780685714286

00:23:33.230 --> 00:23:34.664 autonomously functioning nodule

NOTE Confidence: 0.800780685714286

00:23:34.664 --> 00:23:36.576 as opposed to graves,

NOTE Confidence: 0.800780685714286

00:23:36.580 --> 00:23:39.540 disease or toxic multinational goiter.

NOTE Confidence: 0.800780685714286

00:23:39.540 --> 00:23:41.412 T3 and T4 should be measured whenever the

NOTE Confidence: 0.800780685714286

00:23:41.412 --> 00:23:43.206 TSH falls outside of the normal range,

NOTE Confidence: 0.800780685714286

00:23:43.210 --> 00:23:44.806 so sometimes there's

NOTE Confidence: 0.800780685714286

00:23:44.806 --> 00:23:45.870 subclinical hyperthyroidism.

NOTE Confidence: 0.800780685714286

00:23:45.870 --> 00:23:47.977 That can be picked up by measuring

NOTE Confidence: 0.800780685714286

00:23:47.977 --> 00:23:50.039 all three of those parameters.

NOTE Confidence: 0.800780685714286

00:23:50.040 --> 00:23:52.135 The prevalence of these autonomously

NOTE Confidence: 0.800780685714286

00:23:52.135 --> 00:23:54.230 functioning nodules varies according to

NOTE Confidence: 0.800780685714286

00:23:54.293 --> 00:23:56.147 the geographical area and the amount

NOTE Confidence: 0.800780685714286

00:23:56.147 --> 00:23:58.160 of iodine intake in that country.

NOTE Confidence: 0.800780685714286

00:23:58.160 --> 00:23:59.480 But in the general population,

NOTE Confidence: 0.800780685714286

00:23:59.480 --> 00:24:01.190 it's estimated that the prevalence

NOTE Confidence: 0.800780685714286

00:24:01.190 --> 00:24:03.400 ranges from 2 1/2 to 4 1/2%,

NOTE Confidence: 0.800780685714286

00:24:03.400 --> 00:24:05.100 and surgery and radioactive iodine

NOTE Confidence: 0.800780685714286

00:24:05.100 --> 00:24:06.460 therapy represent the standard

NOTE Confidence: 0.800780685714286

00:24:06.460 --> 00:24:08.057 of care for this condition.

00:24:08.060 --> 00:24:08.945 So, so far,

00:24:08.945 --> 00:24:10.420 the literature shows that RFA

00:24:10.420 --> 00:24:11.334 normalizes thyroid function

00:24:11.334 --> 00:24:12.936 in about half of these cases,

00:24:12.940 --> 00:24:14.986 so roughly 50% of patients who

00:24:14.986 --> 00:24:17.299 undergo our RF ablation of autonomous,

00:24:17.300 --> 00:24:20.268 autonomously functioning thyroid nodules.

00:24:20.270 --> 00:24:22.298 I have resolution of the hyperthyroidism

00:24:22.298 --> 00:24:25.281 and it goes up to 80% with smaller nodules,

00:24:25.281 --> 00:24:27.266 those less than 3 centimeters.

00:24:27.270 --> 00:24:29.658 This is associated with a significant

00:24:29.658 --> 00:24:31.632 non nodule volume reduction after

00:24:31.632 --> 00:24:33.222 about two years of evaluation

00:24:33.222 --> 00:24:35.455 from the time of treatment and it

00:24:35.455 --> 00:24:36.945 ranges from 68 to 84%.

NOTE Confidence: 0.800780685714286

00:24:36.950 --> 00:24:39.162 So RA overall does not seem to

NOTE Confidence: 0.800780685714286

00:24:39.162 --> 00:24:41.766 perform quite as well as surgery for

NOTE Confidence: 0.800780685714286

00:24:41.766 --> 00:24:43.746 these particular type of nodules,

NOTE Confidence: 0.800780685714286

00:24:43.750 --> 00:24:45.400 but still can remain an option

NOTE Confidence: 0.800780685714286

00:24:45.400 --> 00:24:46.794 particularly in patients who are

NOTE Confidence: 0.800780685714286

00:24:46.794 --> 00:24:48.222 not surgical candidates or who are

NOTE Confidence: 0.800780685714286

00:24:48.222 --> 00:24:49.969 a little bit reluctant to undergo.

NOTE Confidence: 0.800780685714286

00:24:49.970 --> 00:24:51.920 Surgery for hyperthyroidism.

NOTE Confidence: 0.858656942777778

00:24:54.530 --> 00:24:56.874 So briefly, I want to talk about a

NOTE Confidence: 0.858656942777778

00:24:56.874 --> 00:24:58.711 few other non-surgical alternatives

NOTE Confidence: 0.858656942777778

00:24:58.711 --> 00:25:01.666 to radiofrequency ablation of thyroid

NOTE Confidence: 0.858656942777778

00:25:01.666 --> 00:25:03.900 nodules and there are about three

NOTE Confidence: 0.858656942777778

00:25:03.900 --> 00:25:06.440 or four that have been looked into.

NOTE Confidence: 0.858656942777778

00:25:06.440 --> 00:25:07.920 So as I mentioned earlier,

NOTE Confidence: 0.858656942777778

00:25:07.920 --> 00:25:09.462 percutaneous ethanol injection,

NOTE Confidence: 0.858656942777778

00:25:09.462 --> 00:25:12.032 so treatment options for symptomatic

NOTE Confidence: 0.858656942777778

00:25:12.032 --> 00:25:14.779 benign cysts include needle aspiration,

NOTE Confidence: 0.858656942777778

00:25:14.780 --> 00:25:16.079 minimally invasive techniques

NOTE Confidence: 0.858656942777778

00:25:16.079 --> 00:25:17.378 or surgical resection.

NOTE Confidence: 0.858656942777778

00:25:17.380 --> 00:25:18.564 And with needle aspiration,

NOTE Confidence: 0.858656942777778

00:25:18.564 --> 00:25:20.340 the recurrence rates are very high

NOTE Confidence: 0.858656942777778

00:25:20.389 --> 00:25:22.021 and that's because you never ablate

NOTE Confidence: 0.858656942777778

00:25:22.021 --> 00:25:23.940 the actual cells that are lining that

NOTE Confidence: 0.858656942777778

00:25:23.940 --> 00:25:25.500 sys that are secreting the fluid.

NOTE Confidence: 0.858656942777778

00:25:25.500 --> 00:25:27.438 So patients get aspirated and sometimes

NOTE Confidence: 0.858656942777778

00:25:27.438 --> 00:25:29.066 they have resolution of symptoms

NOTE Confidence: 0.858656942777778

00:25:29.066 --> 00:25:30.776 that last you know for months,

NOTE Confidence: 0.858656942777778

00:25:30.780 --> 00:25:31.700 maybe even years or so.

NOTE Confidence: 0.858656942777778

00:25:31.700 --> 00:25:33.638 But more often than not those

NOTE Confidence: 0.858656942777778

00:25:33.638 --> 00:25:34.930 symptoms recur fairly quickly

NOTE Confidence: 0.858656942777778

00:25:34.993 --> 00:25:36.745 and then they're left with what?

NOTE Confidence: 0.858656942777778

00:25:36.750 --> 00:25:38.160 To do with those recurrent symptoms,

NOTE Confidence: 0.858656942777778

00:25:38.160 --> 00:25:39.360 do you subject them to surgery,

NOTE Confidence: 0.858656942777778

00:25:39.360 --> 00:25:41.600 do they kind of just deal with the

NOTE Confidence: 0.858656942777778

00:25:41.600 --> 00:25:42.860 compressive symptoms and this is

NOTE Confidence: 0.858656942777778

00:25:42.860 --> 00:25:44.693 where the role of RFA has kind of

NOTE Confidence: 0.858656942777778

00:25:44.693 --> 00:25:46.653 come into play and and also other

NOTE Confidence: 0.858656942777778

00:25:46.653 --> 00:25:49.890 interventions like ethanol injection?

NOTE Confidence: 0.858656942777778

00:25:49.890 --> 00:25:52.382 So a study at the Mayo Clinic

NOTE Confidence: 0.858656942777778

00:25:52.382 --> 00:25:54.464 evaluated the safety and efficacy

NOTE Confidence: 0.858656942777778

00:25:54.464 --> 00:25:56.804 of Perth and percutaneous ethanol

NOTE Confidence: 0.858656942777778

00:25:56.810 --> 00:25:58.145 injection for thyroid cyst and

NOTE Confidence: 0.858656942777778

00:25:58.145 --> 00:25:59.860 they looked at about 20 patients

NOTE Confidence: 0.858656942777778

00:25:59.860 --> 00:26:01.505 who had cystic thyroid nodules.

NOTE Confidence: 0.858656942777778

00:26:01.510 --> 00:26:03.652 Eight of them had purely cystic nodules

NOTE Confidence: 0.858656942777778

00:26:03.652 --> 00:26:06.080 and the other twelve had a complex 60

NOTE Confidence: 0.858656942777778

00:26:06.080 --> 00:26:08.059 nodule where over 50% of the nodule

NOTE Confidence: 0.858656942777778

00:26:08.059 --> 00:26:09.970 cystic and at two years follow up,

NOTE Confidence: 0.858656942777778

00:26:09.970 --> 00:26:11.209 a median of two years follow up.

NOTE Confidence: 0.858656942777778

00:26:11.210 --> 00:26:13.766 Almost 94% of patients were asymptomatic

NOTE Confidence: 0.858656942777778

00:26:13.766 --> 00:26:16.766 and 70% had at least a 50% reduction in

NOTE Confidence: 0.858656942777778

00:26:16.766 --> 00:26:19.822 volume and 50% reduction at six months.

NOTE Confidence: 0.858656942777778

00:26:19.822 --> 00:26:22.390 After a blade of procedures is

NOTE Confidence: 0.858656942777778

00:26:22.472 --> 00:26:25.120 considered an effective treatment.

NOTE Confidence: 0.858656942777778

00:26:25.120 --> 00:26:26.300 So in terms of safety,

NOTE Confidence: 0.858656942777778

00:26:26.300 --> 00:26:27.915 four patients had mild temporary

NOTE Confidence: 0.858656942777778

00:26:27.915 --> 00:26:30.157 side effects and most of it was

NOTE Confidence: 0.858656942777778

00:26:30.157 --> 00:26:31.855 pain at the injection site or

NOTE Confidence: 0.858656942777778

00:26:31.855 --> 00:26:33.278 mild bleeding into the cyst.

NOTE Confidence: 0.858656942777778

00:26:33.280 --> 00:26:35.605 And so these researchers overall

NOTE Confidence: 0.858656942777778

00:26:35.605 --> 00:26:37.608 concluded that ethanol ablation was

NOTE Confidence: 0.858656942777778

00:26:37.608 --> 00:26:39.388 safe and effective for patients

NOTE Confidence: 0.858656942777778

00:26:39.388 --> 00:26:40.884 with symptomatic thyroid cysts

NOTE Confidence: 0.858656942777778

00:26:40.884 --> 00:26:42.694 and is actually the preferred

NOTE Confidence: 0.858656942777778

00:26:42.694 --> 00:26:44.175 non-surgical treatment for the

NOTE Confidence: 0.858656942777778

00:26:44.175 --> 00:26:45.895 treatment of cystic thyroid nodules.

NOTE Confidence: 0.83471440368421

00:26:48.400 --> 00:26:50.494 So although ethanol ablation is very

NOTE Confidence: 0.83471440368421

00:26:50.494 --> 00:26:52.632 effective in treating cystic thyroid nodules

NOTE Confidence: 0.83471440368421

00:26:52.632 --> 00:26:55.012 is much less effective for solid nodules,

NOTE Confidence: 0.83471440368421

00:26:55.020 --> 00:26:56.645 and that's where laser ablation

NOTE Confidence: 0.83471440368421

00:26:56.645 --> 00:26:57.945 or other thermal ablative

NOTE Confidence: 0.83471440368421

00:26:57.945 --> 00:26:59.438 therapies kind of come into play.

NOTE Confidence: 0.83471440368421

00:26:59.440 --> 00:27:02.149 So laser ablation with ND YAG is a thermal

NOTE Confidence: 0.83471440368421

00:27:02.149 --> 00:27:04.100 ablation method that's better suited

NOTE Confidence: 0.83471440368421

00:27:04.100 --> 00:27:06.476 for treatment of solid thyroid nodules.

NOTE Confidence: 0.83471440368421

00:27:06.480 --> 00:27:08.328 The layers are is actually an

NOTE Confidence: 0.83471440368421

00:27:08.328 --> 00:27:09.560 acronym for light amplified

NOTE Confidence: 0.83471440368421

00:27:09.616 --> 00:27:11.400 stimulated emission of radiation.

NOTE Confidence: 0.83471440368421

00:27:11.400 --> 00:27:12.624 It was first described

NOTE Confidence: 0.83471440368421

00:27:12.624 --> 00:27:14.200 by Pacella back in 2004,

NOTE Confidence: 0.83471440368421

00:27:14.200 --> 00:27:15.950 and the procedure involves inserting

NOTE Confidence: 0.83471440368421

00:27:15.950 --> 00:27:18.790 2 to 3 spinal needles into a nodule.

NOTE Confidence: 0.83471440368421

00:27:18.790 --> 00:27:19.816 The ultrasound guidance,

NOTE Confidence: 0.83471440368421

00:27:19.816 --> 00:27:21.868 this does not involve a moving

NOTE Confidence: 0.83471440368421

00:27:21.868 --> 00:27:22.840 shot technique.

NOTE Confidence: 0.83471440368421

00:27:22.840 --> 00:27:24.590 So once you have those needles injected,

NOTE Confidence: 0.83471440368421

00:27:24.590 --> 00:27:26.312 that is going to be the location

NOTE Confidence: 0.83471440368421

00:27:26.312 --> 00:27:28.429 of where they remain and then laser

NOTE Confidence: 0.83471440368421

00:27:28.429 --> 00:27:30.084 fibers are then positioned through

NOTE Confidence: 0.83471440368421

00:27:30.084 --> 00:27:31.756 those needles to allow for the

NOTE Confidence: 0.83471440368421

00:27:31.760 --> 00:27:35.015 ND YAG power for watts in between

NOTE Confidence: 0.83471440368421

00:27:35.015 --> 00:27:37.790 15 to 2000 joules per treatment.

NOTE Confidence: 0.83471440368421

00:27:37.790 --> 00:27:39.365 The ablation needle is typically

NOTE Confidence: 0.83471440368421

00:27:39.365 --> 00:27:40.967 placed within the thyroid nodule

NOTE Confidence: 0.83471440368421

00:27:40.967 --> 00:27:42.773 along its craniocaudal axis and then

NOTE Confidence: 0.83471440368421

00:27:42.773 --> 00:27:44.685 the fibers are exposed to a depth

NOTE Confidence: 0.83471440368421

00:27:44.685 --> 00:27:46.310 of about 5 millimeters beyond the

NOTE Confidence: 0.83471440368421

00:27:46.310 --> 00:27:48.830 the needle tip and that kind of.

NOTE Confidence: 0.83471440368421

00:27:48.830 --> 00:27:51.844 As shown here. Umm.

NOTE Confidence: 0.83471440368421

00:27:51.844 --> 00:27:55.608 So there's highly echogenic or

NOTE Confidence: 0.83471440368421

00:27:55.608 --> 00:27:57.148 echogenic area that results from

NOTE Confidence: 0.83471440368421

00:27:57.148 --> 00:27:58.810 the tissue heating and vaporizing

NOTE Confidence: 0.83471440368421

00:27:58.810 --> 00:28:00.298 during the laser firing.

NOTE Confidence: 0.83471440368421

00:28:00.300 --> 00:28:03.630 And then you see on colored Doppler they

NOTE Confidence: 0.83471440368421

00:28:03.630 --> 00:28:06.380 images obtained from laser illumination.

NOTE Confidence: 0.83471440368421

00:28:06.380 --> 00:28:08.244 So after final ablation,

NOTE Confidence: 0.83471440368421

00:28:08.244 --> 00:28:11.040 laser marks are seen as anechoic

NOTE Confidence: 0.83471440368421

00:28:11.040 --> 00:28:12.640 spots representing cavitation caused

NOTE Confidence: 0.83471440368421

00:28:12.640 --> 00:28:15.040 by tissue vaporization and then the

NOTE Confidence: 0.83471440368421

00:28:15.103 --> 00:28:17.439 surrounded by a kind of a hyperechoic rim.

NOTE Confidence: 0.83471440368421

00:28:17.440 --> 00:28:19.565 A coagulation zone is demonstrated

NOTE Confidence: 0.83471440368421

00:28:19.565 --> 00:28:21.690 as this hypoechoic area separated

NOTE Confidence: 0.83471440368421

00:28:21.757 --> 00:28:23.150 by rim of viable. This year.

NOTE Confidence: 0.797473316333333

00:28:26.130 --> 00:28:28.274 Pepini and his group in a randomized study

NOTE Confidence: 0.797473316333333

00:28:28.274 --> 00:28:30.492 of 200 patients compared laser ablation

NOTE Confidence: 0.797473316333333

00:28:30.492 --> 00:28:32.517 and clinical observation in patients

NOTE Confidence: 0.797473316333333

00:28:32.517 --> 00:28:34.986 with benign thyroid nodules and they

NOTE Confidence: 0.797473316333333

00:28:34.986 --> 00:28:36.986 demonstrated a significant and persistent

NOTE Confidence: 0.797473316333333

00:28:36.990 --> 00:28:38.957 reduction in the volume of the laser

NOTE Confidence: 0.797473316333333

00:28:38.957 --> 00:28:40.409 treated nodules compared to controls.

NOTE Confidence: 0.797473316333333

00:28:40.410 --> 00:28:42.324 And this also was associated with

NOTE Confidence: 0.797473316333333

00:28:42.324 --> 00:28:44.010 improvement in the local symptoms

NOTE Confidence: 0.797473316333333

00:28:44.010 --> 00:28:46.086 with no change in thyroid function.

NOTE Confidence: 0.797473316333333

00:28:46.090 --> 00:28:47.490 So in this study,

NOTE Confidence: 0.797473316333333

00:28:47.490 --> 00:28:50.079 a single laser therapy session with two

NOTE Confidence: 0.797473316333333

00:28:50.079 --> 00:28:52.210 fibers induced a significant volume

NOTE Confidence: 0.797473316333333

00:28:52.210 --> 00:28:54.652 reduction greater than 50% and the

NOTE Confidence: 0.797473316333333

00:28:54.652 --> 00:28:56.698 improvement of local symptoms in the

NOTE Confidence: 0.797473316333333

00:28:56.698 --> 00:28:58.797 vast majority of these solid nodules.

NOTE Confidence: 0.797473316333333

00:28:58.800 --> 00:28:59.781 After the treatment,

NOTE Confidence: 0.797473316333333

00:28:59.781 --> 00:29:01.416 the volume reduction was progressive

NOTE Confidence: 0.797473316333333

00:29:01.416 --> 00:29:03.208 until 12 months and remain stable

NOTE Confidence: 0.797473316333333

00:29:03.208 --> 00:29:04.296 out to three years.

NOTE Confidence: 0.797473316333333

00:29:04.300 --> 00:29:05.956 And there's only a small minority,

NOTE Confidence: 0.797473316333333

00:29:05.960 --> 00:29:09.570 less than 5% of patients that that

NOTE Confidence: 0.797473316333333

00:29:09.570 --> 00:29:11.620 had a parcel regrowth usually

NOTE Confidence: 0.797473316333333

00:29:11.620 --> 00:29:13.260 around that marginal area.

NOTE Confidence: 0.797473316333333

00:29:13.260 --> 00:29:15.306 So the efficacy of radiofrequency ablation

NOTE Confidence: 0.797473316333333

00:29:15.306 --> 00:29:17.698 appears to be just slightly superior to

NOTE Confidence: 0.797473316333333

00:29:17.698 --> 00:29:19.966 that of laser ablation and the advert

NOTE Confidence: 0.797473316333333

00:29:20.024 --> 00:29:21.979 adverse effects are somewhat fewer.

NOTE Confidence: 0.797473316333333

00:29:21.980 --> 00:29:24.364 So they're pretty comparable

NOTE Confidence: 0.797473316333333

00:29:24.364 --> 00:29:27.662 but the slight but beneficial.

NOTE Confidence: 0.797473316333333

00:29:27.662 --> 00:29:30.336 Findings are RFA are thought to be

NOTE Confidence: 0.797473316333333

00:29:30.336 --> 00:29:33.045 attributed to the fact that we use a

NOTE Confidence: 0.797473316333333

00:29:33.045 --> 00:29:35.130 moving shot technique with RF ablation.

NOTE Confidence: 0.797473316333333

00:29:35.130 --> 00:29:37.209 So there's more area of that nodule

NOTE Confidence: 0.797473316333333

00:29:37.209 --> 00:29:38.951 that actually can be ablated as

NOTE Confidence: 0.797473316333333

00:29:38.951 --> 00:29:40.488 opposed to just the the lasers

NOTE Confidence: 0.797473316333333

00:29:40.488 --> 00:29:42.161 sitting in that same spot on the

NOTE Confidence: 0.797473316333333

00:29:42.161 --> 00:29:43.793 laser needles sitting in the same

NOTE Confidence: 0.797473316333333

00:29:43.793 --> 00:29:45.133 spot for the laser therapy.

NOTE Confidence: 0.7530150525

00:29:51.190 --> 00:29:53.345 Microwave ablation is another thermal

NOTE Confidence: 0.7530150525

00:29:53.345 --> 00:29:56.109 technique that's used as a newer 1,

NOTE Confidence: 0.7530150525

00:29:56.110 --> 00:29:58.766 and it relies on the generation of this

NOTE Confidence: 0.7530150525

00:29:58.766 --> 00:30:00.122 electromagnetic field with wavelengths

NOTE Confidence: 0.7530150525

00:30:00.122 --> 00:30:02.650 between point O3 and 30 centimeters and a

NOTE Confidence: 0.7530150525

00:30:02.707 --> 00:30:04.998 frequency between 900 and 2500 megahertz,

NOTE Confidence: 0.7530150525

00:30:04.998 --> 00:30:07.318 and this causes oscillation of

NOTE Confidence: 0.7530150525

00:30:07.318 --> 00:30:09.168 polarized ions, specifically water.

NOTE Confidence: 0.7530150525

00:30:09.168 --> 00:30:11.922 This oscillation then creates friction and

NOTE Confidence: 0.7530150525

00:30:11.922 --> 00:30:14.569 then increases the local field temperature.

NOTE Confidence: 0.7530150525

00:30:14.570 --> 00:30:16.094 So because an electromagnetic field is

NOTE Confidence: 0.7530150525

00:30:16.094 --> 00:30:18.009 used instead of an electrical current,

NOTE Confidence: 0.7530150525

00:30:18.010 --> 00:30:19.336 the electrical conduction

NOTE Confidence: 0.7530150525

00:30:19.336 --> 00:30:21.104 conduction is not necessary.

NOTE Confidence: 0.7530150525

00:30:21.110 --> 00:30:23.259 So the thermal spread is not as

NOTE Confidence: 0.7530150525

00:30:23.259 --> 00:30:25.474 impeded by things like char or heat

NOTE Confidence: 0.7530150525

00:30:25.474 --> 00:30:27.316 sink as with the RFA technique.

NOTE Confidence: 0.7530150525

00:30:27.320 --> 00:30:29.350 A needle like antenna similarly isn't is

NOTE Confidence: 0.7530150525

00:30:29.350 --> 00:30:31.390 used to propagate the current and multiple

NOTE Confidence: 0.7530150525

00:30:31.390 --> 00:30:33.415 antenna can be used together to cause

NOTE Confidence: 0.7530150525

00:30:33.415 --> 00:30:35.480 an exponential increase in the amount of

NOTE Confidence: 0.7530150525

00:30:35.480 --> 00:30:37.642 heating that occurs within the nodule.

NOTE Confidence: 0.7530150525

00:30:37.642 --> 00:30:39.607 So microwave ablation offers the

NOTE Confidence: 0.7530150525

00:30:39.607 --> 00:30:41.357 ability to deliver more thermal

NOTE Confidence: 0.7530150525

00:30:41.357 --> 00:30:42.977 energy in a shorter time,

NOTE Confidence: 0.7530150525

00:30:42.980 --> 00:30:45.044 and this results in a higher

NOTE Confidence: 0.7530150525

00:30:45.044 --> 00:30:46.076 final tissue temperature.

NOTE Confidence: 0.7530150525

00:30:46.080 --> 00:30:47.405 So this reduction in treatment

NOTE Confidence: 0.7530150525

00:30:47.405 --> 00:30:49.112 time can be more valuable when

NOTE Confidence: 0.7530150525

00:30:49.112 --> 00:30:50.436 you're treating larger tumors.

NOTE Confidence: 0.7530150525

00:30:50.440 --> 00:30:51.802 But because the anatomy of the

NOTE Confidence: 0.7530150525

00:30:51.802 --> 00:30:53.120 central neck is very compact,

NOTE Confidence: 0.7530150525

00:30:53.120 --> 00:30:54.905 it's also possible that these

NOTE Confidence: 0.7530150525

00:30:54.905 --> 00:30:56.333 factors represent some disadvantages.

NOTE Confidence: 0.7530150525

00:30:56.340 --> 00:30:57.954 So rapid heating that is less

NOTE Confidence: 0.7530150525

00:30:57.954 --> 00:30:59.738 responsive to heat sink can explain

NOTE Confidence: 0.7530150525

00:30:59.738 --> 00:31:01.038 some complications described in

NOTE Confidence: 0.7530150525

00:31:01.038 --> 00:31:02.782 some early series of microwave

NOTE Confidence: 0.7530150525

00:31:02.782 --> 00:31:04.326 ablation of thyroid nodules.

NOTE Confidence: 0.7530150525

00:31:04.330 --> 00:31:06.215 There's a lot more heat

NOTE Confidence: 0.7530150525

00:31:06.215 --> 00:31:07.723 generated and it dissipates.

NOTE Confidence: 0.7530150525

00:31:07.730 --> 00:31:08.955 Much more slowly than with

NOTE Confidence: 0.7530150525

00:31:08.955 --> 00:31:09.690 the other techniques.

NOTE Confidence: 0.779788095882353

00:31:13.970 --> 00:31:16.811 The aim of a a a study by Wu was to

NOTE Confidence: 0.779788095882353

00:31:16.811 --> 00:31:19.379 define the effectiveness and safety of

NOTE Confidence: 0.779788095882353

00:31:19.380 --> 00:31:20.848 percutaneous microwave ablation for

NOTE Confidence: 0.779788095882353

00:31:20.848 --> 00:31:23.050 benign thyroid nodules after one session.

NOTE Confidence: 0.779788095882353

00:31:23.050 --> 00:31:25.549 So in this study, a total of 121

NOTE Confidence: 0.779788095882353

00:31:25.549 --> 00:31:27.294 benign thyroid nodules in 100

NOTE Confidence: 0.779788095882353

00:31:27.294 --> 00:31:29.260 patients who were your thyroid.

NOTE Confidence: 0.779788095882353

00:31:29.260 --> 00:31:31.846 They underwent microwave ablation at a

NOTE Confidence: 0.779788095882353

00:31:31.846 --> 00:31:34.189 single institution between 2014 and 2015,

NOTE Confidence: 0.779788095882353

00:31:34.190 --> 00:31:36.640 and this was performed with an internally

NOTE Confidence: 0.779788095882353

00:31:36.640 --> 00:31:38.709 cooled antenna under local anesthesia.

NOTE Confidence: 0.779788095882353

00:31:38.710 --> 00:31:39.840 The volume of the nodule,

NOTE Confidence: 0.779788095882353

00:31:39.840 --> 00:31:41.235 the cosmetic score and symptom

NOTE Confidence: 0.779788095882353

00:31:41.235 --> 00:31:42.630 score were compared before and

NOTE Confidence: 0.779788095882353

00:31:42.678 --> 00:31:44.280 after the procedure and the volume.

NOTE Confidence: 0.779788095882353

00:31:44.280 --> 00:31:46.370 Production rate was also calculated,

NOTE Confidence: 0.779788095882353

00:31:46.370 --> 00:31:48.280 side effects and complications were

NOTE Confidence: 0.779788095882353

00:31:48.280 --> 00:31:51.254 recorded and what we see is that there

NOTE Confidence: 0.779788095882353

00:31:51.254 --> 00:31:53.571 was a continuous decline in the volume

NOTE Confidence: 0.779788095882353

00:31:53.642 --> 00:31:55.767 reduction rate after microwave ablation

NOTE Confidence: 0.779788095882353

00:31:55.767 --> 00:31:59.894 and the volume rates at 369 and 12

NOTE Confidence: 0.779788095882353

00:31:59.894 --> 00:32:02.650 months were 577077 and 85 respectively.

NOTE Confidence: 0.871617082

00:32:06.530 --> 00:32:09.950 The most current or recent

NOTE Confidence: 0.871617082

00:32:09.950 --> 00:32:12.305 technique that's being used is

NOTE Confidence: 0.871617082

00:32:12.305 --> 00:32:14.189 high intensity focused ultrasound.

NOTE Confidence: 0.871617082

00:32:14.190 --> 00:32:16.558 So this is a a more unique noninvasive

NOTE Confidence: 0.871617082

00:32:16.558 --> 00:32:19.124 modality that uses sound waves as a carrier

NOTE Confidence: 0.871617082

00:32:19.124 --> 00:32:20.969 to target specific lesions of focus.

NOTE Confidence: 0.871617082

00:32:20.970 --> 00:32:22.838 High intensity ultrasound transfer

NOTE Confidence: 0.871617082

00:32:22.838 --> 00:32:25.173 sufficient energy to induce this

NOTE Confidence: 0.871617082

00:32:25.173 --> 00:32:26.633 coagulative necrosis through

NOTE Confidence: 0.871617082

00:32:26.633 --> 00:32:28.485 thermal and mechanical injury,

NOTE Confidence: 0.871617082

00:32:28.490 --> 00:32:30.566 and the thermal effect is achieved

NOTE Confidence: 0.871617082

00:32:30.566 --> 00:32:32.825 by the conversion of the energy

NOTE Confidence: 0.871617082

00:32:32.825 --> 00:32:34.437 energy generated by intense

NOTE Confidence: 0.871617082

00:32:34.437 --> 00:32:36.430 tissue vibration and this this.

NOTE Confidence: 0.871617082

00:32:36.430 --> 00:32:38.734 Vibration kind of turns into frictional

NOTE Confidence: 0.871617082

63

00:32:38.734 --> 00:32:40.955 heat absorption within within a focal

NOTE Confidence: 0.871617082

00:32:40.955 --> 00:32:42.790 target area creates high temperatures

NOTE Confidence: 0.871617082

00:32:42.850 --> 00:32:44.660 locally and then immediate cell

NOTE Confidence: 0.871617082

00:32:44.660 --> 00:32:46.108 death occurs once temperatures

NOTE Confidence: 0.871617082

00:32:46.108 --> 00:32:47.837 exceed 55 to 60 degrees Celsius.

NOTE Confidence: 0.871617082

00:32:47.840 --> 00:32:49.916 So at this temperature water within

NOTE Confidence: 0.871617082

00:32:49.916 --> 00:32:51.984 the tissue vaporizes and micro bubbles

NOTE Confidence: 0.871617082

00:32:51.984 --> 00:32:54.161 begin to form and it's this micro

NOTE Confidence: 0.871617082

00:32:54.161 --> 00:32:55.946 bubble expansion and then collapse

NOTE Confidence: 0.871617082

00:32:55.946 --> 00:32:58.058 it leads to mechanical damage and

NOTE Confidence: 0.871617082

00:32:58.060 --> 00:32:59.392 hemorrhage within nearby cells.

NOTE Confidence: 0.871617082

00:32:59.392 --> 00:33:01.390 So with this technique it's an

NOTE Confidence: 0.871617082

00:33:01.445 --> 00:33:03.133 emerging emerging treatment option

NOTE Confidence: 0.871617082

00:33:03.133 --> 00:33:04.399 for thyroid nodules,

NOTE Confidence: 0.871617082

00:33:04.400 --> 00:33:06.122 but a key component in challenge

NOTE Confidence: 0.871617082

00:33:06.122 --> 00:33:06.983 to this particular.

NOTE Confidence: 0.871617082

00:33:06.990 --> 00:33:08.520 Technique is the delivery of energy

NOTE Confidence: 0.871617082

00:33:08.520 --> 00:33:10.779 to a small area without causing a

NOTE Confidence: 0.871617082

00:33:10.779 --> 00:33:12.359 significant damage to intervening

NOTE Confidence: 0.871617082

00:33:12.359 --> 00:33:13.544 and surrounding structures.

NOTE Confidence: 0.871617082

00:33:13.550 --> 00:33:15.656 So similar to white microwave ablation,

NOTE Confidence: 0.871617082

00:33:15.660 --> 00:33:17.820 you have higher heat energy

NOTE Confidence: 0.871617082

00:33:17.820 --> 00:33:19.980 generated and a slower resolution

NOTE Confidence: 0.871617082

00:33:20.056 --> 00:33:22.352 of that heat which can lead to

NOTE Confidence: 0.871617082

00:33:22.352 --> 00:33:23.660 higher complication rates.

NOTE Confidence: 0.810068436153846

00:33:25.870 --> 00:33:27.502 So although Haifu is a promising

NOTE Confidence: 0.810068436153846

00:33:27.502 --> 00:33:29.428 form of ablation in the short term,

NOTE Confidence: 0.810068436153846

00:33:29.430 --> 00:33:31.428 the medium to long term outcomes

NOTE Confidence: 0.810068436153846

00:33:31.428 --> 00:33:33.260 following as a single treatment

NOTE Confidence: 0.810068436153846

00:33:33.260 --> 00:33:34.988 are not well established.

NOTE Confidence: 0.810068436153846

00:33:34.990 --> 00:33:37.422 And to date the only study that has

NOTE Confidence: 0.810068436153846

00:33:37.422 --> 00:33:40.040 reported on medium to long term efficacy

NOTE Confidence: 0.810068436153846

00:33:40.040 --> 00:33:42.526 with this treatment was performed by Lang.

NOTE Confidence: 0.810068436153846

00:33:42.526 --> 00:33:45.009 And in that study there was a total

NOTE Confidence: 0.810068436153846

00:33:45.009 --> 00:33:47.180 of 108 patients who underwent this

NOTE Confidence: 0.810068436153846

00:33:47.180 --> 00:33:49.513 high food treatment and were fall

NOTE Confidence: 0.810068436153846

00:33:49.513 --> 00:33:52.009 for two years and at the two year

NOTE Confidence: 0.810068436153846

00:33:52.009 --> 00:33:53.822 follow-up time period fewer than

NOTE Confidence: 0.810068436153846

00:33:53.822 --> 00:33:55.970 2/3 of the patients had smaller.

NOTE Confidence: 0.810068436153846

00:33:55.970 --> 00:33:57.866 Volume then at the 12 month time point

NOTE Confidence: 0.810068436153846

00:33:57.866 --> 00:33:59.852 and then an additional 5th of nodules

NOTE Confidence: 0.810068436153846

00:33:59.852 --> 00:34:01.895 actually had a small increase in volume

NOTE Confidence: 0.810068436153846

00:34:01.895 --> 00:34:03.736 compared to that 12 month time point.

NOTE Confidence: 0.916778778

00:34:08.610 --> 00:34:10.120 So as I mentioned earlier,

NOTE Confidence: 0.916778778

00:34:10.120 --> 00:34:13.620 the first reported treatment of thyroid

NOTE Confidence: 0.916778778

00:34:13.620 --> 00:34:15.780 nodules by the RFA technique occurred

NOTE Confidence: 0.916778778

00:34:15.780 --> 00:34:17.574 inside South Korea back in 2002.

NOTE Confidence: 0.916778778

00:34:17.574 --> 00:34:19.518 And you know, although RA techniques

NOTE Confidence: 0.916778778

00:34:19.518 --> 00:34:21.259 have been steadily gaining acceptance

NOTE Confidence: 0.916778778

00:34:21.259 --> 00:34:23.228 in the United States, I'm sorry,

NOTE Confidence: 0.916778778

00:34:23.228 --> 00:34:25.720 in Europe and Asia for over 20 years now,

NOTE Confidence: 0.916778778

00:34:25.720 --> 00:34:27.608 the United States has been a little bit

NOTE Confidence: 0.916778778

00:34:27.608 --> 00:34:29.538 more slow to to adopt these techniques.

NOTE Confidence: 0.916778778

00:34:29.540 --> 00:34:31.868 The fact that the FDA did not approve

NOTE Confidence: 0.916778778

00:34:31.868 --> 00:34:34.613 the use of RFA for soft tissue masses

NOTE Confidence: 0.916778778

00:34:34.613 --> 00:34:36.931 or thyroid nodules until February of

NOTE Confidence: 0.916778778

00:34:36.931 --> 00:34:39.056 2018 probably contributed to this.

NOTE Confidence: 0.916778778

00:34:39.060 --> 00:34:40.185 Delay in the adoption process

NOTE Confidence: 0.916778778

00:34:40.185 --> 00:34:41.310 here in the United States,

NOTE Confidence: 0.916778778

00:34:41.310 --> 00:34:42.890 along with the pandemic,

NOTE Confidence: 0.916778778

00:34:42.890 --> 00:34:44.865 also causing some delays in

NOTE Confidence: 0.916778778

00:34:44.865 --> 00:34:46.209 developing this practice.

NOTE Confidence: 0.916778778

00:34:46.210 --> 00:34:48.550 So although these advantages are well

NOTE Confidence: 0.916778778

00:34:48.550 --> 00:34:50.110 documented in International series,

NOTE Confidence: 0.916778778

00:34:50.110 --> 00:34:52.384 there's still a paucity of data

NOTE Confidence: 0.916778778

00:34:52.384 --> 00:34:54.750 from the United States experience.

NOTE Confidence: 0.916778778

00:34:54.750 --> 00:34:56.577 This will likely change over the next

NOTE Confidence: 0.916778778

00:34:56.577 --> 00:34:58.032 few months because several institutions

NOTE Confidence: 0.916778778

00:34:58.032 --> 00:35:00.188 in the United States are now publishing

NOTE Confidence: 0.916778778

00:35:00.188 --> 00:35:01.766 their outcomes from their early

NOTE Confidence: 0.916778778

00:35:01.766 --> 00:35:03.590 experience with RFA of thyroid nodules.

NOTE Confidence: 0.821548677777778

00:35:08.300 --> 00:35:09.854 So currently there are 13 established

NOTE Confidence: 0.821548677777778

00:35:09.854 --> 00:35:11.474 RFA programs in the United States

NOTE Confidence: 0.821548677777778

00:35:11.474 --> 00:35:13.076 and over the next several months,

NOTE Confidence: 0.821548677777778

00:35:13.080 --> 00:35:14.995 at least 24 additional programs

NOTE Confidence: 0.821548677777778

00:35:14.995 --> 00:35:16.527 are expected to develop,

NOTE Confidence: 0.821548677777778

00:35:16.530 --> 00:35:18.456 which is going to greatly increase

NOTE Confidence: 0.821548677777778

00:35:18.456 --> 00:35:20.463 access to patients here who are

NOTE Confidence: 0.821548677777778

00:35:20.463 --> 00:35:22.455 interested in undergoing a a less

NOTE Confidence: 0.821548677777778

00:35:22.455 --> 00:35:23.900 invasive procedure than surgery.

NOTE Confidence: 0.71269897125

00:35:28.290 --> 00:35:30.666 So the first US experience with thyroid RFA,

NOTE Confidence: 0.71269897125

00:35:30.670 --> 00:35:32.620 it was a retrospective review of

NOTE Confidence: 0.71269897125

00:35:32.620 --> 00:35:35.009 14 patients out of the Mayo Clinic.

NOTE Confidence: 0.71269897125

00:35:35.010 --> 00:35:37.670 And so these patients had solid thyroid

NOTE Confidence: 0.71269897125

00:35:37.670 --> 00:35:40.041 nodules that were treated with a

NOTE Confidence: 0.71269897125

00:35:40.041 --> 00:35:42.620 single RFA procedure from December 1st,

NOTE Confidence: 0.71269897125

00:35:42.620 --> 00:35:44.970 2013 through October of 2016.

NOTE Confidence: 0.71269897125

00:35:44.970 --> 00:35:47.070 All patients either had declined surgery

NOTE Confidence: 0.71269897125

00:35:47.070 --> 00:35:49.150 or were poor surgical candidates.

NOTE Confidence: 0.71269897125

00:35:49.150 --> 00:35:50.760 The thyroid nodules were benign

NOTE Confidence: 0.71269897125

00:35:50.760 --> 00:35:52.048 on fine needle aspiration.

NOTE Confidence: 0.71269897125

00:35:52.050 --> 00:35:54.060 They were enlarging or causing

NOTE Confidence: 0.71269897125

00:35:54.060 --> 00:35:56.070 compressive symptoms and they were

NOTE Confidence: 0.71269897125

00:35:56.141 --> 00:35:58.307 at least three centimeters in size.

NOTE Confidence: 0.71269897125

00:35:58.310 --> 00:36:00.022 All right. Nodule volume,

NOTE Confidence: 0.71269897125

00:36:00.022 --> 00:36:01.734 compressive symptoms and cosmetic

NOTE Confidence: 0.71269897125

00:36:01.734 --> 00:36:03.686 surgery concerns were evaluated and

NOTE Confidence: 0.71269897125

00:36:03.686 --> 00:36:05.406 the medium volume reduction induced

NOTE Confidence: 0.71269897125

00:36:05.406 --> 00:36:07.498 by the RFA technique was 44%,

NOTE Confidence: 0.71269897125

00:36:07.498 --> 00:36:09.438 down from from 24 milliliters

NOTE Confidence: 0.71269897125

00:36:09.438 --> 00:36:11.529 all the way down to 14.

NOTE Confidence: 0.71269897125

00:36:11.530 --> 00:36:13.728 Medium follow up was about nine months

NOTE Confidence: 0.71269897125

00:36:13.728 --> 00:36:15.741 and maximum results were noted to be

NOTE Confidence: 0.71269897125

00:36:15.741 --> 00:36:17.650 achieved at the six month time point.

NOTE Confidence: 0.71269897125

00:36:17.650 --> 00:36:19.445 So these researchers found that

NOTE Confidence: 0.71269897125

00:36:19.445 --> 00:36:21.240 RFA did not negatively impact

NOTE Confidence: 0.71269897125

00:36:21.302 --> 00:36:23.007 thyroid function and in fact,

NOTE Confidence: 0.71269897125

00:36:23.010 --> 00:36:25.404 in the one patient who has subclinical

NOTE Confidence: 0.71269897125

00:36:25.404 --> 00:36:27.389 hyperthyroidism due to a toxic adenoma,

70

NOTE Confidence: 0.71269897125

00:36:27.390 --> 00:36:28.910 that patient had normalization

NOTE Confidence: 0.71269897125

00:36:28.910 --> 00:36:30.430 of their thyroid function.

NOTE Confidence: 0.71269897125

00:36:30.430 --> 00:36:32.746 Four months after the ablation procedure,

NOTE Confidence: 0.71269897125

00:36:32.750 --> 00:36:34.186 so further compressive symptoms

NOTE Confidence: 0.71269897125

00:36:34.186 --> 00:36:36.340 resolved in eight of 12 patients

NOTE Confidence: 0.71269897125

00:36:36.398 --> 00:36:38.820 or 67% and improved in the other

NOTE Confidence: 0.71269897125

00:36:38.820 --> 00:36:40.786 four and cosmetic concerns improved

NOTE Confidence: 0.71269897125

00:36:40.786 --> 00:36:42.904 in all all all 12 patients.

NOTE Confidence: 0.71269897125

00:36:42.910 --> 00:36:44.800 So the procedure had no sustained

NOTE Confidence: 0.71269897125

00:36:44.800 --> 00:36:46.060 complications and the authors

NOTE Confidence: 0.71269897125

00:36:46.110 --> 00:36:47.838 concluded that RFA of the nine

NOTE Confidence: 0.71269897125

00:36:47.838 --> 00:36:49.226 large thyroid nodules performed

NOTE Confidence: 0.71269897125

00:36:49.226 --> 00:36:51.290 similarly to reports internationally,

NOTE Confidence: 0.71269897125

00:36:51.290 --> 00:36:54.719 which was encouraging.

NOTE Confidence: 0.71269897125

00:36:54.720 --> 00:36:56.875 The next study occurred out

NOTE Confidence: 0.71269897125

00:36:56.875 --> 00:36:59.030 of Columbia University by two

NOTE Confidence: 0.71269897125

00:36:59.107 --> 00:37:01.300 experienced into convergence,

NOTE Confidence: 0.71269897125

00:37:01.300 --> 00:37:02.326 Doctor Jennifer Cohen,

NOTE Confidence: 0.71269897125

00:37:02.326 --> 00:37:04.720 Doctor James Lee and they wrote in

NOTE Confidence: 0.71269897125

00:37:04.789 --> 00:37:07.099 their experience of 16 patients since

NOTE Confidence: 0.71269897125

00:37:07.099 --> 00:37:09.582 starting their RFA program back in 2019.

NOTE Confidence: 0.71269897125

00:37:09.582 --> 00:37:12.354 So most of these patients had

NOTE Confidence: 0.71269897125

00:37:12.354 --> 00:37:14.788 benign thyroid FA biopsies and

NOTE Confidence: 0.71269897125

00:37:14.788 --> 00:37:16.360 with compressive symptoms.

NOTE Confidence: 0.71269897125

00:37:16.360 --> 00:37:18.664 But additionally there were two patients

NOTE Confidence: 0.71269897125

00:37:18.664 --> 00:37:21.487 who had toxic nodules and one patient

NOTE Confidence: 0.71269897125

00:37:21.487 --> 00:37:23.923 with a recurrent metastatic thyroid cancer.

NOTE Confidence: 0.71269897125

00:37:23.930 --> 00:37:24.995 So these authors.

NOTE Confidence: 0.71269897125

00:37:24.995 --> 00:37:26.415 Reported that all patients

NOTE Confidence: 0.71269897125

00:37:26.415 --> 00:37:28.108 tolerated the procedure well with

NOTE Confidence: 0.71269897125

00:37:28.108 --> 00:37:29.543 just minimal procedural pain and

NOTE Confidence: 0.71269897125

00:37:29.543 --> 00:37:31.190 no long term complications.

NOTE Confidence: 0.71269897125

00:37:31.190 --> 00:37:33.290 At one month follow up the mean

NOTE Confidence: 0.71269897125

00:37:33.290 --> 00:37:35.288 volume reduction was 50% / 50%.

NOTE Confidence: 0.71269897125

00:37:35.288 --> 00:37:37.484 And additionally both patients who had

NOTE Confidence: 0.71269897125

00:37:37.484 --> 00:37:39.546 toxic nodules had one month follow

NOTE Confidence: 0.71269897125

00:37:39.546 --> 00:37:42.299 up and were found to be youth thyroid

NOTE Confidence: 0.71269897125

00:37:42.299 --> 00:37:44.411 and all patients who had undergone

NOTE Confidence: 0.71269897125

00:37:44.411 --> 00:37:46.546 3 month follow up also had normal

NOTE Confidence: 0.71269897125

00:37:46.546 --> 00:37:48.083 TSH levels indicating youth thyroid

NOTE Confidence: 0.71269897125

00:37:48.083 --> 00:37:49.889 status and those patients as well.

NOTE Confidence: 0.71269897125

00:37:49.890 --> 00:37:51.490 So again the preliminary U.S.

NOTE Confidence: 0.71269897125

00:37:51.490 --> 00:37:53.875 data is has been comparable

NOTE Confidence: 0.71269897125

00:37:53.875 --> 00:37:55.306 to that experienced.

NOTE Confidence: 0.71269897125

00:37:55.310 --> 00:37:56.420 Internationally.

NOTE Confidence: 0.817170693076923

00:37:59.150 --> 00:38:01.992 Next, there was a study to evaluate

NOTE Confidence: 0.817170693076923

00:38:01.992 --> 00:38:04.518 the safety and efficacy of RA.

NOTE Confidence: 0.817170693076923

00:38:04.520 --> 00:38:09.506 In patients who had indeterminate nodules.

NOTE Confidence: 0.817170693076923

00:38:09.510 --> 00:38:12.354 And so this was a retrospective

NOTE Confidence: 0.817170693076923

00:38:12.354 --> 00:38:14.250 retrospective single center study

NOTE Confidence: 0.817170693076923

00:38:14.331 --> 00:38:16.862 and this was a 53 patients who under

NOTE Confidence: 0.817170693076923

00:38:16.862 --> 00:38:19.390 an RF a total of 58 thyroid nodules.

NOTE Confidence: 0.817170693076923

00:38:19.390 --> 00:38:20.642 The reduction in volume,

NOTE Confidence: 0.817170693076923

00:38:20.642 --> 00:38:22.207 cosmetic and symptomatic improvement as

NOTE Confidence: 0.817170693076923

00:38:22.207 --> 00:38:24.365 well as the effect on thyroid function

NOTE Confidence: 0.817170693076923

00:38:24.365 --> 00:38:25.561 and complications were assessed.

NOTE Confidence: 0.817170693076923

00:38:25.570 --> 00:38:27.430 And once again the medium

NOTE Confidence: 0.817170693076923

00:38:27.430 --> 00:38:29.290 reduction volume was over 50%,

NOTE Confidence: 0.817170693076923

00:38:29.290 --> 00:38:31.194 it was 70% after a median follow-up

NOTE Confidence: 0.817170693076923

00:38:31.194 --> 00:38:33.674 of over 100 days and with significant

NOTE Confidence: 0.817170693076923

00:38:33.674 --> 00:38:35.274 symptomatic and cosmetic improvement

NOTE Confidence: 0.817170693076923

00:38:35.274 --> 00:38:37.929 in all cases and compared to larger

NOTE Confidence: 0.817170693076923

00:38:37.929 --> 00:38:39.724 nodules these authors noted that.

NOTE Confidence: 0.817170693076923

00:38:39.730 --> 00:38:41.875 Smaller nodules had greater volume

NOTE Confidence: 0.817170693076923

00:38:41.875 --> 00:38:44.550 reduction and improved TSH in autonomously

NOTE Confidence: 0.817170693076923

00:38:44.550 --> 00:38:46.860 functioning thyroid nodules and also

NOTE Confidence: 0.817170693076923

00:38:46.860 --> 00:38:49.853 there was no effect on the TSH levels

NOTE Confidence: 0.817170693076923

00:38:49.853 --> 00:38:51.611 in the non-toxic thyroid nodules.

NOTE Confidence: 0.817170693076923

00:38:51.611 --> 00:38:53.646 There were no major complications.

NOTE Confidence: 0.817170693076923

00:38:53.650 --> 00:38:53.944 Importantly,

NOTE Confidence: 0.817170693076923

00:38:53.944 --> 00:38:56.002 there was one patient who had self

NOTE Confidence: 0.817170693076923

00:38:56.002 --> 00:38:57.551 limited local bleeding and another

NOTE Confidence: 0.817170693076923

00:38:57.551 --> 00:38:59.066 had a transient voice change

NOTE Confidence: 0.817170693076923

00:38:59.066 --> 00:39:00.549 that resolved after six months.

NOTE Confidence: 0.817170693076923

00:39:00.550 --> 00:39:02.092 So again these authors concluded that

NOTE Confidence: 0.817170693076923

00:39:02.092 --> 00:39:04.308 RA is a safe and efficacious treatment

NOTE Confidence: 0.817170693076923

00:39:04.308 --> 00:39:06.188 option for both symptomatic non

NOTE Confidence: 0.817170693076923

00:39:06.188 --> 00:39:08.439 functioning and functioning thyroid nodules.

NOTE Confidence: 0.820268478846154

00:39:11.220 --> 00:39:13.422 And then lastly, more recently there's

NOTE Confidence: 0.820268478846154

00:39:13.422 --> 00:39:16.488 been a study out of Tulane to look

NOTE Confidence: 0.820268478846154

00:39:16.488 --> 00:39:18.393 at indeterminate nodules which are

NOTE Confidence: 0.820268478846154

00:39:18.393 --> 00:39:20.977 vast majority of nodules that we see.

NOTE Confidence: 0.820268478846154

00:39:20.980 --> 00:39:23.506 So these nodules have either their

NOTE Confidence: 0.820268478846154

00:39:23.506 --> 00:39:26.036 Bethesda type three or four,

NOTE Confidence: 0.820268478846154

00:39:26.040 --> 00:39:29.370 so 178 patients who had either

NOTE Confidence: 0.820268478846154

00:39:29.370 --> 00:39:31.060 benign nodules, so Beth Bethesda,

NOTE Confidence: 0.820268478846154

00:39:31.060 --> 00:39:33.160 Bethesda two or less or indeterminate,

NOTE Confidence: 0.820268478846154

00:39:33.160 --> 00:39:35.221 but that's a three or four on F and

NOTE Confidence: 0.820268478846154

00:39:35.221 --> 00:39:37.973 A were included and patients in the

NOTE Confidence: 0.820268478846154

00:39:37.973 --> 00:39:39.609 benign and indeterminate cohorts

NOTE Confidence: 0.820268478846154

00:39:39.679 --> 00:39:41.789 had similar thyroid nodule volume.

NOTE Confidence: 0.820268478846154

00:39:41.790 --> 00:39:44.835 And reduction rates for 65 and 64%.

NOTE Confidence: 0.820268478846154

00:39:44.835 --> 00:39:46.860 So no significant differences between

NOTE Confidence: 0.820268478846154

00:39:46.860 --> 00:39:48.963 completely benign thyroid nodules and

NOTE Confidence: 0.820268478846154

00:39:48.963 --> 00:39:50.667 these indeterminate thyroid nodules.

NOTE Confidence: 0.820268478846154

00:39:50.670 --> 00:39:52.886 There were a total of three cases of

NOTE Confidence: 0.820268478846154

00:39:52.886 --> 00:39:54.200 dysphonia reported that resolved.

NOTE Confidence: 0.820268478846154

00:39:54.200 --> 00:39:56.272 And so this was the first study to

NOTE Confidence: 0.820268478846154

00:39:56.272 --> 00:39:58.057 really look at indetermined not

NOTE Confidence: 0.820268478846154

00:39:58.057 --> 00:39:59.266 clearly benign nodules,

NOTE Confidence: 0.820268478846154

00:39:59.270 --> 00:40:00.958 not clearly malignant nodules,

NOTE Confidence: 0.820268478846154

00:40:00.958 --> 00:40:02.646 but indeterminate thyroid nodules

NOTE Confidence: 0.820268478846154

00:40:02.646 --> 00:40:04.599 and found that they're comparable

NOTE Confidence: 0.820268478846154

00:40:04.599 --> 00:40:06.687 to benign thyroid nodules in terms

NOTE Confidence: 0.820268478846154

00:40:06.687 --> 00:40:07.839 of the efficacy.

NOTE Confidence: 0.820268478846154

00:40:07.840 --> 00:40:09.802 So this was the first first

NOTE Confidence: 0.820268478846154

00:40:09.802 --> 00:40:11.110 North American analysis comparing

NOTE Confidence: 0.820268478846154

00:40:11.168 --> 00:40:12.940 benign and indeterminate nodules,

NOTE Confidence: 0.820268478846154

00:40:12.940 --> 00:40:14.872 and suggested that RA is a promising

NOTE Confidence: 0.820268478846154

00:40:14.872 --> 00:40:16.679 modality for the management of

NOTE Confidence: 0.820268478846154

00:40:16.679 --> 00:40:18.056 indeterminate thyroid nodules.

NOTE Confidence: 0.807859171538462

00:40:20.600 --> 00:40:22.748 The most common indications for our

NOTE Confidence: 0.807859171538462

00:40:22.748 --> 00:40:24.554 phase still remains treatment of

NOTE Confidence: 0.807859171538462

00:40:24.554 --> 00:40:26.500 benign disease both non functional

NOTE Confidence: 0.807859171538462

00:40:26.500 --> 00:40:27.820 and autonomously functioning.

NOTE Confidence: 0.807859171538462

00:40:27.820 --> 00:40:29.048 But there's potential expansion

NOTE Confidence: 0.807859171538462

00:40:29.048 --> 00:40:30.890 of the indications for RFA that

NOTE Confidence: 0.807859171538462

00:40:30.943 --> 00:40:32.260 they're being investigated.

NOTE Confidence: 0.807859171538462

00:40:32.260 --> 00:40:34.210 So currently there's only two institutions,

NOTE Confidence: 0.807859171538462

00:40:34.210 --> 00:40:35.775 institutions here that are recruiting

NOTE Confidence: 0.807859171538462

00:40:35.775 --> 00:40:37.659 patients for clinical trials in the

NOTE Confidence: 0.807859171538462

00:40:37.659 --> 00:40:38.999 United States evaluating the safety

NOTE Confidence: 0.807859171538462

00:40:38.999 --> 00:40:40.975 and efficacy of RFA for the treatment

NOTE Confidence: 0.807859171538462

00:40:40.975 --> 00:40:42.691 of low wit risk well differentiated

NOTE Confidence: 0.807859171538462

00:40:42.691 --> 00:40:44.084 papillary thyroid cancers and

NOTE Confidence: 0.807859171538462

00:40:44.084 --> 00:40:46.292 that's the Mayo Clinic in Columbia.

NOTE Confidence: 0.807859171538462

00:40:46.300 --> 00:40:48.274 And thus far there's only two US

NOTE Confidence: 0.807859171538462

00:40:48.274 --> 00:40:50.104 institutions that have used RA to

NOTE Confidence: 0.807859171538462

00:40:50.104 --> 00:40:51.336 treat recurrent thyroid cancer.

NOTE Confidence: 0.807859171538462

00:40:51.340 --> 00:40:53.315 Being Columbia and Oregon Health

NOTE Confidence: 0.807859171538462

00:40:53.315 --> 00:40:54.500 and Sciences University,

NOTE Confidence: 0.807859171538462

00:40:54.500 --> 00:40:56.228 so current knowledge of the efficacy

NOTE Confidence: 0.807859171538462

00:40:56.228 --> 00:40:58.489 of RFA for the treatment of thyroid

NOTE Confidence: 0.807859171538462

00:40:58.489 --> 00:41:00.589 cancer is still limited and largely

NOTE Confidence: 0.807859171538462

00:41:00.589 --> 00:41:02.919 comes from our international experience.

NOTE Confidence: 0.807859171538462

00:41:02.920 --> 00:41:04.850 Recently NCCN guideline from the

NOTE Confidence: 0.807859171538462

00:41:04.850 --> 00:41:07.342 indicate that RFA can be considered

NOTE Confidence: 0.807859171538462

00:41:07.342 --> 00:41:10.270 in the management of recurrent thyroid

NOTE Confidence: 0.807859171538462

00:41:10.270 --> 00:41:12.455 cancer particularly if patients are

NOTE Confidence: 0.807859171538462

00:41:12.455 --> 00:41:14.730 a high kind of surgical risk and

NOTE Confidence: 0.807859171538462

00:41:14.730 --> 00:41:17.298 in fact RFA has actually been used

NOTE Confidence: 0.807859171538462

00:41:17.298 --> 00:41:19.345 in for this specific indication

NOTE Confidence: 0.807859171538462

00:41:19.345 --> 00:41:21.735 in Southeast Asia and Europe.

NOTE Confidence: 0.807859171538462

00:41:21.740 --> 00:41:24.141 So back in 2014 back again looked

NOTE Confidence: 0.807859171538462

00:41:24.141 --> 00:41:26.462 at patients who had undergone RFA

NOTE Confidence: 0.807859171538462

00:41:26.462 --> 00:41:28.492 for local regional recurrent PTC

NOTE Confidence: 0.807859171538462

00:41:28.492 --> 00:41:30.743 and the inclusion criteria were

NOTE Confidence: 0.807859171538462

00:41:30.743 --> 00:41:32.472 no evidence of metastasis.

NOTE Confidence: 0.807859171538462

00:41:32.472 --> 00:41:35.880 But beyond the neck no more than four

NOTE Confidence: 0.807859171538462

00:41:35.880 --> 00:41:37.548 areas of tumor confirm recurrence

NOTE Confidence: 0.807859171538462

00:41:37.548 --> 00:41:39.606 by ultrasound guided F and A and

NOTE Confidence: 0.807859171538462

00:41:39.606 --> 00:41:41.270 a thyroglobulin measurement on

NOTE Confidence: 0.807859171538462

00:41:41.270 --> 00:41:42.575 needle washed out.

NOTE Confidence: 0.807859171538462

00:41:42.580 --> 00:41:44.468 So more than a six month follow up

NOTE Confidence: 0.807859171538462

00:41:44.468 --> 00:41:46.365 period was needed in surgery was not

NOTE Confidence: 0.807859171538462

00:41:46.365 --> 00:41:48.419 feasible or was refused by the patient.

NOTE Confidence: 0.807859171538462

00:41:48.420 --> 00:41:50.620 And so in this case there were 61

NOTE Confidence: 0.807859171538462

00:41:50.620 --> 00:41:52.160 recurrent tumors in a total of 39.

NOTE Confidence: 0.807859171538462

00:41:52.160 --> 00:41:54.135 Patients and the main follow-up

NOTE Confidence: 0.807859171538462

00:41:54.135 --> 00:41:56.110 duration was about 26 months.

NOTE Confidence: 0.807859171538462

00:41:56.110 --> 00:41:58.115 These researchers found that tumor

NOTE Confidence: 0.807859171538462

00:41:58.115 --> 00:41:59.719 volume decreased significantly from

NOTE Confidence: 0.807859171538462

00:41:59.719 --> 00:42:01.416 .2 milliliters before ablation

NOTE Confidence: 0.807859171538462

00:42:01.416 --> 00:42:02.720 to .02 afterwards.

NOTE Confidence: 0.807859171538462

00:42:02.720 --> 00:42:05.427 And the overall complication was complication

NOTE Confidence: 0.807859171538462

00:42:05.427 --> 00:42:08.637 rate was relatively low at under 8%.

NOTE Confidence: 0.807859171538462

00:42:08.637 --> 00:42:10.719 So these authors also concluded that

NOTE Confidence: 0.807859171538462

00:42:10.719 --> 00:42:12.777 RFA can effectively control local

NOTE Confidence: 0.807859171538462

00:42:12.777 --> 00:42:14.677 regional recurrent papillary thyroid

NOTE Confidence: 0.807859171538462

00:42:14.677 --> 00:42:16.577 cancer without life threatening

NOTE Confidence: 0.807859171538462

00:42:16.639 --> 00:42:18.607 complications and select patients.

NOTE Confidence: 0.807859171538462

00:42:18.610 --> 00:42:20.110 And then in a follow-up study,

NOTE Confidence: 0.807859171538462

00:42:20.110 --> 00:42:22.749 the same group reviewed 29 patients who

NOTE Confidence: 0.807859171538462

00:42:22.749 --> 00:42:25.378 had undergone RA for recurrent PTC and

NOTE Confidence: 0.807859171538462

00:42:25.378 --> 00:42:28.329 they followed them for at least five years.

NOTE Confidence: 0.807859171538462

00:42:28.330 --> 00:42:30.834 They looked at the change in size on

NOTE Confidence: 0.807859171538462

00:42:30.834 --> 00:42:32.750 ultrasound and thyroglobulin levels

NOTE Confidence: 0.807859171538462

00:42:32.750 --> 00:42:34.582 for at the one month follow up 3/6

NOTE Confidence: 0.807859171538462

00:42:34.582 --> 00:42:36.943 and 12 months and then every 6 to 12

NOTE Confidence: 0.807859171538462

00:42:36.943 --> 00:42:38.910 months after that one year time point.

NOTE Confidence: 0.807859171538462

00:42:38.910 --> 00:42:40.986 And so any complications identified during

NOTE Confidence: 0.807859171538462

00:42:40.986 --> 00:42:43.470 the follow up period were also reported.

NOTE Confidence: 0.807859171538462

00:42:43.470 --> 00:42:45.025 The mean follow-up duration was

NOTE Confidence: 0.807859171538462

00:42:45.025 --> 00:42:47.052 was eighty months and tumor volume

NOTE Confidence: 0.807859171538462

00:42:47.052 --> 00:42:48.700 decreased significantly from .2.

NOTE Confidence: 0.807859171538462

00:42:48.700 --> 00:42:51.059 5 to .01 at the final evaluation

NOTE Confidence: 0.807859171538462

00:42:51.059 --> 00:42:53.566 and so the mean volume reduction

NOTE Confidence: 0.807859171538462

00:42:53.566 --> 00:42:55.450 was over 99 Percent.

NOTE Confidence: 0.807859171538462

00:42:55.450 --> 00:42:57.991 42 of the 46 treated tumors actually

NOTE Confidence: 0.807859171538462

00:42:57.991 --> 00:42:59.869 had completely disappeared by the

NOTE Confidence: 0.807859171538462

00:42:59.869 --> 00:43:01.329 final evaluation on ultrasound.

NOTE Confidence: 0.807859171538462

00:43:01.330 --> 00:43:03.655 And the mean thyroglobulin level

NOTE Confidence: 0.807859171538462

00:43:03.655 --> 00:43:05.964 decreased from 2.55 to 0.75,

NOTE Confidence: 0.807859171538462

00:43:05.964 --> 00:43:08.254 equating to a biochemical remission

NOTE Confidence: 0.807859171538462

00:43:08.254 --> 00:43:09.522 rate of 51%.

NOTE Confidence: 0.807859171538462

00:43:09.522 --> 00:43:10.578 And so importantly,

NOTE Confidence: 0.807859171538462

00:43:10.578 --> 00:43:12.338 there were no delayed complications

NOTE Confidence: 0.807859171538462

00:43:12.338 --> 00:43:13.727 associated with RA after it

NOTE Confidence: 0.807859171538462

00:43:13.727 --> 00:43:14.962 was followed for five years.

NOTE Confidence: 0.880171282

00:43:18.620 --> 00:43:20.290 In terms of future directions

NOTE Confidence: 0.880171282

00:43:20.290 --> 00:43:21.960 and of using this technique,

NOTE Confidence: 0.880171282

00:43:21.960 --> 00:43:24.277 there's a lot of interest in treating

NOTE Confidence: 0.880171282

00:43:24.277 --> 00:43:25.896 primary thyroid carcinomas and that's

NOTE Confidence: 0.880171282

00:43:25.896 --> 00:43:27.884 because the global incidence of PTC has

NOTE Confidence: 0.880171282

00:43:27.884 --> 00:43:29.964 been increasing over the past several

NOTE Confidence: 0.880171282

00:43:29.964 --> 00:43:31.940 decades and particularly for micro PTC's,

NOTE Confidence: 0.880171282

00:43:31.940 --> 00:43:33.620 those that are less than a centimeter.

NOTE Confidence: 0.880171282

00:43:33.620 --> 00:43:35.255 It's been largely attributed to

NOTE Confidence: 0.880171282

00:43:35.255 --> 00:43:36.890 the detection and diagnosis of

NOTE Confidence: 0.880171282

00:43:36.948 --> 00:43:38.480 smaller tumors on ultrasound,

NOTE Confidence: 0.880171282

00:43:38.480 --> 00:43:39.533 mostly T1 tumors,

NOTE Confidence: 0.880171282

00:43:39.533 --> 00:43:41.639 so meaning less than two centimeters,

NOTE Confidence: 0.880171282

00:43:41.640 --> 00:43:43.740 but they are further subdivided into

NOTE Confidence: 0.880171282

00:43:43.740 --> 00:43:46.723 T1A less than one centimeter or T1B

NOTE Confidence: 0.880171282

00:43:46.723 --> 00:43:49.411 between one and 2 centimeters, so these T.

NOTE Confidence: 0.880171282

00:43:49.411 --> 00:43:51.196 Tumors generally have a favorable

NOTE Confidence: 0.880171282

00:43:51.196 --> 00:43:53.249 prognosis and a low mortality rate.

NOTE Confidence: 0.880171282

00:43:53.250 --> 00:43:55.026 So for T1A tumors that don't

NOTE Confidence: 0.880171282

00:43:55.026 --> 00:43:56.697 have any evidence of extra

NOTE Confidence: 0.880171282

00:43:56.697 --> 00:43:58.389 thyroidal extension or lymph,

NOTE Confidence: 0.880171282

00:43:58.390 --> 00:44:00.490 Noma testis or distant metastasis,

NOTE Confidence: 0.880171282

00:44:00.490 --> 00:44:02.410 conservative management such as active

NOTE Confidence: 0.880171282

00:44:02.410 --> 00:44:03.946 surveillance has been recommended,

NOTE Confidence: 0.880171282

00:44:03.950 --> 00:44:06.140 but consensus hasn't been reached

NOTE Confidence: 0.880171282

00:44:06.140 --> 00:44:08.768 on on that specific protocol of

NOTE Confidence: 0.880171282

00:44:08.768 --> 00:44:10.946 how to surveil on these patients.

NOTE Confidence: 0.880171282

00:44:10.950 --> 00:44:11.722 All right.

NOTE Confidence: 0.880171282

00:44:11.722 --> 00:44:13.266 Lobectomy without a prophylactic

NOTE Confidence: 0.880171282

00:44:13.266 --> 00:44:15.177 central neck dissection has been

NOTE Confidence: 0.880171282

00:44:15.177 --> 00:44:16.727 touted as the preferred treatment

NOTE Confidence: 0.880171282

00:44:16.727 --> 00:44:18.684 for this subset of small tumors

NOTE Confidence: 0.880171282

00:44:18.684 --> 00:44:20.339 and active surveillance is also

NOTE Confidence: 0.880171282

00:44:20.339 --> 00:44:21.982 recommended as a new conservative

NOTE Confidence: 0.880171282

00:44:21.982 --> 00:44:23.908 management for the T1B lesions that

NOTE Confidence: 0.880171282

00:44:23.908 --> 00:44:25.757 are between one to two centimeters.

NOTE Confidence: 0.880171282

00:44:25.760 --> 00:44:27.027 The problem with that is that there's

NOTE Confidence: 0.880171282

00:44:27.027 --> 00:44:28.670 not a lot of evidence on active

NOTE Confidence: 0.880171282

00:44:28.670 --> 00:44:29.995 surveillance of these particular tumors.

NOTE Confidence: 0.880171282

00:44:30.000 --> 00:44:31.625 So then you're subjecting patients

NOTE Confidence: 0.880171282

00:44:31.625 --> 00:44:33.589 to either a thyroid lobectomy for

NOTE Confidence: 0.880171282

00:44:33.589 --> 00:44:35.287 a small tumor or surveillance with,

NOTE Confidence: 0.880171282

00:44:35.290 --> 00:44:35.914 you know,

NOTE Confidence: 0.880171282

00:44:35.914 --> 00:44:37.786 really no good information about the

NOTE Confidence: 0.880171282

00:44:37.786 --> 00:44:39.552 long term outcomes of surveilling

NOTE Confidence: 0.880171282

00:44:39.552 --> 00:44:40.988 these type of tumors.

NOTE Confidence: 0.880171282

00:44:40.990 --> 00:44:41.902 So as such,

NOTE Confidence: 0.880171282

00:44:41.902 --> 00:44:44.030 RA has been considered as an alternative

NOTE Confidence: 0.880171282

00:44:44.093 --> 00:44:46.313 to the active surveillance or thyroid

NOTE Confidence: 0.880171282

00:44:46.313 --> 00:44:48.060 lobectomy for these T1B lesions.

NOTE Confidence: 0.758425759

00:44:50.680 --> 00:44:52.934 A recent study just published this year

NOTE Confidence: 0.758425759

00:44:52.934 --> 00:44:55.012 sought to compare the clinical outcomes

NOTE Confidence: 0.758425759

00:44:55.012 --> 00:44:57.462 of between thyroid lobectomy and RFA for

NOTE Confidence: 0.758425759

00:44:57.527 --> 00:44:59.466 the treatment of these T1B lesions and

NOTE Confidence: 0.758425759

00:44:59.466 --> 00:45:02.080 they had a pretty long term follow up.

NOTE Confidence: 0.758425759

00:45:02.080 --> 00:45:05.470 So there were 1500 patients who

NOTE Confidence: 0.758425759

00:45:05.470 --> 00:45:08.894 underwent surgery and 156 who chose RFA.

NOTE Confidence: 0.758425759

00:45:08.894 --> 00:45:11.480 And of those after exclusion criteria,

NOTE Confidence: 0.758425759

00:45:11.480 --> 00:45:13.736 91 patients who underwent RFA and

NOTE Confidence: 0.758425759

00:45:13.740 --> 00:45:15.900 192 patients were treated with a

NOTE Confidence: 0.758425759

00:45:15.900 --> 00:45:17.785 thyroid lobectomy and they were

NOTE Confidence: 0.758425759

00:45:17.785 --> 00:45:20.035 included in this study for comparison.

NOTE Confidence: 0.758425759

00:45:20.040 --> 00:45:22.497 So the RFA procedure was performed by

NOTE Confidence: 0.758425759

00:45:22.497 --> 00:45:24.508 two experienced US physicians who had

NOTE Confidence: 0.758425759

00:45:24.508 --> 00:45:26.470 more than five years experience in

NOTE Confidence: 0.758425759

00:45:26.528 --> 00:45:28.700 performing RFA and all RFA patients

NOTE Confidence: 0.758425759

00:45:28.700 --> 00:45:30.790 underwent a single session procedure.

NOTE Confidence: 0.758425759

00:45:30.790 --> 00:45:32.258 During the follow up,

NOTE Confidence: 0.758425759

00:45:32.258 --> 00:45:34.093 there were no significant differences

NOTE Confidence: 0.758425759

00:45:34.093 --> 00:45:36.558 found in terms of local tumor progression,

NOTE Confidence: 0.758425759

00:45:36.560 --> 00:45:37.769 lymph node metastasis,

NOTE Confidence: 0.758425759

00:45:37.769 --> 00:45:39.784 recurrent tumor or persistent tumor

NOTE Confidence: 0.758425759

00:45:39.784 --> 00:45:42.513 in the RA treated group or the

NOTE Confidence: 0.758425759

00:45:42.513 --> 00:45:43.629 thyroid lobectomy group.

NOTE Confidence: 0.758425759

00:45:43.630 --> 00:45:45.365 Recurrence free survival rates were

NOTE Confidence: 0.758425759

00:45:45.365 --> 00:45:47.750 noted at one in four years and

NOTE Confidence: 0.758425759

00:45:47.750 --> 00:45:50.674 they were 98 and 95% in the RFA

NOTE Confidence: 0.758425759

00:45:50.674 --> 00:45:54.046 group and 97 and 96% in the thyroid

NOTE Confidence: 0.758425759

00:45:54.046 --> 00:45:55.408 lobectomy group respectively.

NOTE Confidence: 0.758425759

00:45:55.410 --> 00:45:58.133 So this was an important study that

NOTE Confidence: 0.758425759

00:45:58.133 --> 00:45:59.716 revealed comparable results between

NOTE Confidence: 0.758425759

00:45:59.716 --> 00:46:01.828 thyroid lobectomy and RF ablation of

NOTE Confidence: 0.758425759

00:46:01.828 --> 00:46:04.107 a T1 thyroid cancer and it suggests

NOTE Confidence: 0.758425759

00:46:04.107 --> 00:46:06.306 that RFA may have a role in the

NOTE Confidence: 0.758425759

00:46:06.306 --> 00:46:07.218 management of these tumors.

NOTE Confidence: 0.755860844

00:46:09.870 --> 00:46:11.796 So as RFA and other thermal

NOTE Confidence: 0.755860844

00:46:11.796 --> 00:46:13.080 ablation techniques continue to

NOTE Confidence: 0.755860844

00:46:13.143 --> 00:46:14.668 expand in the United States,

NOTE Confidence: 0.755860844

00:46:14.670 --> 00:46:16.566 undoubtedly its role in the management

NOTE Confidence: 0.755860844

00:46:16.566 --> 00:46:18.459 of thyroid disease for both online

NOTE Confidence: 0.755860844

00:46:18.459 --> 00:46:20.169 and malignant conditions will need to

NOTE Confidence: 0.755860844

00:46:20.169 --> 00:46:22.248 be re examined and and considered.

NOTE Confidence: 0.755860844

00:46:22.250 --> 00:46:24.062 There are several societies currently and

NOTE Confidence: 0.755860844

00:46:24.062 --> 00:46:25.870 organizations that have begun this process,

NOTE Confidence: 0.755860844

00:46:25.870 --> 00:46:27.910 including the American Thyroid Association,

NOTE Confidence: 0.755860844

00:46:27.910 --> 00:46:29.990 American Association of Endocrine Surgeons,

NOTE Confidence: 0.755860844

00:46:29.990 --> 00:46:32.258 American Head and Neck Society and the

NOTE Confidence: 0.755860844

00:46:32.258 --> 00:46:33.950 Society of Interventional Radiologists.

NOTE Confidence: 0.755860844

00:46:33.950 --> 00:46:35.528 And the emerging experience from the

NOTE Confidence: 0.755860844

00:46:35.528 --> 00:46:37.057 United States is certainly going to

NOTE Confidence: 0.755860844

00:46:37.057 --> 00:46:38.576 contribute to the literature and to what

NOTE Confidence: 0.755860844

00:46:38.576 --> 00:46:40.586 we know about the treatment of these nodules.

NOTE Confidence: 0.755860844

00:46:40.590 --> 00:46:42.678 And hopefully we'll be consolidated with

NOTE Confidence: 0.755860844

00:46:42.678 --> 00:46:44.797 the international experience so that we

NOTE Confidence: 0.755860844

00:46:44.797 --> 00:46:46.487 can formulate some recommendation and

NOTE Confidence: 0.755860844

00:46:46.487 --> 00:46:47.962 guidelines for the safe implementation

NOTE Confidence: 0.755860844

00:46:47.962 --> 00:46:49.377 implementation of this technique to

NOTE Confidence: 0.755860844

00:46:49.377 --> 00:46:51.190 our patients here in the United States.

NOTE Confidence: 0.894121431538461

00:46:53.680 --> 00:46:55.451 So thank you very much for your

NOTE Confidence: 0.894121431538461

00:46:55.451 --> 00:46:57.308 time and I'm open to questions.

NOTE Confidence: 0.745150876

00:47:04.640 --> 00:47:08.390 Thanks Courtney. There any questions?

00:47:08.390 --> 00:47:11.198 I think maybe maybe let me start it off.

00:47:11.200 --> 00:47:12.946 You know obviously this is great

00:47:12.946 --> 00:47:14.440 and very exciting and thank

00:47:14.440 --> 00:47:16.060 you for sharing all the data.

00:47:16.060 --> 00:47:17.628 You know, two things. So number one,

00:47:17.630 --> 00:47:19.460 maybe just from an anatomical standpoint,

00:47:19.460 --> 00:47:21.119 you know when we're doing surgeries we

00:47:21.119 --> 00:47:22.662 always worry about the recurrent laryngeal

00:47:22.662 --> 00:47:24.496 nerve or all the vasculature around it.

00:47:24.500 --> 00:47:26.812 And conceivably if you're putting a very hot

00:47:26.812 --> 00:47:29.339 sort of radio frequency in that same zone,

00:47:29.340 --> 00:47:30.576 you know, we worry about cautery

00:47:30.576 --> 00:47:31.560 getting too close to it.

00:47:31.560 --> 00:47:33.736 So how do you kind of reconcile that?

00:47:33.740 --> 00:47:34.760 And then I think secondly,

00:47:34.760 --> 00:47:36.650 maybe can you speak a little

NOTE Confidence: 0.745150876

00:47:36.650 --> 00:47:38.700 bit about are there biomarkers?

NOTE Confidence: 0.745150876

00:47:38.700 --> 00:47:40.884 That'll help us identify the three cohorts,

NOTE Confidence: 0.745150876

00:47:40.890 --> 00:47:41.542 you know,

NOTE Confidence: 0.745150876

00:47:41.542 --> 00:47:43.824 the patients that can just be watched,

NOTE Confidence: 0.745150876

00:47:43.830 --> 00:47:45.930 patients that should have some sort of

NOTE Confidence: 0.745150876

00:47:45.930 --> 00:47:47.496 radio frequency ablation and patients

NOTE Confidence: 0.745150876

00:47:47.496 --> 00:47:49.021 that should actually have surgery

NOTE Confidence: 0.745150876

00:47:49.021 --> 00:47:50.692 or something more that may help

NOTE Confidence: 0.745150876

00:47:50.692 --> 00:47:52.330 guide this because you know any new

NOTE Confidence: 0.745150876

00:47:52.330 --> 00:47:54.676 technology has this worry of indication

NOTE Confidence: 0.745150876

00:47:54.676 --> 00:47:57.077 creep or overuse of the technology

NOTE Confidence: 0.745150876

00:47:57.077 --> 00:47:59.363 or lack of safety for patients.

NOTE Confidence: 0.745150876

00:47:59.370 --> 00:48:00.890 And so how are you thinking about it

NOTE Confidence: 0.745150876

00:48:00.890 --> 00:48:02.409 and maybe speak a little bit about Yale

NOTE Confidence: 0.745150876

00:48:02.409 --> 00:48:04.297 and how do you think we'll implement that?

00:48:04.410 --> 00:48:06.384 Yes. So to answer the first question,

00:48:06.390 --> 00:48:08.774 yes, of course, you know the the most.

00:48:08.780 --> 00:48:10.500 Significant and complication after

00:48:10.500 --> 00:48:12.650 treatment of thyroid nodules surgically

00:48:12.650 --> 00:48:15.162 with radiation or with any type of

00:48:15.162 --> 00:48:17.199 percutaneous treatments is going to be

00:48:17.199 --> 00:48:19.077 injury to the recurrent laryngeal nerve.

00:48:19.080 --> 00:48:20.417 And so the best way to avoid

00:48:20.417 --> 00:48:21.952 that is to always identify where

00:48:21.952 --> 00:48:23.457 your needle tip is located.

00:48:23.460 --> 00:48:25.068 So that's why it's important to

00:48:25.068 --> 00:48:26.620 have real time ultrasound guidance.

00:48:26.620 --> 00:48:28.340 And you know the the way you enter

00:48:28.340 --> 00:48:30.182 the nodule is less important as to

00:48:30.182 --> 00:48:31.861 identifying where that needle tip is

00:48:31.861 --> 00:48:33.176 and understanding that the ablation

NOTE Confidence: 0.837630778571429

00:48:33.176 --> 00:48:35.475 zone is going to be 3 to 5 millimeters

NOTE Confidence: 0.837630778571429

00:48:35.475 --> 00:48:37.481 beyond the tip of that lesion, right.

NOTE Confidence: 0.837630778571429

00:48:37.481 --> 00:48:38.384 So sometimes as.

NOTE Confidence: 0.837630778571429

00:48:38.384 --> 00:48:40.815 You as you know as surgeons we always

NOTE Confidence: 0.837630778571429

00:48:40.815 --> 00:48:42.789 try and be better and best right,

NOTE Confidence: 0.837630778571429

00:48:42.790 --> 00:48:44.870 but sometimes we have to take a foot

NOTE Confidence: 0.837630778571429

00:48:44.870 --> 00:48:47.113 off the pedal little bit and recognize

NOTE Confidence: 0.837630778571429

00:48:47.113 --> 00:48:49.370 that it's better to leave a smaller

NOTE Confidence: 0.837630778571429

00:48:49.370 --> 00:48:51.698 ablation area that may be remain

NOTE Confidence: 0.837630778571429

00:48:51.698 --> 00:48:54.589 unabated as opposed to causing an injury.

NOTE Confidence: 0.837630778571429

00:48:54.590 --> 00:48:57.138 And again you know greater than 50%

NOTE Confidence: 0.837630778571429

00:48:57.140 --> 00:48:59.000 reduction in volume is significant and

NOTE Confidence: 0.837630778571429

00:48:59.000 --> 00:49:00.770 as considered an effective treatment.

NOTE Confidence: 0.837630778571429

00:49:00.770 --> 00:49:02.372 So you can kind of come off of the

NOTE Confidence: 0.837630778571429

00:49:02.372 --> 00:49:03.879 border of that nodule and still be

NOTE Confidence: 0.837630778571429

00:49:03.879 --> 00:49:05.216 confident that at the six month

NOTE Confidence: 0.837630778571429

00:49:05.216 --> 00:49:06.742 time point you're going to have at

NOTE Confidence: 0.837630778571429

00:49:06.742 --> 00:49:08.650 least that 50% reduction in volume.

NOTE Confidence: 0.837630778571429

00:49:08.650 --> 00:49:10.162 The most important thing is that

NOTE Confidence: 0.837630778571429

00:49:10.162 --> 00:49:10.666 the patients.

NOTE Confidence: 0.837630778571429

00:49:10.670 --> 00:49:13.262 Feel that their cosmetic or compressive

NOTE Confidence: 0.837630778571429

00:49:13.262 --> 00:49:14.622 symptoms have resolved and also

NOTE Confidence: 0.837630778571429

00:49:14.622 --> 00:49:16.590 you can live to fight another day.

NOTE Confidence: 0.837630778571429

00:49:16.590 --> 00:49:18.050 And and so appropriate patient

NOTE Confidence: 0.837630778571429

00:49:18.050 --> 00:49:19.825 education is important to let them

NOTE Confidence: 0.837630778571429

00:49:19.825 --> 00:49:21.373 know that sometimes it may require

NOTE Confidence: 0.837630778571429

00:49:21.373 --> 00:49:23.129 more than one ablation procedure.

NOTE Confidence: 0.837630778571429

00:49:23.130 --> 00:49:24.708 But again it's like going in,

NOTE Confidence: 0.837630778571429

00:49:24.710 --> 00:49:25.883 I'm oversimplifying it,

NOTE Confidence: 0.837630778571429

00:49:25.883 --> 00:49:28.620 but it's similar to going in for

NOTE Confidence: 0.837630778571429

00:49:28.692 --> 00:49:29.808 a needle biopsy.

NOTE Confidence: 0.837630778571429

00:49:29.810 --> 00:49:31.310 You know obviously a bit more

NOTE Confidence: 0.837630778571429

00:49:31.310 --> 00:49:33.109 complex and and a bit more risk.

NOTE Confidence: 0.837630778571429

00:49:33.110 --> 00:49:34.670 But if you explain that thoroughly

NOTE Confidence: 0.837630778571429

00:49:34.670 --> 00:49:35.450 to the patient,

NOTE Confidence: 0.837630778571429

00:49:35.450 --> 00:49:36.885 I think that's the safest way to

NOTE Confidence: 0.837630778571429

00:49:36.885 --> 00:49:38.425 kind of stay safe and also just

NOTE Confidence: 0.837630778571429

00:49:38.425 --> 00:49:40.033 keeping an eye on that needle tip

NOTE Confidence: 0.837630778571429

00:49:40.033 --> 00:49:41.515 regardless of which way you enter.

NOTE Confidence: 0.837630778571429

00:49:41.520 --> 00:49:42.990 The thyroid and the needle.

NOTE Confidence: 0.837630778571429

00:49:42.990 --> 00:49:44.165 And then your second question

NOTE Confidence: 0.837630778571429

00:49:44.165 --> 00:49:45.800 was talking about how can we we

NOTE Confidence: 0.837630778571429

00:49:45.800 --> 00:49:46.835 always think about this too,

NOTE Confidence: 0.837630778571429

00:49:46.840 --> 00:49:49.006 so how do we know which?

NOTE Confidence: 0.837630778571429

00:49:49.010 --> 00:49:50.912 Thyroid cancers are going to be

NOTE Confidence: 0.837630778571429

00:49:50.912 --> 00:49:52.830 bad players as opposed to others.

NOTE Confidence: 0.837630778571429

00:49:52.830 --> 00:49:55.350 And I think that we we just don't know,

NOTE Confidence: 0.837630778571429

00:49:55.350 --> 00:49:55.580 right.

NOTE Confidence: 0.837630778571429

00:49:55.580 --> 00:49:57.650 We we think we have an idea we'll see.

NOTE Confidence: 0.837630778571429

00:49:57.650 --> 00:50:00.062 And so that's why even with

NOTE Confidence: 0.837630778571429

00:50:00.062 --> 00:50:01.670 tirade evaluation of thyroid,

NOTE Confidence: 0.837630778571429

00:50:01.670 --> 00:50:03.344 ultrasound nodules will say that if

NOTE Confidence: 0.837630778571429

00:50:03.344 --> 00:50:05.507 it's a tie rods one or two lesion,

NOTE Confidence: 0.837630778571429

00:50:05.510 --> 00:50:06.788 we treat that like it's benign.

NOTE Confidence: 0.837630778571429

00:50:06.790 --> 00:50:08.288 We don't have to worry about it.

NOTE Confidence: 0.837630778571429

00:50:08.290 --> 00:50:09.565 There's sometimes nodules that are

NOTE Confidence: 0.837630778571429

00:50:09.565 --> 00:50:11.141 less than a centimeter and they

NOTE Confidence: 0.837630778571429

00:50:11.141 --> 00:50:12.396 don't meet criteria for biopsy,

NOTE Confidence: 0.837630778571429

00:50:12.400 --> 00:50:13.990 but they have some characteristics

NOTE Confidence: 0.837630778571429

00:50:13.990 --> 00:50:15.262 like microcalcifications that put

NOTE Confidence: 0.837630778571429

00:50:15.262 --> 00:50:16.873 them up to like a tyrant four or

NOTE Confidence: 0.837630778571429

00:50:16.873 --> 00:50:18.328 five and what do we do with those.

NOTE Confidence: 0.837630778571429

00:50:18.330 --> 00:50:19.526 So sometimes some patients.

NOTE Confidence: 0.837630778571429

00:50:19.526 --> 00:50:21.320 Those those nodules biopsied and they

NOTE Confidence: 0.837630778571429

00:50:21.372 --> 00:50:23.396 turned out to be a papillary thyroid cancer.

NOTE Confidence: 0.837630778571429

00:50:23.400 --> 00:50:24.800 Other times people more strictly

NOTE Confidence: 0.837630778571429

00:50:24.800 --> 00:50:26.200 follow that criteria and they

NOTE Confidence: 0.8231446125

00:50:26.252 --> 00:50:28.140 don't biopsy, they they observe it you

NOTE Confidence: 0.8231446125

00:50:28.140 --> 00:50:30.314 know for another three to six months and

NOTE Confidence: 0.8231446125

00:50:30.314 --> 00:50:32.211 re biopsy and find that those nodules

NOTE Confidence: 0.8231446125

00:50:32.266 --> 00:50:34.037 either have cancer or they do not.

NOTE Confidence: 0.8231446125

00:50:34.040 --> 00:50:38.310 You know I just think that we just need more.

NOTE Confidence: 0.8231446125

00:50:38.310 --> 00:50:40.488 Experience in looking at these nodules,

NOTE Confidence: 0.8231446125

00:50:40.490 --> 00:50:41.394 observing them over time.

NOTE Confidence: 0.8231446125

00:50:41.394 --> 00:50:42.750 You have to observe the Natural

NOTE Confidence: 0.8231446125

00:50:42.794 --> 00:50:44.030 History of them. But that means,

NOTE Confidence: 0.8231446125

00:50:44.030 --> 00:50:45.390 you know, without intervention really.

NOTE Confidence: 0.8231446125

00:50:45.390 --> 00:50:48.170 And so that it's very it's harder, I think,

NOTE Confidence: 0.8231446125

00:50:48.170 --> 00:50:50.330 in the United States to not do something

NOTE Confidence: 0.8231446125

00:50:50.385 --> 00:50:52.809 both for the patient and for their provider.

NOTE Confidence: 0.8231446125

00:50:52.810 --> 00:50:54.762 I've seen plenty of cases where I've taken

NOTE Confidence: 0.8231446125

00:50:54.762 --> 00:50:57.108 out a 1 centimeter or less small thyroid

NOTE Confidence: 0.8231446125

00:50:57.108 --> 00:50:59.029 cancer patient never had a recurrence.

NOTE Confidence: 0.8231446125

00:50:59.030 --> 00:51:00.150 They're happy and fine.

NOTE Confidence: 0.8231446125

00:51:00.150 --> 00:51:02.101 There have been cases where they've had

NOTE Confidence: 0.8231446125

00:51:02.101 --> 00:51:03.885 to be on thyroid hormone and then I've

NOTE Confidence: 0.8231446125

00:51:03.885 --> 00:51:05.816 seen cases where a small nodule where I

NOTE Confidence: 0.8231446125

00:51:05.816 --> 00:51:08.590 was planning to just do a lobectomy on.

NOTE Confidence: 0.8231446125

00:51:08.590 --> 00:51:10.144 Because it was less than a centimeter,

NOTE Confidence: 0.8231446125

00:51:10.150 --> 00:51:12.298 but then that patient presents with

NOTE Confidence: 0.8231446125

00:51:12.300 --> 00:51:14.625 a palpable or clinically relevant

NOTE Confidence: 0.8231446125

00:51:14.625 --> 00:51:16.020 lateral neck disease,

NOTE Confidence: 0.8231446125

00:51:16.020 --> 00:51:16.324 lymphadenopathy.

NOTE Confidence: 0.8231446125

00:51:16.324 --> 00:51:18.452 So despite it being a small lesion

NOTE Confidence: 0.8231446125

00:51:18.452 --> 00:51:20.174 that had escaped to the lateral

NOTE Confidence: 0.8231446125

00:51:20.174 --> 00:51:21.758 neck and that patient needs a

NOTE Confidence: 0.8231446125

00:51:21.811 --> 00:51:23.686 maximally invasive type of procedure.

NOTE Confidence: 0.8231446125

00:51:23.690 --> 00:51:25.642 So I think we just need more time

NOTE Confidence: 0.8231446125

00:51:25.642 --> 00:51:27.266 and experience and and and and

NOTE Confidence: 0.8231446125

00:51:27.266 --> 00:51:28.616 biomarkers to try and determine

NOTE Confidence: 0.8231446125

00:51:28.616 --> 00:51:30.207 which ones are the bad players,

NOTE Confidence: 0.8231446125

00:51:30.210 --> 00:51:31.491 can we predict them in advance and

NOTE Confidence: 0.8231446125

00:51:31.491 --> 00:51:33.107 to date I don't think we have a

NOTE Confidence: 0.8231446125

00:51:33.107 --> 00:51:34.380 very good way of predicting that.

NOTE Confidence: 0.817456704444445

00:51:46.270 --> 00:51:48.286 So that that last that last

NOTE Confidence: 0.817456704444445

00:51:48.286 --> 00:51:50.354 study that you talked about was

NOTE Confidence: 0.817456704444445

00:51:50.354 --> 00:51:52.310 pretty was kind of a teaser.

NOTE Confidence: 0.817456704444445

00:51:52.310 --> 00:51:54.116 Do you think that it's going to

NOTE Confidence: 0.817456704444445

00:51:54.116 --> 00:51:55.808 be equivalent or are you going to

NOTE Confidence: 0.817456704444445

00:51:55.810 --> 00:51:58.925 start offering the RFA for your for

NOTE Confidence: 0.817456704444445

00:51:58.925 --> 00:52:01.589 your patients with thyroid cancer?

NOTE Confidence: 0.817456704444445

00:52:01.590 --> 00:52:03.822 And the other part of that was that

NOTE Confidence: 0.817456704444445

00:52:03.822 --> 00:52:05.981 there were originally over 1000 patients

NOTE Confidence: 0.817456704444445

00:52:05.981 --> 00:52:08.677 that were eligible for that study but

NOTE Confidence: 0.817456704444445

00:52:08.677 --> 00:52:10.715 ended up comparing only about 190

NOTE Confidence: 0.817456704444445

00:52:10.715 --> 00:52:13.635 some and so is there really just a

NOTE Confidence: 0.817456704444445

00:52:13.635 --> 00:52:16.390 certain subset of of thyroid cancers?

NOTE Confidence: 0.817456704444445

00:52:16.390 --> 00:52:20.078 That that could be addressed by by RFA.

NOTE Confidence: 0.817456704444445

00:52:20.080 --> 00:52:21.940 Great talk. Thank you. Thanks.

NOTE Confidence: 0.817456704444445

00:52:21.940 --> 00:52:24.238 So, yes, so very good questions.

NOTE Confidence: 0.817456704444445

00:52:24.240 --> 00:52:26.481 I think there's a lot that we don't know

NOTE Confidence: 0.817456704444445

00:52:26.481 --> 00:52:28.505 about how best to implement this, right.

NOTE Confidence: 0.817456704444445

00:52:28.505 --> 00:52:30.465 So I think the guidelines to date and

NOTE Confidence: 0.817456704444445

00:52:30.465 --> 00:52:32.218 the experience worldwide has largely

NOTE Confidence: 0.817456704444445

00:52:32.218 --> 00:52:34.033 been for benign thyroid nodule.

NOTE Confidence: 0.817456704444445

00:52:34.040 --> 00:52:35.258 So I think here in the US,

NOTE Confidence: 0.817456704444445

00:52:35.260 --> 00:52:36.778 we're becoming more comfortable with saying,

NOTE Confidence: 0.817456704444445

00:52:36.780 --> 00:52:38.634 OK, this is an appropriate potential

NOTE Confidence: 0.817456704444445

00:52:38.634 --> 00:52:40.280 intervention for benign thyroid nodules,

NOTE Confidence: 0.817456704444445

00:52:40.280 --> 00:52:40.671 right.

NOTE Confidence: 0.817456704444445

00:52:40.671 --> 00:52:43.017 And and the literature supports that,

NOTE Confidence: 0.817456704444445

00:52:43.020 --> 00:52:45.060 what we don't have and in the case

NOTE Confidence: 0.817456704444445

00:52:45.060 --> 00:52:46.796 of recurrences or in patients who

NOTE Confidence: 0.817456704444445

00:52:46.796 --> 00:52:48.256 would not qualify for surgery

NOTE Confidence: 0.817456704444445

00:52:48.256 --> 00:52:50.056 because of other comorbidities, OK.

NOTE Confidence: 0.817456704444445

00:52:50.056 --> 00:52:51.848 Yeah, here's another thing we can offer.

NOTE Confidence: 0.817456704444445

00:52:51.850 --> 00:52:53.308 Without just sitting and knowing that

NOTE Confidence: 0.817456704444445

00:52:53.308 --> 00:52:54.660 it's there and potentially going to,

NOTE Confidence: 0.817456704444445

00:52:54.660 --> 00:52:55.890 you know, cause some problems.

00:52:55.890 --> 00:52:59.229 So what we're trying to define and decide is,

00:52:59.230 --> 00:53:01.465 is this an effective treatment

00:53:01.465 --> 00:53:02.980 for these small PTC's,

00:53:02.980 --> 00:53:04.170 which is the question of the day.

00:53:04.170 --> 00:53:05.358 And if I had that answer, probably,

00:53:05.358 --> 00:53:06.862 you know, I wouldn't be here right now,

00:53:06.870 --> 00:53:07.283 right.

00:53:07.283 --> 00:53:10.174 So I think it's going to have

00:53:10.174 --> 00:53:12.570 to involve a lot of education,

00:53:12.570 --> 00:53:14.124 a lot of experience on the part

00:53:14.124 --> 00:53:15.812 of the provider who's doing this

00:53:15.812 --> 00:53:17.108 intervention and comfort level.

00:53:17.110 --> 00:53:17.986 So, you know,

00:53:17.986 --> 00:53:20.030 the best way to have an effective

00:53:20.030 --> 00:53:22.256 implementation of a new program is.

00:53:22.260 --> 00:53:24.534 To really pick the ideal candidates, right.

NOTE Confidence: 0.817456704444445

00:53:24.534 --> 00:53:26.406 So you want lesions that are about 2

NOTE Confidence: 0.817456704444445

00:53:26.406 --> 00:53:28.064 centimeters or so, so not too small,

NOTE Confidence: 0.817456704444445

00:53:28.064 --> 00:53:29.750 so that you'll damage some surrounding

NOTE Confidence: 0.817456704444445

00:53:29.806 --> 00:53:30.560 healthy tissue,

NOTE Confidence: 0.817456704444445

00:53:30.560 --> 00:53:32.132 not too large that you'll have

NOTE Confidence: 0.817456704444445

00:53:32.132 --> 00:53:32.918 an ineffective outcome,

NOTE Confidence: 0.817456704444445

00:53:32.920 --> 00:53:34.677 but just to kind of perfect size.

NOTE Confidence: 0.817456704444445

00:53:34.680 --> 00:53:36.626 And you want to start with benign

NOTE Confidence: 0.817456704444445

00:53:36.626 --> 00:53:38.793 thyroid nodules so that you can get

NOTE Confidence: 0.817456704444445

00:53:38.793 --> 00:53:40.393 an effective improvement in symptoms,

NOTE Confidence: 0.817456704444445

00:53:40.400 --> 00:53:44.960 I think no matter what, even if I take out.

NOTE Confidence: 0.817456704444445

00:53:44.960 --> 00:53:46.772 UH-1 centimeter thyroid cancer by doing

NOTE Confidence: 0.817456704444445

00:53:46.772 --> 00:53:49.168 a lobectomy or even a total thyroidectomy,

NOTE Confidence: 0.817456704444445

00:53:49.170 --> 00:53:50.760 there's still no guarantee that that

NOTE Confidence: 0.817456704444445

00:53:50.760 --> 00:53:52.450 patient will never have a recurrence.

NOTE Confidence: 0.817456704444445

00:53:52.450 --> 00:53:54.788 We feel pretty strongly that they won't.

NOTE Confidence: 0.817456704444445

00:53:54.790 --> 00:53:55.722 But if there was,

NOTE Confidence: 0.817456704444445

00:53:55.722 --> 00:53:56.188 you know,

NOTE Confidence: 0.817456704444445

00:53:56.190 --> 00:53:57.834 single cells in transit that just

NOTE Confidence: 0.817456704444445

00:53:57.834 --> 00:53:58.930 wasn't detected on ultrasound,

NOTE Confidence: 0.817456704444445

00:53:58.930 --> 00:54:00.586 eventually they're going to show themselves.

NOTE Confidence: 0.817456704444445

00:54:00.590 --> 00:54:02.246 And we see that time and time again.

NOTE Confidence: 0.817456704444445

00:54:02.250 --> 00:54:03.890 We see it when we do a thyroid

NOTE Confidence: 0.817456704444445

00:54:03.890 --> 00:54:05.396 lobectomy for a small thyroid cancer

NOTE Confidence: 0.817456704444445

00:54:05.396 --> 00:54:06.962 and then those patients are under

NOTE Confidence: 0.817456704444445

00:54:07.014 --> 00:54:09.135 surveillance with you all as the primary

NOTE Confidence: 0.817456704444445

00:54:09.135 --> 00:54:10.604 care and endocrinologist and three,

NOTE Confidence: 0.817456704444445

00:54:10.604 --> 00:54:12.543 six months, two years down the line.

NOTE Confidence: 0.817456704444445

00:54:12.550 --> 00:54:14.710 OK, I see a little tired 4 lesion.

NOTE Confidence: 0.817456704444445

00:54:14.710 --> 00:54:16.534 In the in the remaining lobe

NOTE Confidence: 0.817456704444445

00:54:16.534 --> 00:54:18.319 and then that turns into OK,

NOTE Confidence: 0.796447958

00:54:18.320 --> 00:54:20.192 there's another focus of cancer or there's a

NOTE Confidence: 0.796447958

00:54:20.192 --> 00:54:22.019 single lymph node here that looks concerning.

NOTE Confidence: 0.796447958

00:54:22.020 --> 00:54:23.916 So I think there's no way to guarantee

NOTE Confidence: 0.796447958

00:54:23.916 --> 00:54:26.001 that cancer will not come back and I think

NOTE Confidence: 0.796447958

00:54:26.001 --> 00:54:28.000 patients have to understand that regardless,

NOTE Confidence: 0.796447958

00:54:28.000 --> 00:54:29.995 regardless of the intervention that you use.

NOTE Confidence: 0.796447958

00:54:30.000 --> 00:54:31.770 But to kind of more specifically

NOTE Confidence: 0.796447958

00:54:31.770 --> 00:54:32.655 answer your question,

NOTE Confidence: 0.796447958

00:54:32.660 --> 00:54:34.410 I think ultimately that would be my

NOTE Confidence: 0.796447958

00:54:34.410 --> 00:54:36.784 goal to be able to treat these small PTC

NOTE Confidence: 0.796447958

00:54:36.784 --> 00:54:38.918 because I do think that it's overkill.

NOTE Confidence: 0.796447958

00:54:38.920 --> 00:54:40.402 So many years ago when I

NOTE Confidence: 0.796447958

00:54:40.402 --> 00:54:41.720 first started here in 2013,

NOTE Confidence: 0.796447958

00:54:41.720 --> 00:54:43.752 we were doing a total thyroidectomy for our

NOTE Confidence: 0.796447958

00:54:43.752 --> 00:54:45.400 one centimeter thyroid cancer routinely.

NOTE Confidence: 0.796447958

00:54:45.400 --> 00:54:47.410 Total correctly, central neck dissection.

NOTE Confidence: 0.796447958

00:54:47.410 --> 00:54:48.718 And then you know,

NOTE Confidence: 0.796447958

00:54:48.718 --> 00:54:50.353 the American Association of Endocrine

NOTE Confidence: 0.796447958

00:54:50.353 --> 00:54:52.347 Surgeons and other organizations said OK,

NOTE Confidence: 0.796447958

00:54:52.350 --> 00:54:53.916 is this overkill because we're putting

NOTE Confidence: 0.796447958

00:54:53.916 --> 00:54:55.795 so many patients on lifelong thyroid

NOTE Confidence: 0.796447958

00:54:55.795 --> 00:54:57.359 hormone supplementation for cancer,

NOTE Confidence: 0.796447958

00:54:57.360 --> 00:54:59.166 that's likely not going to kill them.

NOTE Confidence: 0.796447958

00:54:59.170 --> 00:55:01.060 You know, it requires some treatment,

NOTE Confidence: 0.796447958

00:55:01.060 --> 00:55:02.404 but it's not going to kill them.

NOTE Confidence: 0.796447958

00:55:02.410 --> 00:55:04.129 So then we kind of took a step back

NOTE Confidence: 0.796447958

00:55:04.129 --> 00:55:05.843 and and revised our guidelines to say

NOTE Confidence: 0.796447958

00:55:05.843 --> 00:55:07.742 that a nodule up to 4 centimeters

NOTE Confidence: 0.796447958

00:55:07.742 --> 00:55:09.187 can be successfully treated with

NOTE Confidence: 0.796447958

00:55:09.187 --> 00:55:10.025 a thyroid lobectomy.

NOTE Confidence: 0.796447958

00:55:10.025 --> 00:55:12.320 Now I can tell you from the surgeon side,

NOTE Confidence: 0.796447958

00:55:12.320 --> 00:55:14.264 many of us are reluctant to have a 4

NOTE Confidence: 0.796447958

00:55:14.264 --> 00:55:15.627 centimeter thyroid nodule and just.

NOTE Confidence: 0.796447958

00:55:15.630 --> 00:55:17.568 To a lobectomy on those nodules

NOTE Confidence: 0.796447958

00:55:17.568 --> 00:55:19.456 because the normal dimensions of a

NOTE Confidence: 0.796447958

00:55:19.456 --> 00:55:21.076 thyroid gland or thyroid lobe is

NOTE Confidence: 0.796447958

00:55:21.076 --> 00:55:22.677 anywhere from 4 to 6 centimeters.

NOTE Confidence: 0.796447958

00:55:22.680 --> 00:55:24.486 So over 2/3 of the volume

NOTE Confidence: 0.796447958

00:55:24.486 --> 00:55:26.280 of that lobe is cancer.

NOTE Confidence: 0.796447958

00:55:26.280 --> 00:55:28.098 And I think that's, you know,

NOTE Confidence: 0.796447958

00:55:28.100 --> 00:55:30.260 not appropriate in my personal opinion,

NOTE Confidence: 0.796447958

00:55:30.260 --> 00:55:32.740 2 centimeters or less reasonable.

NOTE Confidence: 0.796447958

00:55:32.740 --> 00:55:34.528 So you know.

NOTE Confidence: 0.796447958

00:55:34.528 --> 00:55:36.316 But with that,

NOTE Confidence: 0.796447958

00:55:36.320 --> 00:55:37.745 there's still always the chance

NOTE Confidence: 0.796447958

00:55:37.745 --> 00:55:38.315 of recurrence.

NOTE Confidence: 0.796447958

00:55:38.320 --> 00:55:41.155 I I do think that as we get more

NOTE Confidence: 0.796447958

00:55:41.155 --> 00:55:43.020 comfortable and effective in performing

NOTE Confidence: 0.796447958

00:55:43.020 --> 00:55:44.940 the RF ablation for the benign,

NOTE Confidence: 0.796447958

00:55:44.940 --> 00:55:45.705 then there's this.

NOTE Confidence: 0.796447958

00:55:45.705 --> 00:55:47.235 Opportunity to kind of deal with.

NOTE Confidence: 0.796447958

00:55:47.240 --> 00:55:48.759 So the next phase will be like

NOTE Confidence: 0.796447958

00:55:48.759 --> 00:55:49.711 these indeterminate nodules, right,

NOTE Confidence: 0.796447958

00:55:49.711 --> 00:55:51.216 dealing with the indeterminate nodules.

NOTE Confidence: 0.796447958

00:55:51.220 --> 00:55:52.006 And then ultimately,

NOTE Confidence: 0.796447958

00:55:52.006 --> 00:55:52.268 yeah,

NOTE Confidence: 0.796447958

00:55:52.268 --> 00:55:54.178 I think the goal would be for

NOTE Confidence: 0.796447958

00:55:54.178 --> 00:55:55.591 these very small lesions ablating

NOTE Confidence: 0.796447958

00:55:55.591 --> 00:55:56.996 those lesions and then following

NOTE Confidence: 0.796447958

00:55:56.996 --> 00:55:58.721 them over time and making sure

NOTE Confidence: 0.796447958

00:55:58.721 --> 00:56:00.377 that we are continuing to follow

NOTE Confidence: 0.796447958

00:56:00.377 --> 00:56:01.449 those patients over time.

NOTE Confidence: 0.796447958

00:56:01.450 --> 00:56:03.378 So that they do if they do present

NOTE Confidence: 0.796447958

00:56:03.378 --> 00:56:04.974 with you know locally advanced

NOTE Confidence: 0.796447958

00:56:04.974 --> 00:56:06.993 disease that they also still are

NOTE Confidence: 0.796447958

00:56:06.993 --> 00:56:08.308 able to get effective treatment.

NOTE Confidence: 0.796447958

00:56:08.310 --> 00:56:09.576 And I think that's important thing

NOTE Confidence: 0.796447958

00:56:09.576 --> 00:56:11.126 to note too is that surgery is

NOTE Confidence: 0.796447958

00:56:11.126 --> 00:56:12.666 never off the table in the majority

NOTE Confidence: 0.796447958

00:56:12.709 --> 00:56:14.459 of cases even if you have another

NOTE Confidence: 0.796447958

00:56:14.459 --> 00:56:15.888 intervention before then similar to.

NOTE Confidence: 0.796447958

00:56:15.888 --> 00:56:17.244 Patients who undergo radioactive

NOTE Confidence: 0.796447958

00:56:17.244 --> 00:56:18.960 iodine therapy for Graves' disease,

NOTE Confidence: 0.796447958

00:56:18.960 --> 00:56:21.120 you know, makes the surgery tougher,

NOTE Confidence: 0.796447958

00:56:21.120 --> 00:56:23.645 but if that, if those if that fails,

NOTE Confidence: 0.796447958

00:56:23.645 --> 00:56:25.150 those patients would still go on to

NOTE Confidence: 0.796447958

00:56:25.197 --> 00:56:26.760 surgery to treat their Graves' disease.

NOTE Confidence: 0.843001321176471

00:56:37.090 --> 00:56:38.730 Actually, Gibson, are there any

NOTE Confidence: 0.843001321176471

00:56:38.730 --> 00:56:40.370 specific training guidelines in order

NOTE Confidence: 0.843001321176471

00:56:40.425 --> 00:56:41.944 to be able to do this procedure?

NOTE Confidence: 0.843001321176471

00:56:41.950 --> 00:56:44.462 So that is being worked on by multiple

NOTE Confidence: 0.843001321176471

00:56:44.462 --> 00:56:46.518 medical societies and because of the

NOTE Confidence: 0.843001321176471

00:56:46.518 --> 00:56:48.570 people who are performing these procedures

NOTE Confidence: 0.843001321176471

00:56:48.631 --> 00:56:50.536 come from very varied backgrounds.

NOTE Confidence: 0.843001321176471

00:56:50.540 --> 00:56:52.030 Do you have medical endocrinologists?

NOTE Confidence: 0.843001321176471

00:56:52.030 --> 00:56:53.101 You have interventional

NOTE Confidence: 0.843001321176471

00:56:53.101 --> 00:56:54.886 radiologists and you have surgeons?

NOTE Confidence: 0.843001321176471

00:56:54.890 --> 00:56:56.642 And so there's a different experience

NOTE Confidence: 0.843001321176471

00:56:56.642 --> 00:56:58.790 that each one of us has undergone.

NOTE Confidence: 0.843001321176471

00:56:58.790 --> 00:57:00.758 And so we're trying to kind of coordinate

NOTE Confidence: 0.843001321176471

00:57:00.758 --> 00:57:02.697 and figure out what's the best way to

NOTE Confidence: 0.843001321176471

00:57:02.697 --> 00:57:04.200 get that experience so to keep it.

NOTE Confidence: 0.843001321176471

00:57:04.200 --> 00:57:04.788 Safer patients.

NOTE Confidence: 0.843001321176471

00:57:04.788 --> 00:57:06.552 So one, you definitely need to

NOTE Confidence: 0.843001321176471

00:57:06.552 --> 00:57:07.895 have experience and comfort

NOTE Confidence: 0.843001321176471

00:57:07.895 --> 00:57:08.948 in performing ultrasound.

NOTE Confidence: 0.843001321176471

00:57:08.950 --> 00:57:11.006 So that is universal that needs to happen.

NOTE Confidence: 0.843001321176471

00:57:11.010 --> 00:57:12.640 You don't necessarily have to

NOTE Confidence: 0.843001321176471

00:57:12.640 --> 00:57:14.270 have a experience in performing

NOTE Confidence: 0.843001321176471

00:57:14.331 --> 00:57:15.667 a fine needle aspiration.

NOTE Confidence: 0.843001321176471

00:57:15.670 --> 00:57:17.581 Biopsies is helpful I think to have

NOTE Confidence: 0.843001321176471

00:57:17.581 --> 00:57:19.349 that experience but it's not required.

NOTE Confidence: 0.843001321176471

00:57:19.350 --> 00:57:21.233 But you are going to need some

NOTE Confidence: 0.843001321176471

00:57:21.233 --> 00:57:23.363 sort of formal training either on

NOTE Confidence: 0.843001321176471

00:57:23.363 --> 00:57:25.458 cadaver models or an observership

NOTE Confidence: 0.843001321176471

00:57:25.458 --> 00:57:28.332 afterwards in observing a real

NOTE Confidence: 0.843001321176471

00:57:28.332 --> 00:57:30.784 live RFA ablation procedures.

NOTE Confidence: 0.843001321176471

00:57:30.790 --> 00:57:34.514 There is a surgeon in Brazil who.

NOTE Confidence: 0.843001321176471

00:57:34.520 --> 00:57:36.554 Prior to the pandemic was actually

NOTE Confidence: 0.843001321176471

00:57:36.554 --> 00:57:38.556 allowing people to come on site

NOTE Confidence: 0.843001321176471

00:57:38.556 --> 00:57:40.600 and Brazil and to observe and then

NOTE Confidence: 0.843001321176471

00:57:40.600 --> 00:57:42.710 perform RFA ablation and his patients.

NOTE Confidence: 0.843001321176471

00:57:42.710 --> 00:57:43.192 But again,

NOTE Confidence: 0.843001321176471

00:57:43.192 --> 00:57:45.120 that is not something that is going to

NOTE Confidence: 0.843001321176471

00:57:45.171 --> 00:57:47.138 be widely accepted in the United States,

NOTE Confidence: 0.843001321176471

00:57:47.140 --> 00:57:47.419 right.

NOTE Confidence: 0.843001321176471

00:57:47.419 --> 00:57:49.651 So we're going to be reduced to one

NOTE Confidence: 0.843001321176471

00:57:49.651 --> 00:57:51.503 getting ample experience in ultrasound

NOTE Confidence: 0.843001321176471

00:57:51.503 --> 00:57:53.393 performance and then you know,

NOTE Confidence: 0.843001321176471

00:57:53.400 --> 00:57:56.280 experience with cat cadaver

NOTE Confidence: 0.843001321176471

00:57:56.280 --> 00:57:57.720 and observerships.

NOTE Confidence: 0.843001321176471

00:57:57.720 --> 00:57:59.128 I think that is going to be kind

NOTE Confidence: 0.843001321176471

00:57:59.128 --> 00:58:00.618 of the standard moving forward.

NOTE Confidence: 0.844582432

00:58:02.870 --> 00:58:04.070 Great. Well, thank you everyone.

NOTE Confidence: 0.844582432

00:58:04.070 --> 00:58:05.435 I think it's it's at the hour

NOTE Confidence: 0.844582432

00:58:05.435 --> 00:58:06.320 and thanks Doctor Gibson

NOTE Confidence: 0.8930399

00:58:06.330 --> 00:58:07.479 again. Thank you.