

WEBVTT

NOTE duration:"00:42:48.6000000"

NOTE recognizability:0.932

NOTE language:en-us

NOTE Confidence: 0.9388142

00:00:00.000 --> 00:00:01.566 Good afternoon everyone.

NOTE Confidence: 0.9388142

00:00:01.566 --> 00:00:06.240 My name is Courtney Gibson and I'm an end

NOTE Confidence: 0.9388142

00:00:06.240 --> 00:00:09.474 concern here at Yale New Haven Hospital.

NOTE Confidence: 0.9388142

00:00:09.480 --> 00:00:12.399 So I'd like to thank the hyperparathyroidism

NOTE Confidence: 0.9388142

00:00:12.400 --> 00:00:13.992 support and information group.

NOTE Confidence: 0.9388142

00:00:13.992 --> 00:00:16.886 I'm headed by Rochelle for inviting me to

NOTE Confidence: 0.9388142

00:00:16.886 --> 00:00:19.547 going to give a talk on you know general

NOTE Confidence: 0.9388142

00:00:19.547 --> 00:00:21.343 aspects of primary hyperparathyroidism

NOTE Confidence: 0.9388142

00:00:21.343 --> 00:00:23.833 and more specifically to answer the

NOTE Confidence: 0.9388142

00:00:23.833 --> 00:00:25.638 many thoughtful question that you

NOTE Confidence: 0.9388142

00:00:25.638 --> 00:00:27.650 questions that you all have sent in.

NOTE Confidence: 0.9388142

00:00:27.650 --> 00:00:31.306 So I'm hoping to just give a brief

NOTE Confidence: 0.9388142

00:00:31.306 --> 00:00:33.480 overview that I hope answer some

NOTE Confidence: 0.9388142

00:00:33.480 --> 00:00:34.955 questions just about the disease  
NOTE Confidence: 0.9388142

00:00:34.955 --> 00:00:36.594 process itself and then we'll get  
NOTE Confidence: 0.9388142

00:00:36.594 --> 00:00:37.998 into some of the questions that  
NOTE Confidence: 0.9388142

00:00:37.998 --> 00:00:39.409 you have specifically asked.  
NOTE Confidence: 0.9388142

00:00:39.410 --> 00:00:41.906 So I'm going to go ahead and share  
NOTE Confidence: 0.9388142

00:00:41.906 --> 00:00:44.250 my screen here if I can do so.  
NOTE Confidence: 0.9388142

00:00:44.250 --> 00:00:45.330 Let's see here  
NOTE Confidence: 0.9299927

00:00:49.890 --> 00:00:51.042 Okay. All right.  
NOTE Confidence: 0.9299927

00:00:51.042 --> 00:00:53.730 So hopefully you all can see this.  
NOTE Confidence: 0.9299927

00:00:53.730 --> 00:00:56.354 So again, my name is Courtney Gibson and  
NOTE Confidence: 0.9299927

00:00:56.354 --> 00:00:58.647 I'm Associate Professor of Surgery here.  
NOTE Confidence: 0.9299927

00:00:58.650 --> 00:01:00.554 I'm an endocrine surgeon here at Yale  
NOTE Confidence: 0.9299927

00:01:00.554 --> 00:01:02.766 and I've been here for the past 10 years.  
NOTE Confidence: 0.9299927

00:01:02.766 --> 00:01:04.610 And today I just want to talk  
NOTE Confidence: 0.9299927

00:01:04.610 --> 00:01:05.849 about parathyroid disease.  
NOTE Confidence: 0.9299927

00:01:05.850 --> 00:01:08.442 What is it and how do we treat it?

NOTE Confidence: 0.9299927

00:01:08.450 --> 00:01:10.170 I have no disclosures.

NOTE Confidence: 0.9299927

00:01:10.170 --> 00:01:11.890 So first and foremost,

NOTE Confidence: 0.9299927

00:01:11.890 --> 00:01:12.866 primary hyperparathyroidism,

NOTE Confidence: 0.9299927

00:01:12.866 --> 00:01:14.878 which is the, you know,

NOTE Confidence: 0.9299927

00:01:14.878 --> 00:01:16.248 the essence of our talk,

NOTE Confidence: 0.9299927

00:01:16.250 --> 00:01:17.955 is the most common endocrine

NOTE Confidence: 0.9299927

00:01:17.955 --> 00:01:19.660 disorder of all endocrine disorders

NOTE Confidence: 0.9299927

00:01:19.660 --> 00:01:21.670 occurring in approximately one in 800

NOTE Confidence: 0.9299927

00:01:21.670 --> 00:01:23.819 people in the United States alone.

NOTE Confidence: 0.9299927

00:01:23.820 --> 00:01:26.148 And that number increases to one

NOTE Confidence: 0.9299927

00:01:26.148 --> 00:01:28.577 in 250 women over the age of 60.

NOTE Confidence: 0.9299927

00:01:28.580 --> 00:01:30.740 Although it can happen to any

NOTE Confidence: 0.9299927

00:01:30.740 --> 00:01:32.180 gender at any age,

NOTE Confidence: 0.9299927

00:01:32.180 --> 00:01:34.700 the male to female ratio is pretty

NOTE Confidence: 0.9299927

00:01:34.700 --> 00:01:37.102 even under the age of 40 and increases

NOTE Confidence: 0.9299927

00:01:37.102 --> 00:01:39.358 to about 4:00 to 1:00 on the female  
NOTE Confidence: 0.9299927

00:01:39.358 --> 00:01:41.058 side once you're over age 60.  
NOTE Confidence: 0.9299927

00:01:41.060 --> 00:01:42.818 There's approximately 100,000  
NOTE Confidence: 0.9299927

00:01:42.818 --> 00:01:45.162 cases diagnosed annually and  
NOTE Confidence: 0.9299927

00:01:45.162 --> 00:01:46.920 that's diagnosed cases.  
NOTE Confidence: 0.9299927

00:01:46.920 --> 00:01:50.524 And we do know that there is a common  
NOTE Confidence: 0.9299927

00:01:50.524 --> 00:01:52.510 underdiagnosis and misdiagnosis  
NOTE Confidence: 0.9299927

00:01:52.510 --> 00:01:54.622 that happens nationally and  
NOTE Confidence: 0.9299927

00:01:54.622 --> 00:01:56.577 internationally which leads to some  
NOTE Confidence: 0.9299927

00:01:56.577 --> 00:01:58.280 significant problems for patients.  
NOTE Confidence: 0.9249644

00:02:01.800 --> 00:02:04.411 So in general, you know what is  
NOTE Confidence: 0.9249644

00:02:04.411 --> 00:02:05.157 primary hyperparathyroidism.  
NOTE Confidence: 0.9249644

00:02:05.160 --> 00:02:07.566 It is over secretion of parathyroid  
NOTE Confidence: 0.9249644

00:02:07.566 --> 00:02:11.070 hormone by one or more parathyroid glands.  
NOTE Confidence: 0.9249644

00:02:11.070 --> 00:02:12.300 So under normal conditions, whatever  
NOTE Confidence: 0.9249644

00:02:12.300 --> 00:02:14.349 we eat or drink that has calcium in it,

NOTE Confidence: 0.9249644

00:02:14.350 --> 00:02:16.742 our body stores the the calcium that we

NOTE Confidence: 0.9249644

00:02:16.742 --> 00:02:19.508 need in our bones in our skeletal system.

NOTE Confidence: 0.9249644

00:02:19.510 --> 00:02:21.530 And the excess amount largely

NOTE Confidence: 0.9249644

00:02:21.530 --> 00:02:23.550 gets excreted in the urine.

NOTE Confidence: 0.9249644

00:02:23.550 --> 00:02:25.170 And our when our parathyroid

NOTE Confidence: 0.9249644

00:02:25.170 --> 00:02:26.466 glands are functioning normally,

NOTE Confidence: 0.9249644

00:02:26.470 --> 00:02:28.110 this process happens pretty smoothly.

NOTE Confidence: 0.9249644

00:02:28.110 --> 00:02:29.670 And that's why many of us,

NOTE Confidence: 0.9249644

00:02:29.670 --> 00:02:30.372 many patients,

NOTE Confidence: 0.9249644

00:02:30.372 --> 00:02:32.127 don't even know that they're

NOTE Confidence: 0.9249644

00:02:32.127 --> 00:02:33.550 that parathyroid glands exist.

NOTE Confidence: 0.9249644

00:02:33.550 --> 00:02:35.870 But somehow for unknown reasons,

NOTE Confidence: 0.9249644

00:02:35.870 --> 00:02:38.362 one or more of these glands can

NOTE Confidence: 0.9249644

00:02:38.362 --> 00:02:39.430 become autonomously functioning,

NOTE Confidence: 0.9249644

00:02:39.430 --> 00:02:41.730 meaning they don't follow the

NOTE Confidence: 0.9249644

00:02:41.730 --> 00:02:43.980 normal process of, you know,  
NOTE Confidence: 0.9249644

00:02:43.980 --> 00:02:45.720 calcium regulation and they  
NOTE Confidence: 0.9249644

00:02:45.720 --> 00:02:47.025 become overactive independently.  
NOTE Confidence: 0.9249644

00:02:47.030 --> 00:02:49.067 We do know that there's an association  
NOTE Confidence: 0.9249644

00:02:49.067 --> 00:02:50.888 between high doses of radiation exposure  
NOTE Confidence: 0.9249644

00:02:50.888 --> 00:02:52.960 in childhood and the onset of parent  
NOTE Confidence: 0.9249644

00:02:53.020 --> 00:02:54.706 thyroid disease later on in life.  
NOTE Confidence: 0.9249644

00:02:54.710 --> 00:02:57.027 But for the majority of these cases  
NOTE Confidence: 0.9249644

00:02:57.030 --> 00:02:58.590 that that history doesn't exist.  
NOTE Confidence: 0.9249644

00:02:58.590 --> 00:03:01.019 It's just a spontaneous event that happens  
NOTE Confidence: 0.9249644

00:03:01.019 --> 00:03:03.320 in an individual and when that happens,  
NOTE Confidence: 0.9249644

00:03:03.320 --> 00:03:05.210 there's an an excess hormone of  
NOTE Confidence: 0.9249644

00:03:05.273 --> 00:03:07.023 parathyroid hormone that gets secreted  
NOTE Confidence: 0.9249644

00:03:07.023 --> 00:03:09.791 and it tells the body to do things  
NOTE Confidence: 0.9249644

00:03:09.791 --> 00:03:11.699 that normally it shouldn't be doing.  
NOTE Confidence: 0.9249644

00:03:11.700 --> 00:03:12.555 So for example,

NOTE Confidence: 0.9249644

00:03:12.555 --> 00:03:14.940 the kidneys are told to hold onto too

NOTE Confidence: 0.9249644

00:03:14.940 --> 00:03:17.222 much calcium and so that's why patients

NOTE Confidence: 0.9249644

00:03:17.222 --> 00:03:18.392 with primary hyperparathyroidism

NOTE Confidence: 0.9249644

00:03:18.392 --> 00:03:21.134 are prone to develop kidney stones.

NOTE Confidence: 0.9249644

00:03:21.140 --> 00:03:22.025 Along with that,

NOTE Confidence: 0.9249644

00:03:22.025 --> 00:03:24.090 they tend to have polyuria or frequent

NOTE Confidence: 0.9249644

00:03:24.150 --> 00:03:25.600 urination because the kidneys are

NOTE Confidence: 0.9249644

00:03:25.600 --> 00:03:27.749 trying to get rid of the excess

NOTE Confidence: 0.9249644

00:03:27.749 --> 00:03:29.681 calcium that is coming into the

NOTE Confidence: 0.9249644

00:03:29.681 --> 00:03:31.730 collecting system and that can lead to,

NOTE Confidence: 0.9249644

00:03:31.730 --> 00:03:32.546 you know,

NOTE Confidence: 0.9249644

00:03:32.546 --> 00:03:34.415 excessive thirst or constant

NOTE Confidence: 0.9249644

00:03:34.415 --> 00:03:36.350 feelings of dehydration.

NOTE Confidence: 0.9249644

00:03:36.350 --> 00:03:39.314 The intestinal system also changes

NOTE Confidence: 0.9249644

00:03:39.314 --> 00:03:40.850 when there's parathyroid hormone,

NOTE Confidence: 0.9249644

00:03:40.850 --> 00:03:42.074 excess in the body.  
NOTE Confidence: 0.9249644

00:03:42.074 --> 00:03:43.604 And instead of getting revved  
NOTE Confidence: 0.9249644

00:03:43.604 --> 00:03:45.110 up like the kidneys do,  
NOTE Confidence: 0.9249644

00:03:45.110 --> 00:03:47.090 the intestines tend to slow down,  
NOTE Confidence: 0.9249644

00:03:47.090 --> 00:03:50.018 their motility slows down and there's  
NOTE Confidence: 0.9249644

00:03:50.018 --> 00:03:51.970 decreased peristalsis or movement  
NOTE Confidence: 0.9249644

00:03:52.043 --> 00:03:54.308 of intraluminal fluids and and  
NOTE Confidence: 0.9249644

00:03:54.308 --> 00:03:56.573 solids within the intestinal system  
NOTE Confidence: 0.9249644

00:03:56.651 --> 00:03:58.985 and that can lead to Constipation.  
NOTE Confidence: 0.9249644

00:03:58.990 --> 00:04:00.370 Constipation is something that can  
NOTE Confidence: 0.9249644

00:04:00.370 --> 00:04:02.830 happen to any of us at any given moment.  
NOTE Confidence: 0.9249644

00:04:02.830 --> 00:04:04.745 But when it's pretty consistent  
NOTE Confidence: 0.9249644

00:04:04.745 --> 00:04:06.660 or frequent Constipation in the  
NOTE Confidence: 0.9249644

00:04:06.724 --> 00:04:08.548 setting of hyperparathyrosism,  
NOTE Confidence: 0.9249644

00:04:08.550 --> 00:04:10.025 there definitely can be a  
NOTE Confidence: 0.9249644

00:04:10.025 --> 00:04:10.910 direct relationship there,

NOTE Confidence: 0.9408145

00:04:13.190 --> 00:04:14.990 the bones, the skeletal system.

NOTE Confidence: 0.9408145

00:04:14.990 --> 00:04:16.586 So this is as I mentioned earlier,

NOTE Confidence: 0.9408145

00:04:16.590 --> 00:04:19.038 this is where most of our calcium is

NOTE Confidence: 0.9408145

00:04:19.038 --> 00:04:21.304 stored under normal conditions and in

NOTE Confidence: 0.9408145

00:04:21.304 --> 00:04:22.614 the setting of parathyroid disease.

NOTE Confidence: 0.9408145

00:04:22.620 --> 00:04:24.666 This excess hormonal signal is telling

NOTE Confidence: 0.9408145

00:04:24.666 --> 00:04:27.475 the bones that that there is a need to

NOTE Confidence: 0.9408145

00:04:27.475 --> 00:04:29.251 release its calcium from the skeletal

NOTE Confidence: 0.9408145

00:04:29.251 --> 00:04:31.554 system and it's the release of calcium

NOTE Confidence: 0.9408145

00:04:31.554 --> 00:04:34.257 from the bones that leads to the rise in

NOTE Confidence: 0.9408145

00:04:34.257 --> 00:04:36.898 serum calcium or calcium levels in the blood.

NOTE Confidence: 0.9408145

00:04:36.900 --> 00:04:37.900 But at the same time,

NOTE Confidence: 0.9408145

00:04:37.900 --> 00:04:40.420 it is also demineralizing the bones.

NOTE Confidence: 0.9408145

00:04:40.420 --> 00:04:42.695 And so over time, patients can develop

NOTE Confidence: 0.9408145

00:04:42.695 --> 00:04:44.659 bone disease such as osteoporosis,

NOTE Confidence: 0.9408145

00:04:44.660 --> 00:04:46.660 which is the initial demineralization  
NOTE Confidence: 0.9408145

00:04:46.660 --> 00:04:48.660 of bones that is reversible.  
NOTE Confidence: 0.9408145

00:04:48.660 --> 00:04:50.538 But if gone unchecked and uncorrected,  
NOTE Confidence: 0.9408145

00:04:50.540 --> 00:04:52.020 that could lead to osteoporosis,  
NOTE Confidence: 0.9408145

00:04:52.020 --> 00:04:54.356 which is irreversible bone  
NOTE Confidence: 0.9408145

00:04:54.356 --> 00:04:56.422 loss in either case.  
NOTE Confidence: 0.9408145

00:04:56.422 --> 00:04:58.398 Parathyroid treatment of the  
NOTE Confidence: 0.9408145

00:04:58.398 --> 00:05:00.700 parathyroid disease is important.  
NOTE Confidence: 0.9408145

00:05:00.700 --> 00:05:02.060 In the case of Osteopenia,  
NOTE Confidence: 0.9408145

00:05:02.060 --> 00:05:04.436 that reversible bone loss can be  
NOTE Confidence: 0.9408145

00:05:04.436 --> 00:05:06.480 recovered completely in many cases,  
NOTE Confidence: 0.9408145

00:05:06.480 --> 00:05:07.392 whereas in osteoporosis,  
NOTE Confidence: 0.9408145

00:05:07.392 --> 00:05:09.216 those patients will go on to  
NOTE Confidence: 0.9408145

00:05:09.216 --> 00:05:11.231 likely need some sort of medical  
NOTE Confidence: 0.9408145

00:05:11.231 --> 00:05:12.559 treatment for their osteoporosis.  
NOTE Confidence: 0.9408145

00:05:12.560 --> 00:05:12.980 However,

NOTE Confidence: 0.9408145

00:05:12.980 --> 00:05:15.500 the bone density can improve with

NOTE Confidence: 0.9408145

00:05:15.500 --> 00:05:16.760 successful parathyroid treatment,

NOTE Confidence: 0.9408145

00:05:16.760 --> 00:05:18.518 treatment of hyperparathyroidism.

NOTE Confidence: 0.9408145

00:05:18.518 --> 00:05:20.276 And then lastly,

NOTE Confidence: 0.9408145

00:05:20.280 --> 00:05:22.608 there's a phenomenon or condition called

NOTE Confidence: 0.9408145

00:05:22.608 --> 00:05:24.160 neurocognitive dysfunction that is

NOTE Confidence: 0.9408145

00:05:24.216 --> 00:05:26.080 associated with parathyroid disease.

NOTE Confidence: 0.9408145

00:05:26.080 --> 00:05:29.447 That is very common syndrome or cluster

NOTE Confidence: 0.9408145

00:05:29.447 --> 00:05:33.038 of symptoms that can include memory loss,

NOTE Confidence: 0.9408145

00:05:33.040 --> 00:05:33.996 mental foginess,

NOTE Confidence: 0.9408145

00:05:33.996 --> 00:05:34.952 poor concentration,

NOTE Confidence: 0.9408145

00:05:34.952 --> 00:05:37.342 fatigue out of proportion to

NOTE Confidence: 0.9408145

00:05:37.342 --> 00:05:39.860 what one does every day and even

NOTE Confidence: 0.9408145

00:05:39.860 --> 00:05:42.064 feelings of new onset or worsening

NOTE Confidence: 0.9408145

00:05:42.064 --> 00:05:44.380 anxiety or depression that in the

NOTE Confidence: 0.9408145

00:05:44.450 --> 00:05:47.050 setting of hyperparathyroidism we  
NOTE Confidence: 0.9408145

00:05:47.050 --> 00:05:49.000 call neurocognitive dysfunction.  
NOTE Confidence: 0.9408145

00:05:49.000 --> 00:05:52.024 So how do we diagnose or work  
NOTE Confidence: 0.9408145

00:05:52.024 --> 00:05:53.320 up this condition?  
NOTE Confidence: 0.9408145

00:05:53.320 --> 00:05:54.826 So what typically happens in the  
NOTE Confidence: 0.9408145

00:05:54.826 --> 00:05:56.350 classical setting is a patient is  
NOTE Confidence: 0.9408145

00:05:56.350 --> 00:05:58.009 found to have high calcium in their  
NOTE Confidence: 0.9408145

00:05:58.009 --> 00:05:59.525 blood either on routine blood work  
NOTE Confidence: 0.9408145

00:05:59.525 --> 00:06:01.072 or they present with some symptoms.  
NOTE Confidence: 0.9408145

00:06:01.072 --> 00:06:02.932 And that leads to, you know,  
NOTE Confidence: 0.9408145

00:06:02.932 --> 00:06:04.462 an investigation as to why  
NOTE Confidence: 0.9408145

00:06:04.462 --> 00:06:05.468 they're having the,  
NOTE Confidence: 0.9408145

00:06:05.468 --> 00:06:06.632 say for example,  
NOTE Confidence: 0.9408145

00:06:06.632 --> 00:06:08.960 severe fatigue or recurrent kidney stones.  
NOTE Confidence: 0.9408145

00:06:08.960 --> 00:06:10.832 And those patients are found to  
NOTE Confidence: 0.9408145

00:06:10.832 --> 00:06:12.480 have an elevated calcium level.

NOTE Confidence: 0.9408145

00:06:12.480 --> 00:06:14.330 And then ultimately hopefully their

NOTE Confidence: 0.9408145

00:06:14.330 --> 00:06:16.180 parathyroid hormone levels get checked

NOTE Confidence: 0.9408145

00:06:16.230 --> 00:06:18.078 and that's also found to be elevated.

NOTE Confidence: 0.9408145

00:06:18.080 --> 00:06:20.390 And that's what makes us kind

NOTE Confidence: 0.9408145

00:06:20.390 --> 00:06:23.210 of lead to that diagnosis of

NOTE Confidence: 0.9408145

00:06:23.210 --> 00:06:24.150 primary hyperparathyroidism.

NOTE Confidence: 0.9408145

00:06:24.150 --> 00:06:26.676 So the work up of primary

NOTE Confidence: 0.9408145

00:06:26.676 --> 00:06:27.939 hyperparathyroidism should start

NOTE Confidence: 0.9408145

00:06:27.939 --> 00:06:30.477 with biochemical work up after a

NOTE Confidence: 0.9408145

00:06:30.477 --> 00:06:32.592 patient presents with symptoms of

NOTE Confidence: 0.9408145

00:06:32.592 --> 00:06:34.797 hyperparathyroidism or they are found

NOTE Confidence: 0.9408145

00:06:34.797 --> 00:06:37.510 incidentally to have a high calcium level.

NOTE Confidence: 0.9408145

00:06:37.510 --> 00:06:38.746 And that work up should include,

NOTE Confidence: 0.9408145

00:06:38.750 --> 00:06:41.550 yes, the serum calcium,

NOTE Confidence: 0.9408145

00:06:41.550 --> 00:06:43.766 an intact PTH level.

NOTE Confidence: 0.9408145

00:06:43.766 --> 00:06:46.514 But other important biochemistry that  
NOTE Confidence: 0.9408145

00:06:46.514 --> 00:06:50.308 should be looked into is serum phosphate,  
NOTE Confidence: 0.9408145

00:06:50.310 --> 00:06:51.522 kidney function,  
NOTE Confidence: 0.9408145

00:06:51.522 --> 00:06:54.303 BU and creatinine levels and  
NOTE Confidence: 0.9408145

00:06:54.303 --> 00:06:55.362 vitamin D levels.  
NOTE Confidence: 0.9408145

00:06:55.362 --> 00:06:56.774 Some additional testing that  
NOTE Confidence: 0.9408145

00:06:56.774 --> 00:06:59.174 may be done as a 24 hour urinary  
NOTE Confidence: 0.9408145

00:06:59.174 --> 00:07:01.136 calcium as well as a PTHRP and  
NOTE Confidence: 0.9408145

00:07:01.136 --> 00:07:03.374 that's important we think of the  
NOTE Confidence: 0.9408145

00:07:03.374 --> 00:07:06.502 when we were thinking about the  
NOTE Confidence: 0.9408145

00:07:06.502 --> 00:07:08.230 differential of hypercalcemia.  
NOTE Confidence: 0.9408145

00:07:08.230 --> 00:07:10.885 So the spectrum of primary  
NOTE Confidence: 0.9408145

00:07:10.885 --> 00:07:11.947 hyperparathyroidism is,  
NOTE Confidence: 0.9408145

00:07:11.950 --> 00:07:12.888 you know,  
NOTE Confidence: 0.9408145

00:07:12.888 --> 00:07:14.764 there's classical primary hyperparathyroidism  
NOTE Confidence: 0.9408145

00:07:14.764 --> 00:07:17.575 where the calcium is elevated and

NOTE Confidence: 0.9408145

00:07:17.575 --> 00:07:19.735 the parathyroid hormone is elevated.

NOTE Confidence: 0.9408145

00:07:19.740 --> 00:07:21.212 And under normal conditions,

NOTE Confidence: 0.9408145

00:07:21.212 --> 00:07:23.052 those two parameters should be

NOTE Confidence: 0.9408145

00:07:23.052 --> 00:07:24.739 working in opposite directions.

NOTE Confidence: 0.9408145

00:07:24.740 --> 00:07:25.704 And then there's subtypes

NOTE Confidence: 0.9408145

00:07:25.704 --> 00:07:27.150 where the calcium may be in

NOTE Confidence: 0.94212687

00:07:27.204 --> 00:07:27.978 the normal range,

NOTE Confidence: 0.94212687

00:07:27.980 --> 00:07:29.900 but the parathyroid hormone is

NOTE Confidence: 0.94212687

00:07:29.900 --> 00:07:31.292 persistently elevated and there's

NOTE Confidence: 0.94212687

00:07:31.292 --> 00:07:33.380 no other reason to explain that

NOTE Confidence: 0.94212687

00:07:33.437 --> 00:07:35.417 elevation in the parathyroid hormone.

NOTE Confidence: 0.94212687

00:07:35.420 --> 00:07:37.825 There's also a normal hormonal

NOTE Confidence: 0.94212687

00:07:37.825 --> 00:07:39.268 primary hyperparathyroidism where

NOTE Confidence: 0.94212687

00:07:39.268 --> 00:07:41.938 the calcium is significantly elevated,

NOTE Confidence: 0.94212687

00:07:41.940 --> 00:07:43.790 but the parathyroid hormone levels

NOTE Confidence: 0.94212687

00:07:43.790 --> 00:07:46.326 remain quote UN quote within the normal  
NOTE Confidence: 0.94212687

00:07:46.326 --> 00:07:48.692 range and we call that an inappropriate  
NOTE Confidence: 0.94212687

00:07:48.692 --> 00:07:51.310 secretion of a type of a parathyroid  
NOTE Confidence: 0.94212687

00:07:51.310 --> 00:07:53.674 hormone in a setting of hypercalcemia.  
NOTE Confidence: 0.94212687

00:07:53.680 --> 00:07:54.448 So for example,  
NOTE Confidence: 0.94212687

00:07:54.448 --> 00:07:56.789 if a person has a calcium of 11 out  
NOTE Confidence: 0.94212687

00:07:56.789 --> 00:07:58.584 of the range of normal under normal  
NOTE Confidence: 0.94212687

00:07:58.584 --> 00:07:59.752 conditions that the parathyroid  
NOTE Confidence: 0.94212687

00:07:59.752 --> 00:08:00.920 glands are functioning normally,  
NOTE Confidence: 0.94212687

00:08:00.920 --> 00:08:02.320 we would expect the parathyroid  
NOTE Confidence: 0.94212687

00:08:02.320 --> 00:08:03.720 hormone level to be suppressed.  
NOTE Confidence: 0.94212687

00:08:03.720 --> 00:08:05.420 So the normal range of PTH  
NOTE Confidence: 0.94212687

00:08:05.420 --> 00:08:06.520 is between 10 and 70.  
NOTE Confidence: 0.94212687

00:08:06.520 --> 00:08:08.392 We would expect that patient have  
NOTE Confidence: 0.94212687

00:08:08.392 --> 00:08:10.199 a PTH somewhere around 10 or 20.  
NOTE Confidence: 0.94212687

00:08:10.200 --> 00:08:12.270 So if a patient has a calcium that's at

NOTE Confidence: 0.94212687

00:08:12.270 --> 00:08:14.485 the upper end of normal or above normal,

NOTE Confidence: 0.94212687

00:08:14.490 --> 00:08:16.764 say you know 10.511 or higher

NOTE Confidence: 0.94212687

00:08:16.764 --> 00:08:18.610 and their PTH is 60,

NOTE Confidence: 0.94212687

00:08:18.610 --> 00:08:19.555 although that technically

NOTE Confidence: 0.94212687

00:08:19.555 --> 00:08:21.130 is within the normal range,

NOTE Confidence: 0.94212687

00:08:21.130 --> 00:08:23.090 that's an inappropriate amount of

NOTE Confidence: 0.94212687

00:08:23.090 --> 00:08:24.658 parathyroid hormone being secreted

NOTE Confidence: 0.94212687

00:08:24.658 --> 00:08:26.330 given the high calcium level.

NOTE Confidence: 0.94212687

00:08:26.330 --> 00:08:30.264 And so that qualifies or as as

NOTE Confidence: 0.94212687

00:08:30.264 --> 00:08:31.388 primary hyperparathyroidism.

NOTE Confidence: 0.94212687

00:08:31.390 --> 00:08:33.268 And then you know the most,

NOTE Confidence: 0.94212687

00:08:33.270 --> 00:08:35.130 the more difficult cases to diagnose

NOTE Confidence: 0.94212687

00:08:35.130 --> 00:08:37.304 would be the normal calcemic primary

NOTE Confidence: 0.94212687

00:08:37.304 --> 00:08:39.489 hyperpara and the biochemically normal

NOTE Confidence: 0.94212687

00:08:39.489 --> 00:08:41.443 primary hyperpara where both the

NOTE Confidence: 0.94212687

00:08:41.443 --> 00:08:43.466 calcium and the PTH levels are normal.

NOTE Confidence: 0.94212687

00:08:43.470 --> 00:08:45.446 But patients have symptomatology

NOTE Confidence: 0.94212687

00:08:45.446 --> 00:08:47.422 consistent with primary hyperpara

NOTE Confidence: 0.94212687

00:08:47.422 --> 00:08:49.688 thyroidism that cannot be explained

NOTE Confidence: 0.94212687

00:08:49.688 --> 00:08:51.304 by other disease processes.

NOTE Confidence: 0.94212687

00:08:51.310 --> 00:08:52.087 So in general,

NOTE Confidence: 0.94212687

00:08:52.087 --> 00:08:53.641 the key to the diagnosis is

NOTE Confidence: 0.94212687

00:08:53.641 --> 00:08:54.986 a nonsuppressive relationship

NOTE Confidence: 0.94212687

00:08:54.986 --> 00:08:57.030 between calcium and PTH.

NOTE Confidence: 0.94212687

00:08:57.030 --> 00:08:58.662 But there are subtypes that do

NOTE Confidence: 0.94212687

00:08:58.662 --> 00:09:00.369 exist that we'll talk about when

NOTE Confidence: 0.94212687

00:09:00.369 --> 00:09:02.055 we answer some of the questions.

NOTE Confidence: 0.94212687

00:09:02.060 --> 00:09:03.390 It's important to note that

NOTE Confidence: 0.94212687

00:09:03.390 --> 00:09:04.980 the degree of symptoms is not,

NOTE Confidence: 0.94212687

00:09:04.980 --> 00:09:07.056 does not depend on calcium levels.

NOTE Confidence: 0.94212687

00:09:07.060 --> 00:09:09.256 So sometimes patients are told that,

NOTE Confidence: 0.94212687

00:09:09.260 --> 00:09:09.770 you know,

NOTE Confidence: 0.94212687

00:09:09.770 --> 00:09:11.300 their calcium levels are mildly elevated.

NOTE Confidence: 0.94212687

00:09:11.300 --> 00:09:12.777 But it's nothing to worry about because,

NOTE Confidence: 0.94212687

00:09:12.780 --> 00:09:13.522 you know,

NOTE Confidence: 0.94212687

00:09:13.522 --> 00:09:15.377 patients seemingly should feel fine.

NOTE Confidence: 0.94212687

00:09:15.380 --> 00:09:18.536 And oftentimes, primary care doctors may,

NOTE Confidence: 0.94212687

00:09:18.540 --> 00:09:19.118 you know,

NOTE Confidence: 0.94212687

00:09:19.118 --> 00:09:20.563 overlook a serum calcium that's

NOTE Confidence: 0.94212687

00:09:20.563 --> 00:09:22.528 elevated because in the grand scheme of

NOTE Confidence: 0.94212687

00:09:22.528 --> 00:09:24.380 all the things that they're looking into,

NOTE Confidence: 0.94212687

00:09:24.380 --> 00:09:26.750 a mildly elevated serum calcium

NOTE Confidence: 0.94212687

00:09:26.750 --> 00:09:27.698 seems harmless.

NOTE Confidence: 0.94212687

00:09:27.700 --> 00:09:29.135 But we definitely know from

NOTE Confidence: 0.94212687

00:09:29.135 --> 00:09:30.570 experience and in the literature

NOTE Confidence: 0.94212687

00:09:30.623 --> 00:09:32.562 that there are patients who are very

NOTE Confidence: 0.94212687

00:09:32.562 --> 00:09:33.970 symptomatic even with minor elevations  
NOTE Confidence: 0.94212687

00:09:33.970 --> 00:09:35.370 in their serum calcium levels.  
NOTE Confidence: 0.94212687

00:09:35.370 --> 00:09:36.744 And there are those who have  
NOTE Confidence: 0.94212687

00:09:36.744 --> 00:09:38.059 very high serum calcium levels  
NOTE Confidence: 0.94212687

00:09:38.059 --> 00:09:39.467 that don't necessarily present  
NOTE Confidence: 0.94212687

00:09:39.467 --> 00:09:40.523 with significant symptoms.  
NOTE Confidence: 0.93183637

00:09:42.570 --> 00:09:46.338 Vitamin D levels are important to check,  
NOTE Confidence: 0.93183637

00:09:46.338 --> 00:09:48.786 as I mentioned, because you can  
NOTE Confidence: 0.93183637

00:09:48.786 --> 00:09:50.946 have a condition called secondary  
NOTE Confidence: 0.93183637

00:09:50.946 --> 00:09:52.268 hyperparathyroidism where the  
NOTE Confidence: 0.93183637

00:09:52.268 --> 00:09:53.836 parathyroid glands become overactive  
NOTE Confidence: 0.93183637

00:09:53.836 --> 00:09:56.308 because there's a vitamin D deficient  
NOTE Confidence: 0.93183637

00:09:56.308 --> 00:09:58.558 deficiency and that's an appropriate  
NOTE Confidence: 0.93183637

00:09:58.558 --> 00:10:00.651 overactivity of the parathyroid glands.  
NOTE Confidence: 0.93183637

00:10:00.651 --> 00:10:02.397 Once the vitamin D is corrected,  
NOTE Confidence: 0.93183637

00:10:02.400 --> 00:10:03.840 if that was the sole source

NOTE Confidence: 0.93183637

00:10:03.840 --> 00:10:04.560 of the overactivity,

NOTE Confidence: 0.93183637

00:10:04.560 --> 00:10:06.115 then we would expect the

NOTE Confidence: 0.93183637

00:10:06.115 --> 00:10:07.359 parathyroid hormone to normalize.

NOTE Confidence: 0.93183637

00:10:07.360 --> 00:10:10.006 But there are some cases where patients

NOTE Confidence: 0.93183637

00:10:10.006 --> 00:10:12.092 have concomitant vitamin D deficiency

NOTE Confidence: 0.93183637

00:10:12.092 --> 00:10:13.864 and primary hyperparathyroidism and

NOTE Confidence: 0.93183637

00:10:13.864 --> 00:10:16.264 particularly in the United States where

NOTE Confidence: 0.93183637

00:10:16.264 --> 00:10:18.810 we tend to avoid the sun, you know,

NOTE Confidence: 0.93183637

00:10:18.810 --> 00:10:21.390 for fear of developing skin cancer.

NOTE Confidence: 0.93183637

00:10:21.390 --> 00:10:23.235 Sunlight exposure is important for

NOTE Confidence: 0.93183637

00:10:23.235 --> 00:10:25.734 conversion of vitamin D into the active

NOTE Confidence: 0.93183637

00:10:25.734 --> 00:10:27.785 form that we need as human beings.

NOTE Confidence: 0.93183637

00:10:27.790 --> 00:10:29.414 So many of us here in the United

NOTE Confidence: 0.93183637

00:10:29.414 --> 00:10:30.560 States are vitamin D deficient

NOTE Confidence: 0.93183637

00:10:30.560 --> 00:10:32.491 whether we know it or not and that

NOTE Confidence: 0.93183637

00:10:32.491 --> 00:10:34.339 can lead to a mild elevation in  
NOTE Confidence: 0.93183637

00:10:34.339 --> 00:10:36.165 parathyroid hormone secretion.  
NOTE Confidence: 0.93183637

00:10:36.165 --> 00:10:39.548 But in patients who have that condition  
NOTE Confidence: 0.93183637

00:10:39.548 --> 00:10:40.940 along with primary hyperparathyroidism,  
NOTE Confidence: 0.93183637

00:10:40.940 --> 00:10:43.180 once you correct the vitamin D deficiency,  
NOTE Confidence: 0.93183637

00:10:43.180 --> 00:10:45.395 they still have persistent elevated  
NOTE Confidence: 0.93183637

00:10:45.395 --> 00:10:47.167 PTH levels consistent with  
NOTE Confidence: 0.93183637

00:10:47.167 --> 00:10:48.940 primary hyperparathyroidism.  
NOTE Confidence: 0.93183637

00:10:48.940 --> 00:10:50.956 It's important to note,  
NOTE Confidence: 0.93183637

00:10:50.956 --> 00:10:53.548 to rule that process in or out the vitamin  
NOTE Confidence: 0.93183637

00:10:53.548 --> 00:10:55.839 D has to be corrected and it takes  
NOTE Confidence: 0.93183637

00:10:55.839 --> 00:10:58.029 some time to correct vitamin D levels.  
NOTE Confidence: 0.93183637

00:10:58.030 --> 00:11:00.508 Sometimes it can take 8-8 weeks or  
NOTE Confidence: 0.93183637

00:11:00.508 --> 00:11:02.884 longer to get patients to normal  
NOTE Confidence: 0.93183637

00:11:02.884 --> 00:11:05.234 vitamin D levels on supplementation  
NOTE Confidence: 0.93183637

00:11:05.234 --> 00:11:08.790 and so patients need to be patient

NOTE Confidence: 0.93183637

00:11:08.790 --> 00:11:10.512 in order to elucidate whether or not

NOTE Confidence: 0.93183637

00:11:10.512 --> 00:11:12.532 there is an indeed a primary problem

NOTE Confidence: 0.93183637

00:11:12.532 --> 00:11:14.704 with the parathyroid function or is it

NOTE Confidence: 0.93183637

00:11:14.704 --> 00:11:16.587 solely due to the vitamin D deficiency.

NOTE Confidence: 0.93084025

00:11:20.350 --> 00:11:22.590 So in general, there are

NOTE Confidence: 0.934279

00:11:24.770 --> 00:11:27.270 guidelines for indications for surgery

NOTE Confidence: 0.934279

00:11:27.270 --> 00:11:30.300 that you know that an international

NOTE Confidence: 0.934279

00:11:30.300 --> 00:11:32.675 workshop of parathyroid experts come

NOTE Confidence: 0.934279

00:11:32.675 --> 00:11:35.090 together every five to seven years ago,

NOTE Confidence: 0.934279

00:11:35.090 --> 00:11:36.114 five or seven years,

NOTE Confidence: 0.934279

00:11:36.114 --> 00:11:37.650 and come up with these guidelines.

NOTE Confidence: 0.934279

00:11:37.650 --> 00:11:39.450 And so these are just guidelines,

NOTE Confidence: 0.934279

00:11:39.450 --> 00:11:41.100 they're not set in stone.

NOTE Confidence: 0.934279

00:11:41.100 --> 00:11:43.137 So in general age under 50 years

NOTE Confidence: 0.934279

00:11:43.137 --> 00:11:44.796 was a guideline serum calcium

NOTE Confidence: 0.934279

00:11:44.796 --> 00:11:46.974 greater than 1 gram per deciliter,  
NOTE Confidence: 0.934279

00:11:46.980 --> 00:11:48.393 bone mineral density,  
NOTE Confidence: 0.934279

00:11:48.393 --> 00:11:51.585 you know consistent with osteoporosis or a  
NOTE Confidence: 0.934279

00:11:51.585 --> 00:11:53.775 declining renal function as listed here.  
NOTE Confidence: 0.934279

00:11:53.780 --> 00:11:56.684 Now these are guidelines for asymptomatic  
NOTE Confidence: 0.934279

00:11:56.684 --> 00:11:58.620 patients with primary hyperparathyroidism.  
NOTE Confidence: 0.934279

00:11:58.620 --> 00:12:00.850 Any patient who is symptomatic  
NOTE Confidence: 0.934279

00:12:00.850 --> 00:12:02.712 should seek out surgical referral  
NOTE Confidence: 0.934279

00:12:02.712 --> 00:12:04.830 or should be referred for surgical  
NOTE Confidence: 0.934279

00:12:04.893 --> 00:12:06.978 management of their disease process.  
NOTE Confidence: 0.934279

00:12:06.980 --> 00:12:09.110 And even the asymptomatic guidelines that  
NOTE Confidence: 0.934279

00:12:09.110 --> 00:12:11.299 you know the guidelines are changing,  
NOTE Confidence: 0.934279

00:12:11.300 --> 00:12:11.549 everchanging.  
NOTE Confidence: 0.934279

00:12:11.549 --> 00:12:13.541 I do think we'll get to a point  
NOTE Confidence: 0.934279

00:12:13.541 --> 00:12:15.368 where age will be off the table  
NOTE Confidence: 0.934279

00:12:15.368 --> 00:12:16.690 because we certainly don't exclude

NOTE Confidence: 0.934279

00:12:16.690 --> 00:12:18.468 patients based on age of whether or

NOTE Confidence: 0.934279

00:12:18.468 --> 00:12:20.276 not they should receive surgery to

NOTE Confidence: 0.934279

00:12:20.276 --> 00:12:21.896 treat their parent thyroid disease.

NOTE Confidence: 0.934279

00:12:21.900 --> 00:12:23.460 And in fact most patients are

NOTE Confidence: 0.934279

00:12:23.460 --> 00:12:24.740 over the age of 50.

NOTE Confidence: 0.934279

00:12:24.740 --> 00:12:27.818 So the age under 50 doesn't make much sense.

NOTE Confidence: 0.934279

00:12:27.820 --> 00:12:30.156 So I do think that is a guideline

NOTE Confidence: 0.934279

00:12:30.156 --> 00:12:34.080 that will fall off in due time.

NOTE Confidence: 0.934279

00:12:34.080 --> 00:12:36.012 So localization studies are helpful when

NOTE Confidence: 0.934279

00:12:36.012 --> 00:12:38.717 we want to you do a targeted approach

NOTE Confidence: 0.934279

00:12:38.717 --> 00:12:40.751 and minimize the amount of surgery,

NOTE Confidence: 0.934279

00:12:40.760 --> 00:12:42.470 the amount of deception and

NOTE Confidence: 0.934279

00:12:42.470 --> 00:12:43.154 anesthesia needed.

NOTE Confidence: 0.934279

00:12:43.160 --> 00:12:44.136 But again,

NOTE Confidence: 0.934279

00:12:44.136 --> 00:12:44.624 localizations,

NOTE Confidence: 0.934279

00:12:44.624 --> 00:12:47.552 localization studies are after you have  
NOTE Confidence: 0.934279

00:12:47.552 --> 00:12:50.717 confirmed that the patient has primary  
NOTE Confidence: 0.934279

00:12:50.717 --> 00:12:53.582 hyperparathyroidism and to confirm  
NOTE Confidence: 0.934279

00:12:53.582 --> 00:12:56.039 that the patient wants to have surgery.  
NOTE Confidence: 0.934279

00:12:56.040 --> 00:12:57.520 So, you know, in the absence of that,  
NOTE Confidence: 0.934279

00:12:57.520 --> 00:12:59.390 localization studies are unnecessary and  
NOTE Confidence: 0.934279

00:12:59.390 --> 00:13:01.800 sometimes things are done out of order.  
NOTE Confidence: 0.934279

00:13:01.800 --> 00:13:03.378 A patient gets an ultrasound done  
NOTE Confidence: 0.934279

00:13:03.378 --> 00:13:05.305 before we even have a biochemical  
NOTE Confidence: 0.934279

00:13:05.305 --> 00:13:06.957 confirmation of parathyroid disease.  
NOTE Confidence: 0.934279

00:13:06.960 --> 00:13:08.375 And although most parathyroid glands  
NOTE Confidence: 0.934279

00:13:08.375 --> 00:13:10.279 when they're normal in size and shape,  
NOTE Confidence: 0.934279

00:13:10.280 --> 00:13:12.000 they're not visualized on imaging.  
NOTE Confidence: 0.934279

00:13:12.000 --> 00:13:13.360 Some can be seen by,  
NOTE Confidence: 0.934279

00:13:13.360 --> 00:13:13.880 you know,  
NOTE Confidence: 0.934279

00:13:13.880 --> 00:13:15.960 a very astute radiologist may pick up a

NOTE Confidence: 0.934279

00:13:16.021 --> 00:13:17.713 parathyroid gland on an imaging study

NOTE Confidence: 0.934279

00:13:17.713 --> 00:13:20.120 and that can be a totally normal gland.

NOTE Confidence: 0.934279

00:13:20.120 --> 00:13:21.536 It does not mean that gland

NOTE Confidence: 0.934279

00:13:21.536 --> 00:13:22.480 needs to come out.

NOTE Confidence: 0.934279

00:13:22.480 --> 00:13:24.480 So we have to take a step back

NOTE Confidence: 0.934279

00:13:24.480 --> 00:13:26.968 and first of all confirm that that

NOTE Confidence: 0.934279

00:13:26.968 --> 00:13:29.064 patient indeed has biochemically

NOTE Confidence: 0.934279

00:13:29.064 --> 00:13:30.636 proven primary hyperparathyroidism.

NOTE Confidence: 0.934279

00:13:30.640 --> 00:13:33.188 But in terms of the localization studies

NOTE Confidence: 0.934279

00:13:33.188 --> 00:13:36.320 that we use in trying to identify

NOTE Confidence: 0.934279

00:13:36.320 --> 00:13:38.360 preoperatively abnormal parathyroid tissue,

NOTE Confidence: 0.934279

00:13:38.360 --> 00:13:39.800 here are some there,

NOTE Confidence: 0.934279

00:13:39.800 --> 00:13:41.960 there are many and the institution

NOTE Confidence: 0.934279

00:13:42.026 --> 00:13:44.122 specific here at our center,

NOTE Confidence: 0.934279

00:13:44.122 --> 00:13:47.150 we typically use an ultrasound in a 4D CT.

NOTE Confidence: 0.934279

00:13:47.150 --> 00:13:49.145 The ultrasound is used primarily to look

NOTE Confidence: 0.934279

00:13:49.145 --> 00:13:51.087 at the thyroid gland because in up to

NOTE Confidence: 0.934279

00:13:51.087 --> 00:13:53.110 20 to 30% of cases of parathyroid disease,

NOTE Confidence: 0.934279

00:13:53.110 --> 00:13:54.730 there may be a thyroid problem

NOTE Confidence: 0.934279

00:13:54.730 --> 00:13:56.466 like a thyroid nodule that needs

NOTE Confidence: 0.934279

00:13:56.466 --> 00:13:57.971 to be investigated further and

NOTE Confidence: 0.934279

00:13:57.971 --> 00:13:59.710 maybe even needs to be rechecked.

NOTE Confidence: 0.934279

00:13:59.710 --> 00:14:01.456 So if a patient presents with

NOTE Confidence: 0.934279

00:14:01.456 --> 00:14:03.250 a thyroid nodule that needs

NOTE Confidence: 0.934279

00:14:03.250 --> 00:14:04.750 to undergo surgical resection,

NOTE Confidence: 0.934279

00:14:04.750 --> 00:14:06.850 we'd prefer to do that within one

NOTE Confidence: 0.934279

00:14:06.850 --> 00:14:07.950 surgical procedure instead of,

NOTE Confidence: 0.934279

00:14:07.950 --> 00:14:09.470 you know having to do 2 separate ones.

NOTE Confidence: 0.934279

00:14:09.470 --> 00:14:12.143 So that is the main utility of of of

NOTE Confidence: 0.934279

00:14:12.143 --> 00:14:14.568 doing an ultrasound preoperatively.

NOTE Confidence: 0.934279

00:14:14.570 --> 00:14:15.623 In some cases,

NOTE Confidence: 0.934279

00:14:15.623 --> 00:14:17.378 a large abnormal parathyroid gland

NOTE Confidence: 0.934279

00:14:17.378 --> 00:14:18.080 can be

NOTE Confidence: 0.9326676

00:14:18.149 --> 00:14:20.130 detected on ultrasound and that's

NOTE Confidence: 0.9326676

00:14:20.130 --> 00:14:21.330 also helpful and beneficial.

NOTE Confidence: 0.9326676

00:14:21.330 --> 00:14:22.982 But if it's not, that doesn't mean

NOTE Confidence: 0.9326676

00:14:22.982 --> 00:14:24.178 the patient doesn't have disease

NOTE Confidence: 0.9326676

00:14:24.178 --> 00:14:25.930 because I refer you back to step one,

NOTE Confidence: 0.9326676

00:14:25.930 --> 00:14:27.145 biochemically prove that

NOTE Confidence: 0.9326676

00:14:27.145 --> 00:14:28.765 the patient has disease.

NOTE Confidence: 0.9326676

00:14:28.770 --> 00:14:31.210 And then the next test that we use here is a

NOTE Confidence: 0.9296779466666666

00:14:33.410 --> 00:14:34.666 parathyroid specific CAT scan

NOTE Confidence: 0.9296779466666666

00:14:34.666 --> 00:14:36.936 called a 4G CT And we've compared

NOTE Confidence: 0.9296779466666666

00:14:36.936 --> 00:14:38.886 that with our cestomes that we've

NOTE Confidence: 0.9296779466666666

00:14:38.886 --> 00:14:40.870 done here and the sensitivity and

NOTE Confidence: 0.9296779466666666

00:14:40.870 --> 00:14:43.068 specificity of the four DCT is far

NOTE Confidence: 0.9296779466666666

00:14:43.070 --> 00:14:44.750 superior to that of the cestomes.  
NOTE Confidence: 0.9296779466666666

00:14:44.750 --> 00:14:47.186 So our secondary study that more  
NOTE Confidence: 0.9296779466666666

00:14:47.186 --> 00:14:48.810 specifically identifies and targets  
NOTE Confidence: 0.9296779466666666

00:14:48.874 --> 00:14:50.514 abnormal parathyroid tissue is the  
NOTE Confidence: 0.9296779466666666

00:14:50.514 --> 00:14:52.546 4D CT and that's the combination  
NOTE Confidence: 0.9296779466666666

00:14:52.546 --> 00:14:54.496 that we use here when we're  
NOTE Confidence: 0.9296779466666666

00:14:54.496 --> 00:14:56.110 trying to plan for surgery.  
NOTE Confidence: 0.9285908

00:14:58.590 --> 00:15:00.435 Intraoperative measurement of PTH is  
NOTE Confidence: 0.9285908

00:15:00.435 --> 00:15:03.370 crucial if you have that available to you.  
NOTE Confidence: 0.9285908

00:15:03.370 --> 00:15:05.771 So just like the diagnosis of primary  
NOTE Confidence: 0.9285908

00:15:05.771 --> 00:15:07.689 hyperparathyroidism is based on biochemistry,  
NOTE Confidence: 0.9285908

00:15:07.690 --> 00:15:09.610 cure should be based on biochemistry,  
NOTE Confidence: 0.9285908

00:15:09.610 --> 00:15:11.806 and it is based on biochemistry.  
NOTE Confidence: 0.9285908

00:15:11.810 --> 00:15:13.754 So you are not considered to be cured  
NOTE Confidence: 0.9285908

00:15:13.754 --> 00:15:15.744 of your parathyroid disease even after  
NOTE Confidence: 0.9285908

00:15:15.744 --> 00:15:17.916 surgery until you're six months down

NOTE Confidence: 0.9285908

00:15:17.971 --> 00:15:19.883 the line and your calcium vitamin DPTH

NOTE Confidence: 0.9285908

00:15:19.883 --> 00:15:21.869 levels are checked again and they're

NOTE Confidence: 0.9285908

00:15:21.869 --> 00:15:23.629 found to be in the normal range.

NOTE Confidence: 0.9285908

00:15:23.630 --> 00:15:25.550 Now a nice surrogate is intraoperatively

NOTE Confidence: 0.9285908

00:15:25.550 --> 00:15:27.968 if you can get normalization of the

NOTE Confidence: 0.9285908

00:15:27.968 --> 00:15:30.128 parathyroid hormone by the end of

NOTE Confidence: 0.9285908

00:15:30.128 --> 00:15:32.558 surgery then the chance of cure is

NOTE Confidence: 0.9285908

00:15:32.558 --> 00:15:34.319 pretty significant, greater than 95%.

NOTE Confidence: 0.9285908

00:15:34.319 --> 00:15:36.860 Meaning if you get the parathyroid hormone

NOTE Confidence: 0.9285908

00:15:36.926 --> 00:15:39.348 levels normalize at the time of surgery,

NOTE Confidence: 0.9285908

00:15:39.350 --> 00:15:41.942 95% of those patients will go on to have

NOTE Confidence: 0.9285908

00:15:41.942 --> 00:15:44.430 curative disease cure of disease confirmed.

NOTE Confidence: 0.9285908

00:15:44.430 --> 00:15:46.790 Six months down the line,

NOTE Confidence: 0.9285908

00:15:46.790 --> 00:15:48.470 the half life of parathyroid

NOTE Confidence: 0.9285908

00:15:48.470 --> 00:15:50.150 hormone is about four minutes.

NOTE Confidence: 0.9285908

00:15:50.150 --> 00:15:51.394 So every, you know,  
NOTE Confidence: 0.9285908

00:15:51.394 --> 00:15:55.266 3 1/2 to 5 minutes the PTH and in a person's  
NOTE Confidence: 0.9285908

00:15:55.266 --> 00:15:57.570 system is degrading by roughly 50%.  
NOTE Confidence: 0.9285908

00:15:57.570 --> 00:16:00.510 And this is very helpful because we  
NOTE Confidence: 0.9285908

00:16:00.510 --> 00:16:03.743 can get real time information on how  
NOTE Confidence: 0.9285908

00:16:03.743 --> 00:16:06.298 quickly the parathyroid function is  
NOTE Confidence: 0.9285908

00:16:06.298 --> 00:16:08.290 degrading at the time of surgery.  
NOTE Confidence: 0.9285908

00:16:08.290 --> 00:16:09.595 And then there's different criteria  
NOTE Confidence: 0.9285908

00:16:09.595 --> 00:16:11.456 that are used to have listed here  
NOTE Confidence: 0.9285908

00:16:11.456 --> 00:16:12.968 the Miami criteria and that says  
NOTE Confidence: 0.9285908

00:16:12.968 --> 00:16:14.755 that there should be a 50% decrease  
NOTE Confidence: 0.9285908

00:16:14.755 --> 00:16:18.025 10 minutes after you have surgical  
NOTE Confidence: 0.9285908

00:16:18.025 --> 00:16:19.850 resection that should be consistent  
NOTE Confidence: 0.9285908

00:16:19.850 --> 00:16:21.130 with cure of disease  
NOTE Confidence: 0.926312

00:16:23.710 --> 00:16:26.601 at the time of surgery. Now I don't  
NOTE Confidence: 0.926312

00:16:26.601 --> 00:16:28.429 specifically follow that criteria.

NOTE Confidence: 0.926312

00:16:28.430 --> 00:16:29.982 I do believe that there should be at

NOTE Confidence: 0.926312

00:16:29.982 --> 00:16:32.206 least a 50% drop in about 10 to 15

NOTE Confidence: 0.926312

00:16:32.206 --> 00:16:34.593 minutes after you feel like you resected

NOTE Confidence: 0.926312

00:16:34.593 --> 00:16:36.623 all the disease parathyroid tissue.

NOTE Confidence: 0.926312

00:16:36.630 --> 00:16:37.670 But in addition to that,

NOTE Confidence: 0.926312

00:16:37.670 --> 00:16:39.385 I want to see that drop remain

NOTE Confidence: 0.926312

00:16:39.385 --> 00:16:40.510 in the normal range,

NOTE Confidence: 0.926312

00:16:40.510 --> 00:16:42.830 you know for another two or three samples.

NOTE Confidence: 0.926312

00:16:42.830 --> 00:16:44.447 And I do that because some patients

NOTE Confidence: 0.926312

00:16:44.447 --> 00:16:46.122 come with a very elevated parathyroid

NOTE Confidence: 0.926312

00:16:46.122 --> 00:16:47.988 hormone at the time of surgery.

NOTE Confidence: 0.926312

00:16:47.990 --> 00:16:50.222 So they can have a PTH that's over 200

NOTE Confidence: 0.926312

00:16:50.222 --> 00:16:52.729 and normal range being between 10 and 70.

NOTE Confidence: 0.926312

00:16:52.730 --> 00:16:54.986 So let's say 15 minutes after I resected

NOTE Confidence: 0.926312

00:16:54.986 --> 00:16:57.329 a big and large parathyroid gland,

NOTE Confidence: 0.926312

00:16:57.330 --> 00:16:59.890 the the PTH drops from 200 to 100.  
NOTE Confidence: 0.926312

00:16:59.890 --> 00:17:00.556 That's encouraging.  
NOTE Confidence: 0.926312

00:17:00.556 --> 00:17:03.568 But that 100 is still elevated and I don't  
NOTE Confidence: 0.926312

00:17:03.568 --> 00:17:06.088 want to end my case with an elevated PTH.  
NOTE Confidence: 0.926312

00:17:06.090 --> 00:17:07.530 So I want to see that that is going  
NOTE Confidence: 0.926312

00:17:07.530 --> 00:17:09.218 to continue to drop down and get down  
NOTE Confidence: 0.926312

00:17:09.218 --> 00:17:10.696 into the normal ranges and then level  
NOTE Confidence: 0.926312

00:17:10.696 --> 00:17:12.341 off and then and then low normal  
NOTE Confidence: 0.926312

00:17:12.341 --> 00:17:15.047 range somewhere around 30 or so.  
NOTE Confidence: 0.926312

00:17:15.050 --> 00:17:17.204 So that's why I always send extra  
NOTE Confidence: 0.926312

00:17:17.204 --> 00:17:18.489 samples or have the anesthesia,  
NOTE Confidence: 0.926312

00:17:18.490 --> 00:17:20.114 I'll just send a few extra samples once  
NOTE Confidence: 0.926312

00:17:20.114 --> 00:17:21.897 we get a normal value to make sure  
NOTE Confidence: 0.926312

00:17:21.897 --> 00:17:23.448 that it's not starting to rise again,  
NOTE Confidence: 0.926312

00:17:23.450 --> 00:17:25.990 which would suggest that there's  
NOTE Confidence: 0.926312

00:17:25.990 --> 00:17:28.072 more disease present than what

NOTE Confidence: 0.926312

00:17:28.072 --> 00:17:29.488 the preoperative imaging shows.

NOTE Confidence: 0.926312

00:17:29.490 --> 00:17:32.530 And that happens sometimes.

NOTE Confidence: 0.926312

00:17:32.530 --> 00:17:33.210 We have,

NOTE Confidence: 0.93205196

00:17:35.330 --> 00:17:37.862 I'm sorry, so the differentiation of

NOTE Confidence: 0.93205196

00:17:37.862 --> 00:17:39.090 hyperparathyroidism, just briefly,

NOTE Confidence: 0.93205196

00:17:39.090 --> 00:17:41.490 you know, the difference between primary,

NOTE Confidence: 0.93205196

00:17:41.490 --> 00:17:44.290 secondary and tertiary has to do with

NOTE Confidence: 0.93205196

00:17:44.290 --> 00:17:47.070 what is the insult that is causing

NOTE Confidence: 0.93205196

00:17:47.070 --> 00:17:49.045 the parathyroid to become overactive.

NOTE Confidence: 0.93205196

00:17:49.050 --> 00:17:50.650 So in primary hyperparathyroidism,

NOTE Confidence: 0.93205196

00:17:50.650 --> 00:17:52.250 there is no insult.

NOTE Confidence: 0.93205196

00:17:52.250 --> 00:17:54.298 These glands start autonomously

NOTE Confidence: 0.93205196

00:17:54.298 --> 00:17:55.835 functioning and there's not a secondary

NOTE Confidence: 0.93205196

00:17:55.835 --> 00:17:57.010 cause that's making them do so.

NOTE Confidence: 0.93205196

00:17:57.010 --> 00:17:58.876 So the primary problem is with

NOTE Confidence: 0.93205196

00:17:58.876 --> 00:18:00.120 the parathyroid function of  
NOTE Confidence: 0.93205196

00:18:00.175 --> 00:18:01.570 parathyroid tissue itself.  
NOTE Confidence: 0.93205196

00:18:01.570 --> 00:18:02.690 And in those cases,  
NOTE Confidence: 0.93205196

00:18:02.690 --> 00:18:03.810 in the classical case,  
NOTE Confidence: 0.93205196

00:18:03.810 --> 00:18:05.598 serum calcium is elevated,  
NOTE Confidence: 0.93205196

00:18:05.598 --> 00:18:07.833 parathyroid hormone is elevated and  
NOTE Confidence: 0.93205196

00:18:07.833 --> 00:18:10.328 vitamin D should be normal or elevated.  
NOTE Confidence: 0.93205196

00:18:10.330 --> 00:18:11.494 In secondary hyperparathyroidism.  
NOTE Confidence: 0.93205196

00:18:11.494 --> 00:18:13.822 There's a secondary cause as to  
NOTE Confidence: 0.93205196

00:18:13.822 --> 00:18:15.799 why the parathyroid glands are  
NOTE Confidence: 0.93205196

00:18:15.799 --> 00:18:17.709 over functioning and that secondary  
NOTE Confidence: 0.93205196

00:18:17.709 --> 00:18:19.841 cause can be a vitamin D deficiency  
NOTE Confidence: 0.93205196

00:18:19.841 --> 00:18:21.570 like we talked about earlier or  
NOTE Confidence: 0.93205196

00:18:21.570 --> 00:18:23.370 it can be kidney dysfunction like  
NOTE Confidence: 0.93205196

00:18:23.370 --> 00:18:24.809 end stage renal disease.  
NOTE Confidence: 0.93205196

00:18:24.810 --> 00:18:26.875 And so that's where the other levels

NOTE Confidence: 0.93205196

00:18:26.875 --> 00:18:28.794 like checking the creatinine and

NOTE Confidence: 0.93205196

00:18:28.794 --> 00:18:30.418 phosphate levels are important.

NOTE Confidence: 0.93205196

00:18:30.420 --> 00:18:33.520 So in secondary Hyperpara patients

NOTE Confidence: 0.93205196

00:18:33.520 --> 00:18:35.756 have overactivity of their parathyroid

NOTE Confidence: 0.93205196

00:18:35.756 --> 00:18:38.180 glands because they have high serum

NOTE Confidence: 0.93205196

00:18:38.243 --> 00:18:40.277 phosphate levels and low vitamin D

NOTE Confidence: 0.93205196

00:18:40.277 --> 00:18:42.579 levels because of their kidney failure.

NOTE Confidence: 0.93205196

00:18:42.580 --> 00:18:43.725 And the parathyroid glands don't

NOTE Confidence: 0.93205196

00:18:43.725 --> 00:18:45.180 know that the kidneys have failed.

NOTE Confidence: 0.93205196

00:18:45.180 --> 00:18:46.764 So they are overactive and revved

NOTE Confidence: 0.93205196

00:18:46.764 --> 00:18:48.899 up trying to get the kidneys to

NOTE Confidence: 0.93205196

00:18:48.899 --> 00:18:50.259 release the excess phosphorus,

NOTE Confidence: 0.93205196

00:18:50.260 --> 00:18:52.300 which cannot happen in the setting

NOTE Confidence: 0.93205196

00:18:52.300 --> 00:18:53.320 of kidney failure.

NOTE Confidence: 0.93205196

00:18:53.320 --> 00:18:55.516 And then tertiary hyperparathyroidism

NOTE Confidence: 0.93205196

00:18:55.516 --> 00:18:57.712 happens after prolonged secondary  
NOTE Confidence: 0.93205196

00:18:57.712 --> 00:18:59.210 hyperparathyroidism that has  
NOTE Confidence: 0.93205196

00:18:59.210 --> 00:19:00.239 been left untreated.  
NOTE Confidence: 0.93205196

00:19:00.240 --> 00:19:03.200 And so this happens usually in two settings,  
NOTE Confidence: 0.93205196

00:19:03.200 --> 00:19:06.434 either a patient who has instage renal  
NOTE Confidence: 0.93205196

00:19:06.434 --> 00:19:08.400 disease and secondary hyperparathyroidism  
NOTE Confidence: 0.93205196

00:19:08.400 --> 00:19:11.296 that just goes on untreated for many,  
NOTE Confidence: 0.93205196

00:19:11.296 --> 00:19:11.840 many years.  
NOTE Confidence: 0.93205196

00:19:11.840 --> 00:19:13.365 And so their calcium ultimately  
NOTE Confidence: 0.93205196

00:19:13.365 --> 00:19:15.741 begins to rise as if they are  
NOTE Confidence: 0.93205196

00:19:15.741 --> 00:19:17.309 someone with primary hyperpara.  
NOTE Confidence: 0.93205196

00:19:17.310 --> 00:19:18.123 That's one case.  
NOTE Confidence: 0.93205196

00:19:18.123 --> 00:19:20.020 The other case is a patient who  
NOTE Confidence: 0.93205196

00:19:20.077 --> 00:19:22.566 successfully got a kidney transplant when  
NOTE Confidence: 0.93205196

00:19:22.566 --> 00:19:24.390 they had secondary hyperparathyroidism.  
NOTE Confidence: 0.93205196

00:19:24.390 --> 00:19:25.850 And despite now having

NOTE Confidence: 0.93205196

00:19:25.850 --> 00:19:26.945 normal kidney function,

NOTE Confidence: 0.93205196

00:19:26.950 --> 00:19:28.790 those glands have been autonomously

NOTE Confidence: 0.93205196

00:19:28.790 --> 00:19:31.226 functioning for quite some time and they

NOTE Confidence: 0.93205196

00:19:31.226 --> 00:19:33.102 have not fully gone back to normal.

NOTE Confidence: 0.93205196

00:19:33.110 --> 00:19:34.928 And so that is tertiary hyperpara

NOTE Confidence: 0.93205196

00:19:34.928 --> 00:19:36.550 and those patients usually go

NOTE Confidence: 0.93205196

00:19:36.550 --> 00:19:38.345 on to surgical treatment of

NOTE Confidence: 0.93205196

00:19:38.345 --> 00:19:39.063 their hyperparathyroidism.

NOTE Confidence: 0.93205196

00:19:39.070 --> 00:19:40.840 But that's beyond the scope of

NOTE Confidence: 0.93205196

00:19:40.840 --> 00:19:42.909 what we're going to discuss today.

NOTE Confidence: 0.93205196

00:19:42.910 --> 00:19:44.026 So we can skip over these

NOTE Confidence: 0.921425

00:19:47.110 --> 00:19:49.410 Okay. So basically talked about

NOTE Confidence: 0.921425

00:19:49.410 --> 00:19:51.658 secondary inter sharing. All right.

NOTE Confidence: 0.921425

00:19:51.658 --> 00:19:56.058 So I am going to stop sharing now and

NOTE Confidence: 0.921425

00:19:56.058 --> 00:20:01.910 let's see if I can get to the important

NOTE Confidence: 0.921425

00:20:01.910 --> 00:20:06.430 questions that you guys have asked.  
NOTE Confidence: 0.921425

00:20:06.430 --> 00:20:10.150 Okay, I'm going to pull them up here.  
NOTE Confidence: 0.921425

00:20:10.150 --> 00:20:11.613 All right. And so for the remainder  
NOTE Confidence: 0.921425

00:20:11.613 --> 00:20:13.461 of our time here, I'm just going  
NOTE Confidence: 0.921425

00:20:13.461 --> 00:20:16.060 to get through as many as I can.  
NOTE Confidence: 0.921425

00:20:16.060 --> 00:20:18.616 Some of them are repetitive questions,  
NOTE Confidence: 0.921425

00:20:18.620 --> 00:20:19.940 so that's good. That means there's,  
NOTE Confidence: 0.921425

00:20:19.940 --> 00:20:21.620 you know, high interest in that question.  
NOTE Confidence: 0.921425

00:20:21.620 --> 00:20:23.378 Hopefully I can get to those.  
NOTE Confidence: 0.921425

00:20:23.380 --> 00:20:24.340 So let's see.  
NOTE Confidence: 0.921425

00:20:24.340 --> 00:20:26.273 So the first question is some  
NOTE Confidence: 0.921425

00:20:26.273 --> 00:20:27.938 surgeons hesitate to operate on  
NOTE Confidence: 0.921425

00:20:27.938 --> 00:20:29.270 patients presenting with normal  
NOTE Confidence: 0.921425

00:20:29.326 --> 00:20:30.400 calcemic hyperparathyroidism because  
NOTE Confidence: 0.921425

00:20:30.400 --> 00:20:32.548 they claim that the surgery will  
NOTE Confidence: 0.921425

00:20:32.548 --> 00:20:34.379 not benefit them in the long run.

NOTE Confidence: 0.921425

00:20:34.380 --> 00:20:36.172 What would be the criteria for you

NOTE Confidence: 0.921425

00:20:36.172 --> 00:20:38.054 to be doubtful about accepting a

NOTE Confidence: 0.921425

00:20:38.054 --> 00:20:39.819 normal calcemic patient for surgery?

NOTE Confidence: 0.921425

00:20:39.820 --> 00:20:42.662 This is a very good question and

NOTE Confidence: 0.921425

00:20:42.662 --> 00:20:45.300 it's you know normal calcemic

NOTE Confidence: 0.921425

00:20:45.300 --> 00:20:46.900 primary hyperparathyroidism is a

NOTE Confidence: 0.921425

00:20:46.900 --> 00:20:48.900 very controversial topic and it's

NOTE Confidence: 0.921425

00:20:48.900 --> 00:20:50.737 not so much controversial in this

NOTE Confidence: 0.921425

00:20:50.737 --> 00:20:53.293 in those of us who are what have a

NOTE Confidence: 0.921425

00:20:53.293 --> 00:20:54.973 lot of experience in dealing with

NOTE Confidence: 0.921425

00:20:54.980 --> 00:20:56.300 primary hyperparathyroidism and

NOTE Confidence: 0.921425

00:20:56.300 --> 00:20:58.500 the surgical management of them.

NOTE Confidence: 0.921425

00:20:58.500 --> 00:21:01.140 So we are not unclear about the diagnosis.

NOTE Confidence: 0.921425

00:21:01.140 --> 00:21:03.042 We definitely believe that this entity

NOTE Confidence: 0.921425

00:21:03.042 --> 00:21:05.445 exists where you can have normal

NOTE Confidence: 0.921425

00:21:05.445 --> 00:21:07.059 calceming primary hyperparathyroidism.  
NOTE Confidence: 0.921425

00:21:07.060 --> 00:21:08.630 The controversy or the confusion  
NOTE Confidence: 0.921425

00:21:08.630 --> 00:21:10.939 lies in what to do about that.  
NOTE Confidence: 0.921425

00:21:10.940 --> 00:21:15.294 So in classical case primary  
NOTE Confidence: 0.921425

00:21:15.294 --> 00:21:16.030 hyperparathyroidism,  
NOTE Confidence: 0.921425

00:21:16.030 --> 00:21:18.070 most patients have single gland disease.  
NOTE Confidence: 0.921425

00:21:18.070 --> 00:21:20.350 You remove that one gland,  
NOTE Confidence: 0.921425

00:21:20.350 --> 00:21:22.156 the problem is solved and the remaining  
NOTE Confidence: 0.921425

00:21:22.156 --> 00:21:23.453 three healthy glands will eventually  
NOTE Confidence: 0.921425

00:21:23.453 --> 00:21:25.349 wake up and function at a normal level.  
NOTE Confidence: 0.921425

00:21:25.350 --> 00:21:28.046 But even in the setting where you have  
NOTE Confidence: 0.921425

00:21:28.046 --> 00:21:29.243 primary hyperparathyroidism and all  
NOTE Confidence: 0.921425

00:21:29.243 --> 00:21:30.888 four glands are disease and we have  
NOTE Confidence: 0.921425

00:21:30.888 --> 00:21:32.959 to perform what's called a subtotal  
NOTE Confidence: 0.921425

00:21:32.959 --> 00:21:34.744 parathyroid resection where we remove  
NOTE Confidence: 0.921425

00:21:34.750 --> 00:21:36.790 the majority of your parathyroid tissue.

NOTE Confidence: 0.921425

00:21:36.790 --> 00:21:38.950 We are comfortable as surgeons and

NOTE Confidence: 0.921425

00:21:38.950 --> 00:21:40.742 confident that even removing the bulk

NOTE Confidence: 0.921425

00:21:40.742 --> 00:21:42.972 of that tissue we're not going to leave

NOTE Confidence: 0.921425

00:21:42.972 --> 00:21:44.104 give you permanently hypocalcemic

NOTE Confidence: 0.921425

00:21:44.104 --> 00:21:46.386 and we have a a bigger window of

NOTE Confidence: 0.921425

00:21:46.386 --> 00:21:48.425 opportunity to allow the calcium to drop.

NOTE Confidence: 0.921425

00:21:48.425 --> 00:21:50.400 So most of those patients

NOTE Confidence: 0.921425

00:21:50.400 --> 00:21:51.585 are already hypercalcemic.

NOTE Confidence: 0.921425

00:21:51.590 --> 00:21:53.710 So their calcium levels are well over 10,

NOTE Confidence: 0.921425

00:21:53.710 --> 00:21:55.710 sometimes over 11 and 12.

NOTE Confidence: 0.921425

00:21:55.710 --> 00:21:57.901 And after we remove you know that

NOTE Confidence: 0.921425

00:21:57.901 --> 00:21:59.483 that disease parathyroid tissue that

NOTE Confidence: 0.921425

00:21:59.483 --> 00:22:01.223 serum calcium is going to drop,

NOTE Confidence: 0.921425

00:22:01.230 --> 00:22:02.470 it's going to ultimately land

NOTE Confidence: 0.921425

00:22:02.470 --> 00:22:03.462 in the normal level,

NOTE Confidence: 0.921425

00:22:03.470 --> 00:22:04.558 but sometimes it'll overshoot  
NOTE Confidence: 0.921425

00:22:04.558 --> 00:22:06.190 and it'll be in the low,  
NOTE Confidence: 0.921425

00:22:06.190 --> 00:22:08.030 you know it'll be low and not normal.  
NOTE Confidence: 0.921425

00:22:08.030 --> 00:22:10.195 And those patients can present  
NOTE Confidence: 0.921425

00:22:10.195 --> 00:22:11.927 with pretty significant symptoms  
NOTE Confidence: 0.921425

00:22:11.927 --> 00:22:13.708 of muscle aches and pains,  
NOTE Confidence: 0.921425

00:22:13.708 --> 00:22:16.156 numbness and tingling and they will need  
NOTE Confidence: 0.921425

00:22:16.156 --> 00:22:18.358 some calcium supplementation for a time.  
NOTE Confidence: 0.921425

00:22:18.360 --> 00:22:23.280 So we are understanding of that as  
NOTE Confidence: 0.921425

00:22:23.280 --> 00:22:27.008 as parathyroid doctors and surgeons  
NOTE Confidence: 0.921425

00:22:27.008 --> 00:22:29.780 and we properly prepare our patients  
NOTE Confidence: 0.921425

00:22:29.780 --> 00:22:31.610 to experience that and let them  
NOTE Confidence: 0.921425

00:22:31.660 --> 00:22:33.430 know that that those symptoms should  
NOTE Confidence: 0.921425

00:22:33.430 --> 00:22:35.359 persist for days maybe you know a  
NOTE Confidence: 0.921425

00:22:35.359 --> 00:22:36.757 week or two but should subside.  
NOTE Confidence: 0.921425

00:22:36.760 --> 00:22:38.158 When we're talking about normal calcium,

NOTE Confidence: 0.921425

00:22:38.160 --> 00:22:39.174 the primary hyperparathyroidism,

NOTE Confidence: 0.921425

00:22:39.174 --> 00:22:41.540 the problem is we don't have that

NOTE Confidence: 0.921425

00:22:41.598 --> 00:22:43.236 much of A window of opportunity.

NOTE Confidence: 0.921425

00:22:43.240 --> 00:22:45.150 Those patients already have calcium

NOTE Confidence: 0.921425

00:22:45.150 --> 00:22:46.678 that are that's normal.

NOTE Confidence: 0.9395532

00:22:46.680 --> 00:22:48.240 So we're talking about a calcium that is,

NOTE Confidence: 0.9395532

00:22:48.240 --> 00:22:50.840 you know, 99.5 sometimes even you know,

NOTE Confidence: 0.9395532

00:22:50.840 --> 00:22:54.298 high eights. And we and also many

NOTE Confidence: 0.9395532

00:22:54.298 --> 00:22:56.695 of those patients need a subtotal

NOTE Confidence: 0.9395532

00:22:56.695 --> 00:22:58.220 resection because there's a higher

NOTE Confidence: 0.9395532

00:22:58.220 --> 00:22:59.588 incidence of multigland hyperplasia

NOTE Confidence: 0.9395532

00:22:59.588 --> 00:23:01.694 where all four glands are diseased.

NOTE Confidence: 0.9395532

00:23:01.700 --> 00:23:03.824 And so taking out one is not going to

NOTE Confidence: 0.9395532

00:23:03.824 --> 00:23:05.953 solve the problem in patients who have

NOTE Confidence: 0.9395532

00:23:05.953 --> 00:23:07.757 normal calcemic primary hyperparathyroidism.

NOTE Confidence: 0.9395532

00:23:07.757 --> 00:23:11.674 So not only are we having to perform  
NOTE Confidence: 0.9395532

00:23:11.674 --> 00:23:13.100 a potential subtotal resection  
NOTE Confidence: 0.9395532

00:23:13.100 --> 00:23:14.180 in these patients,  
NOTE Confidence: 0.9395532

00:23:14.180 --> 00:23:17.040 we have a lower window at of where  
NOTE Confidence: 0.9395532

00:23:17.040 --> 00:23:18.540 that calcium can safely drop.  
NOTE Confidence: 0.9395532

00:23:18.540 --> 00:23:19.755 So you're starting out already  
NOTE Confidence: 0.9395532

00:23:19.755 --> 00:23:21.459 normal and not high and now you're  
NOTE Confidence: 0.9395532

00:23:21.459 --> 00:23:22.999 definitely going to be low for a  
NOTE Confidence: 0.9395532

00:23:22.999 --> 00:23:24.575 while and that can be a long while,  
NOTE Confidence: 0.9395532

00:23:24.580 --> 00:23:25.270 prolonged while.  
NOTE Confidence: 0.9395532

00:23:25.270 --> 00:23:28.030 And so those patients can end up pretty  
NOTE Confidence: 0.9395532

00:23:28.095 --> 00:23:30.044 symptomatic and and initially feel a  
NOTE Confidence: 0.9395532

00:23:30.044 --> 00:23:32.348 lot worse than they did just having the  
NOTE Confidence: 0.9395532

00:23:32.348 --> 00:23:34.138 normal calcium and primary Hyperpara.  
NOTE Confidence: 0.9395532

00:23:34.140 --> 00:23:37.087 So for those reasons you know individual  
NOTE Confidence: 0.9395532

00:23:37.087 --> 00:23:39.638 surgeons have come up with different

NOTE Confidence: 0.9395532

00:23:39.640 --> 00:23:42.006 criteria that they need met in order

NOTE Confidence: 0.9395532

00:23:42.006 --> 00:23:44.020 to offer surgery to those patients

NOTE Confidence: 0.9395532

00:23:44.020 --> 00:23:46.497 and it's really in an effort to do

NOTE Confidence: 0.9395532

00:23:46.497 --> 00:23:48.760 good and not harm in those patients.

NOTE Confidence: 0.9395532

00:23:48.760 --> 00:23:52.556 We don't have enough data yet to

NOTE Confidence: 0.9395532

00:23:52.556 --> 00:23:54.536 say consistently which patients with

NOTE Confidence: 0.9395532

00:23:54.536 --> 00:23:55.724 normal calcemic hyperparathyroidism

NOTE Confidence: 0.9395532

00:23:55.724 --> 00:23:57.680 are going to benefit from surgery.

NOTE Confidence: 0.9395532

00:23:57.680 --> 00:23:59.689 Now me personally I like to have

NOTE Confidence: 0.9395532

00:23:59.689 --> 00:24:01.792 some hard evidence that the patients

NOTE Confidence: 0.9395532

00:24:01.792 --> 00:24:03.762 are have significant symptoms of

NOTE Confidence: 0.9395532

00:24:03.762 --> 00:24:05.436 parathyroid disease and by that

NOTE Confidence: 0.9395532

00:24:05.436 --> 00:24:07.086 I mean evidence of bone disease.

NOTE Confidence: 0.9395532

00:24:07.090 --> 00:24:08.020 So osteopenia,

NOTE Confidence: 0.9395532

00:24:08.020 --> 00:24:08.485 osteoporosis,

NOTE Confidence: 0.9395532

00:24:08.485 --> 00:24:11.275 evidence of kidney disease like kidney  
NOTE Confidence: 0.9395532

00:24:11.275 --> 00:24:13.260 stones that have been clinically  
NOTE Confidence: 0.9395532

00:24:13.260 --> 00:24:15.444 significant or at least they are  
NOTE Confidence: 0.9395532

00:24:15.513 --> 00:24:17.648 detectable on a kidney ultrasound.  
NOTE Confidence: 0.9395532

00:24:17.650 --> 00:24:19.492 So that's those are things that  
NOTE Confidence: 0.9395532

00:24:19.492 --> 00:24:21.214 we know treating the parathyroid  
NOTE Confidence: 0.9395532

00:24:21.214 --> 00:24:23.344 disease will treat those symptoms  
NOTE Confidence: 0.9395532

00:24:23.344 --> 00:24:25.048 or improve those symptoms.  
NOTE Confidence: 0.9395532

00:24:25.050 --> 00:24:26.022 So we can,  
NOTE Confidence: 0.9395532

00:24:26.022 --> 00:24:27.966 we definitely know that treating parathyroid  
NOTE Confidence: 0.9395532

00:24:27.966 --> 00:24:30.147 disease and curing it improves bone health.  
NOTE Confidence: 0.9395532

00:24:30.150 --> 00:24:31.950 It decreases your risk of  
NOTE Confidence: 0.9395532

00:24:31.950 --> 00:24:33.030 developing kidney stones.  
NOTE Confidence: 0.9395532

00:24:33.030 --> 00:24:35.286 What's less tangible or for lack  
NOTE Confidence: 0.9395532

00:24:35.286 --> 00:24:38.748 of a better term or harder to show  
NOTE Confidence: 0.9395532

00:24:38.748 --> 00:24:40.628 is the neurocognitive symptoms.

NOTE Confidence: 0.9395532

00:24:40.630 --> 00:24:42.361 So you know,

NOTE Confidence: 0.9395532

00:24:42.361 --> 00:24:45.345 neurocognitive symptoms such as fatigue,

NOTE Confidence: 0.9395532

00:24:45.345 --> 00:24:47.370 memory loss, anxiety,

NOTE Confidence: 0.9395532

00:24:47.370 --> 00:24:50.070 depression is often multifactorial.

NOTE Confidence: 0.9395532

00:24:50.070 --> 00:24:52.120 And while parathyroid disease definitely

NOTE Confidence: 0.9395532

00:24:52.120 --> 00:24:54.500 can can significantly contribute to that,

NOTE Confidence: 0.9395532

00:24:54.500 --> 00:24:56.712 it's often not the sole source of

NOTE Confidence: 0.9395532

00:24:56.712 --> 00:24:57.660 those neurocognitive symptoms.

NOTE Confidence: 0.9395532

00:24:57.660 --> 00:24:59.376 And so if we, you know,

NOTE Confidence: 0.9395532

00:24:59.380 --> 00:25:02.392 offer surgery to patients with normal

NOTE Confidence: 0.9395532

00:25:02.392 --> 00:25:03.818 calcemic primary hyperparathyroidism

NOTE Confidence: 0.9395532

00:25:03.818 --> 00:25:06.113 who only have the neurocognitive

NOTE Confidence: 0.9395532

00:25:06.113 --> 00:25:08.690 symptoms and then we end up having

NOTE Confidence: 0.9395532

00:25:08.690 --> 00:25:10.388 to do something like a subtotal

NOTE Confidence: 0.9395532

00:25:10.447 --> 00:25:11.979 resection in that patient.

NOTE Confidence: 0.9395532

00:25:11.980 --> 00:25:15.130 They may still have some ongoing  
NOTE Confidence: 0.9395532

00:25:15.130 --> 00:25:16.868 neurocognitive symptoms and on  
NOTE Confidence: 0.9395532

00:25:16.868 --> 00:25:19.276 top of that can have some pretty  
NOTE Confidence: 0.9395532

00:25:19.276 --> 00:25:21.180 significant hypocalcemic symptoms.  
NOTE Confidence: 0.9395532

00:25:21.180 --> 00:25:23.172 And and can also ultimately end  
NOTE Confidence: 0.9395532

00:25:23.172 --> 00:25:24.500 up being permanently hypoparent  
NOTE Confidence: 0.9395532

00:25:24.562 --> 00:25:26.018 thyroid instead of hyperparathyroid  
NOTE Confidence: 0.9395532

00:25:26.018 --> 00:25:28.202 where they just don't make enough  
NOTE Confidence: 0.9395532

00:25:28.261 --> 00:25:29.949 parathyroid hormone anymore and  
NOTE Confidence: 0.9395532

00:25:29.949 --> 00:25:31.215 they're chronically low.  
NOTE Confidence: 0.9395532

00:25:31.220 --> 00:25:32.900 And it's also not good for bone health.  
NOTE Confidence: 0.9395532

00:25:32.900 --> 00:25:34.615 So it's not a simple decision to  
NOTE Confidence: 0.9395532

00:25:34.615 --> 00:25:36.072 make when patients have normal  
NOTE Confidence: 0.9395532

00:25:36.072 --> 00:25:37.416 calcium and primary hyperpara.  
NOTE Confidence: 0.9395532

00:25:37.420 --> 00:25:38.178 Me personally,  
NOTE Confidence: 0.9395532

00:25:38.178 --> 00:25:40.831 I've operated on many patients who have

NOTE Confidence: 0.9395532

00:25:40.831 --> 00:25:43.026 that particular subtype of primary

NOTE Confidence: 0.9395532

00:25:43.026 --> 00:25:45.648 hyperpara and usually my criteria are,

NOTE Confidence: 0.9395532

00:25:45.650 --> 00:25:47.960 I do want to see some solid

NOTE Confidence: 0.9395532

00:25:47.960 --> 00:25:49.478 evidence of symptomatology that I

NOTE Confidence: 0.9395532

00:25:49.478 --> 00:25:50.963 feel is correctable with surgery.

NOTE Confidence: 0.93138516

00:25:50.970 --> 00:25:53.610 So kidney stones, bone disease,

NOTE Confidence: 0.93138516

00:25:53.610 --> 00:25:56.082 severe fatigue out of proportion to

NOTE Confidence: 0.93138516

00:25:56.082 --> 00:25:59.106 what you would expect in in a particular

NOTE Confidence: 0.93138516

00:25:59.106 --> 00:26:02.830 patient that is a that's an additional one.

NOTE Confidence: 0.93138516

00:26:02.830 --> 00:26:06.006 You know that alone sometimes I've

NOTE Confidence: 0.93138516

00:26:06.006 --> 00:26:08.274 been you know persuaded to operate

NOTE Confidence: 0.93138516

00:26:08.274 --> 00:26:11.362 but many times not and and also a

NOTE Confidence: 0.93138516

00:26:11.362 --> 00:26:13.870 starting calcium that is at least

NOTE Confidence: 0.93138516

00:26:13.958 --> 00:26:17.334 you know mid nines 95 or so some 9-3.

NOTE Confidence: 0.93138516

00:26:17.334 --> 00:26:21.891 But if the your if your calcium is 899.0

NOTE Confidence: 0.93138516

00:26:21.891 --> 00:26:25.579 and there is you know no strong hard  
NOTE Confidence: 0.93138516

00:26:25.579 --> 00:26:29.787 signs of parathyroid disease manifestations,  
NOTE Confidence: 0.93138516

00:26:29.790 --> 00:26:31.694 then I usually you know just ask  
NOTE Confidence: 0.93138516

00:26:31.694 --> 00:26:33.734 the patient to bear bear with me  
NOTE Confidence: 0.93138516

00:26:33.734 --> 00:26:35.454 and their endocrinologist and let's  
NOTE Confidence: 0.93138516

00:26:35.454 --> 00:26:36.830 trend things over time.  
NOTE Confidence: 0.93138516

00:26:36.830 --> 00:26:38.618 See if the parathyroid function worsens  
NOTE Confidence: 0.93138516

00:26:38.618 --> 00:26:40.810 or if the calcium level start to rise  
NOTE Confidence: 0.93138516

00:26:40.810 --> 00:26:43.192 to a safer level where we can then do  
NOTE Confidence: 0.93138516

00:26:43.192 --> 00:26:44.712 potentially A subtotal resection and  
NOTE Confidence: 0.93138516

00:26:44.712 --> 00:26:46.436 not leave them permanently hypocalcemic  
NOTE Confidence: 0.93138516

00:26:46.436 --> 00:26:49.040 because that's a terrible condition to have.  
NOTE Confidence: 0.93138516

00:26:49.040 --> 00:26:50.876 You may know some people who  
NOTE Confidence: 0.93138516

00:26:50.876 --> 00:26:51.954 have that condition okay,  
NOTE Confidence: 0.93138516

00:26:51.954 --> 00:26:53.032 So that's a lot of time spent  
NOTE Confidence: 0.93138516

00:26:53.032 --> 00:26:53.919 on that first question,

NOTE Confidence: 0.93138516

00:26:53.920 --> 00:26:55.240 but I think it's important.

NOTE Confidence: 0.93138516

00:26:55.240 --> 00:26:56.416 There were many of you who

NOTE Confidence: 0.93138516

00:26:56.416 --> 00:26:57.200 had questions about that

NOTE Confidence: 0.93162984

00:26:59.270 --> 00:27:00.869 interoperative PTH testing.

NOTE Confidence: 0.93162984

00:27:00.869 --> 00:27:02.468 Here's another question.

NOTE Confidence: 0.93162984

00:27:02.470 --> 00:27:03.334 From what I've understood,

NOTE Confidence: 0.93162984

00:27:03.334 --> 00:27:04.630 there seems to be a greater

NOTE Confidence: 0.93162984

00:27:04.670 --> 00:27:06.030 possibility of a normal calcemic

NOTE Confidence: 0.93162984

00:27:06.030 --> 00:27:07.390 patient having multi gland disease.

NOTE Confidence: 0.93162984

00:27:07.390 --> 00:27:09.322 In your opinion, how important is

NOTE Confidence: 0.93162984

00:27:09.322 --> 00:27:11.229 interoperative PTH testing in such cases?

NOTE Confidence: 0.93162984

00:27:11.230 --> 00:27:12.866 Or could bilateral exsorption

NOTE Confidence: 0.93162984

00:27:12.866 --> 00:27:14.911 be a wise alternative when

NOTE Confidence: 0.93162984

00:27:14.911 --> 00:27:16.588 interoperative PTH is not available,

NOTE Confidence: 0.93162984

00:27:16.590 --> 00:27:20.390 so interoperative PTH testing is

NOTE Confidence: 0.93162984

00:27:20.390 --> 00:27:23.302 to me it is crucial and imperative  
NOTE Confidence: 0.93162984

00:27:23.302 --> 00:27:25.724 when you have that available to you.  
NOTE Confidence: 0.93162984

00:27:25.730 --> 00:27:27.695 So whether you have primary  
NOTE Confidence: 0.93162984

00:27:27.695 --> 00:27:28.088 hyperparathyroidism,  
NOTE Confidence: 0.93162984

00:27:28.090 --> 00:27:30.090 the classic case or normal  
NOTE Confidence: 0.93162984

00:27:30.090 --> 00:27:31.690 hormonal or normal Calcemic,  
NOTE Confidence: 0.93162984

00:27:31.690 --> 00:27:32.500 primary Hyperpara,  
NOTE Confidence: 0.93162984

00:27:32.500 --> 00:27:34.930 the Interopter PTH monitoring is very,  
NOTE Confidence: 0.93162984

00:27:34.930 --> 00:27:35.556 extremely beneficial.  
NOTE Confidence: 0.93162984

00:27:35.556 --> 00:27:36.808 And I, you know,  
NOTE Confidence: 0.93162984

00:27:36.810 --> 00:27:39.060 recommend that it be utilized in  
NOTE Confidence: 0.93162984

00:27:39.060 --> 00:27:41.340 all cases where it's available.  
NOTE Confidence: 0.93162984

00:27:41.340 --> 00:27:43.100 As we talked about earlier,  
NOTE Confidence: 0.93162984

00:27:43.100 --> 00:27:44.792 there's an expected decline  
NOTE Confidence: 0.93162984

00:27:44.792 --> 00:27:46.484 in parathyroid hormone levels  
NOTE Confidence: 0.93162984

00:27:46.484 --> 00:27:48.418 in every 5 minutes or so.

NOTE Confidence: 0.93162984

00:27:48.420 --> 00:27:50.695 And so that gives us very useful

NOTE Confidence: 0.93162984

00:27:50.695 --> 00:27:52.893 information of when we can stop the

NOTE Confidence: 0.93162984

00:27:52.893 --> 00:27:55.000 case and and be confident that we

NOTE Confidence: 0.93162984

00:27:55.000 --> 00:27:56.540 have resected all relevant disease

NOTE Confidence: 0.93162984

00:27:56.540 --> 00:27:58.340 when it comes to the parathyroid.

NOTE Confidence: 0.93162984

00:27:58.340 --> 00:28:00.118 So it's really important to do a

NOTE Confidence: 0.93162984

00:28:00.118 --> 00:28:01.894 trial for PTH monitoring that when

NOTE Confidence: 0.93162984

00:28:01.894 --> 00:28:03.808 that is not available then yes,

NOTE Confidence: 0.93162984

00:28:03.810 --> 00:28:05.784 those patients should go on to

NOTE Confidence: 0.93162984

00:28:05.784 --> 00:28:08.490 to have a four gland exploration.

NOTE Confidence: 0.93162984

00:28:08.490 --> 00:28:10.956 So identifying all four parathyroid glands

NOTE Confidence: 0.93162984

00:28:10.956 --> 00:28:13.848 and removing the glands that look enlarged.

NOTE Confidence: 0.93162984

00:28:13.850 --> 00:28:15.715 But we know that as

NOTE Confidence: 0.93162984

00:28:15.715 --> 00:28:17.207 clinicians that's not ideal.

NOTE Confidence: 0.93162984

00:28:17.210 --> 00:28:18.098 The surgeon's eye.

NOTE Confidence: 0.93162984

00:28:18.098 --> 00:28:18.690 You know,  
NOTE Confidence: 0.93162984

00:28:18.690 --> 00:28:20.447 although we are confident in our eyes,  
NOTE Confidence: 0.93162984

00:28:20.450 --> 00:28:23.486 and many of us wear magnification,  
NOTE Confidence: 0.93162984

00:28:23.490 --> 00:28:25.455 literature and studies have shown  
NOTE Confidence: 0.93162984

00:28:25.455 --> 00:28:27.873 that surgeon's eye alone is not  
NOTE Confidence: 0.93162984

00:28:27.873 --> 00:28:30.300 adequate in routinely accurately  
NOTE Confidence: 0.9296038

00:28:32.340 --> 00:28:34.540 determining which glands are abnormal.  
NOTE Confidence: 0.9296038

00:28:34.540 --> 00:28:36.286 And that's because there could be  
NOTE Confidence: 0.9296038

00:28:36.286 --> 00:28:37.833 subtle changes in the parenthetic  
NOTE Confidence: 0.9296038

00:28:37.833 --> 00:28:39.771 gland that even a magnified eye  
NOTE Confidence: 0.9296038

00:28:39.771 --> 00:28:41.698 don't doesn't see at quite as well.  
NOTE Confidence: 0.9296038

00:28:41.700 --> 00:28:43.429 So a normal gland is about the  
NOTE Confidence: 0.9296038

00:28:43.429 --> 00:28:45.786 size of a grain of rice and has  
NOTE Confidence: 0.9296038

00:28:45.786 --> 00:28:47.331 a elongated Oval like shape.  
NOTE Confidence: 0.9296038

00:28:47.340 --> 00:28:48.820 When parasitic glands become  
NOTE Confidence: 0.9296038

00:28:48.820 --> 00:28:50.670 overactive often times they get

NOTE Confidence: 0.9296038

00:28:50.670 --> 00:28:52.498 larger and rounder and plump and

NOTE Confidence: 0.9296038

00:28:52.498 --> 00:28:54.164 sometimes that that size can get to

NOTE Confidence: 0.9296038

00:28:54.164 --> 00:28:55.980 the size of a grape or even larger.

NOTE Confidence: 0.9296038

00:28:55.980 --> 00:28:57.708 But many times particularly when you're

NOTE Confidence: 0.9296038

00:28:57.708 --> 00:28:59.260 talking about multi gland disease,

NOTE Confidence: 0.9296038

00:28:59.260 --> 00:29:00.370 these glands are about the

NOTE Confidence: 0.9296038

00:29:00.370 --> 00:29:01.258 same size and shape.

NOTE Confidence: 0.9296038

00:29:01.260 --> 00:29:03.080 There may be some very subtle changes

NOTE Confidence: 0.9296038

00:29:03.080 --> 00:29:05.475 in the size and shape of them and so

NOTE Confidence: 0.9296038

00:29:05.475 --> 00:29:07.260 that's where the hormone plays a role.

NOTE Confidence: 0.9296038

00:29:07.260 --> 00:29:09.684 So if a patient has nonlocalizing

NOTE Confidence: 0.9296038

00:29:09.684 --> 00:29:11.300 preoperative imaging that already

NOTE Confidence: 0.9296038

00:29:11.363 --> 00:29:13.349 kind of increases my thought process

NOTE Confidence: 0.9296038

00:29:13.349 --> 00:29:15.681 in or my suspicion that that patient

NOTE Confidence: 0.9296038

00:29:15.681 --> 00:29:17.559 may have multi gland disease or

NOTE Confidence: 0.9296038

00:29:17.559 --> 00:29:19.105 if they have an ultrasound that  
NOTE Confidence: 0.9296038

00:29:19.105 --> 00:29:20.330 suggests that there's one enlarged  
NOTE Confidence: 0.9296038

00:29:20.377 --> 00:29:21.763 gland on the right hand side behind  
NOTE Confidence: 0.9296038

00:29:21.763 --> 00:29:23.300 the thyroid and a CAT scan that says  
NOTE Confidence: 0.9296038

00:29:23.300 --> 00:29:24.522 they see something on the left,  
NOTE Confidence: 0.9296038

00:29:24.522 --> 00:29:26.454 then that's what we call discordant  
NOTE Confidence: 0.9296038

00:29:26.454 --> 00:29:28.466 imaging and there's a higher incidence  
NOTE Confidence: 0.9296038

00:29:28.466 --> 00:29:30.440 of multigland disease in those cases.  
NOTE Confidence: 0.9296038

00:29:30.440 --> 00:29:32.484 So I think interrupter PTH is important  
NOTE Confidence: 0.9296038

00:29:32.484 --> 00:29:34.355 in all parathyroid surgery when it's  
NOTE Confidence: 0.9296038

00:29:34.355 --> 00:29:36.233 available and when it's not available,  
NOTE Confidence: 0.9296038

00:29:36.240 --> 00:29:40.160 yes, for gland exploration should be done.  
NOTE Confidence: 0.9296038

00:29:40.160 --> 00:29:42.569 Let's see here,  
NOTE Confidence: 0.9296038

00:29:42.570 --> 00:29:44.397 there is a lot of confusion about  
NOTE Confidence: 0.9296038

00:29:44.397 --> 00:29:45.610 calcium intake before surgery.  
NOTE Confidence: 0.9296038

00:29:45.610 --> 00:29:46.862 Some endocrinologists say to

NOTE Confidence: 0.9296038

00:29:46.862 --> 00:29:47.488 take supplements,

NOTE Confidence: 0.9296038

00:29:47.490 --> 00:29:49.326 other doctors say to hold calcium.

NOTE Confidence: 0.9296038

00:29:49.330 --> 00:29:50.575 The guidelines from the 5th

NOTE Confidence: 0.9296038

00:29:50.575 --> 00:29:51.571 International workshop say to

NOTE Confidence: 0.9296038

00:29:51.571 --> 00:29:53.049 get the recommended daily amount.

NOTE Confidence: 0.9296038

00:29:53.050 --> 00:29:54.850 Can you please comment on this?

NOTE Confidence: 0.9296038

00:29:54.850 --> 00:29:55.570 So yes,

NOTE Confidence: 0.9296038

00:29:55.570 --> 00:29:58.636 I I do agree with the the guidelines

NOTE Confidence: 0.9296038

00:29:58.636 --> 00:30:00.901 from the international workshop of

NOTE Confidence: 0.9296038

00:30:00.901 --> 00:30:02.764 getting your recommended daily amount

NOTE Confidence: 0.9296038

00:30:02.764 --> 00:30:04.672 and that's what basically can be

NOTE Confidence: 0.9296038

00:30:04.672 --> 00:30:07.271 taken care of with just an over over

NOTE Confidence: 0.9296038

00:30:07.271 --> 00:30:08.225 counter calcium supplementation.

NOTE Confidence: 0.9296038

00:30:08.230 --> 00:30:10.492 The high level calcium and vitamin

NOTE Confidence: 0.9296038

00:30:10.492 --> 00:30:12.376 D supplementation that patients need

NOTE Confidence: 0.9296038

00:30:12.376 --> 00:30:14.350 after surgery is a different amount  
NOTE Confidence: 0.9296038

00:30:14.350 --> 00:30:16.350 or different dosing of calcium.  
NOTE Confidence: 0.9296038

00:30:16.350 --> 00:30:20.045 Now some endocrinologists want patients  
NOTE Confidence: 0.9296038

00:30:20.045 --> 00:30:22.726 to hold their calcium preoperatively  
NOTE Confidence: 0.9296038

00:30:22.726 --> 00:30:25.638 so that they don't worsen the serum  
NOTE Confidence: 0.9296038

00:30:25.638 --> 00:30:27.620 hypercalcemia that the patients have.  
NOTE Confidence: 0.9296038

00:30:27.620 --> 00:30:29.174 And others feel that is not necessary  
NOTE Confidence: 0.9296038

00:30:29.174 --> 00:30:30.339 and they're more more concerned  
NOTE Confidence: 0.9296038

00:30:30.339 --> 00:30:31.695 about the bone health and the  
NOTE Confidence: 0.9296038

00:30:31.700 --> 00:30:33.700 expected hypocalcemia after surgery  
NOTE Confidence: 0.9296038

00:30:33.700 --> 00:30:35.700 that could become symptomatic.  
NOTE Confidence: 0.9296038

00:30:35.700 --> 00:30:39.140 So they want patients to be on calcium.  
NOTE Confidence: 0.9296038

00:30:39.140 --> 00:30:40.052 In my experience,  
NOTE Confidence: 0.9296038

00:30:40.052 --> 00:30:40.660 I think  
NOTE Confidence: 0.94333214

00:30:43.120 --> 00:30:44.820 continuing your calcium supplementation  
NOTE Confidence: 0.94333214

00:30:44.820 --> 00:30:46.945 is perfectly reasonable except for

NOTE Confidence: 0.94333214

00:30:46.945 --> 00:30:49.150 those patients who already have very

NOTE Confidence: 0.94333214

00:30:49.150 --> 00:30:50.875 high serum calcium before surgery,

NOTE Confidence: 0.94333214

00:30:50.880 --> 00:30:52.600 surgery and they're very symptomatic.

NOTE Confidence: 0.94333214

00:30:52.600 --> 00:30:55.400 So patient has like a calcium of 12 or 13.

NOTE Confidence: 0.94333214

00:30:55.400 --> 00:30:57.566 They don't need any additional dietary

NOTE Confidence: 0.94333214

00:30:57.566 --> 00:30:59.709 calcium intake because that can worsen

NOTE Confidence: 0.94333214

00:30:59.709 --> 00:31:01.635 just how they're feeling in general.

NOTE Confidence: 0.94333214

00:31:01.640 --> 00:31:02.720 But those who you know,

NOTE Confidence: 0.94333214

00:31:02.720 --> 00:31:03.732 have a mild elevation,

NOTE Confidence: 0.94333214

00:31:03.732 --> 00:31:04.912 you know, 11 or less,

NOTE Confidence: 0.94333214

00:31:04.912 --> 00:31:06.032 taking their daily supplement as

NOTE Confidence: 0.94333214

00:31:06.032 --> 00:31:07.863 long as it doesn't worsen how they're

NOTE Confidence: 0.94333214

00:31:07.863 --> 00:31:09.198 feeling is reasonable because we

NOTE Confidence: 0.94333214

00:31:09.248 --> 00:31:10.788 know that we're going to be getting

NOTE Confidence: 0.94333214

00:31:10.788 --> 00:31:12.358 them to surgery and that the calcium

NOTE Confidence: 0.94333214

00:31:12.358 --> 00:31:14.400 levels will drop and they are going to  
NOTE Confidence: 0.94333214

00:31:14.400 --> 00:31:15.985 need some supplementation until the  
NOTE Confidence: 0.94333214

00:31:15.985 --> 00:31:17.716 normal parathyroid glands kick in and  
NOTE Confidence: 0.94333214

00:31:17.716 --> 00:31:19.168 start functioning at a normal level.  
NOTE Confidence: 0.94333214

00:31:19.170 --> 00:31:20.358 So Long story short,  
NOTE Confidence: 0.94333214

00:31:20.358 --> 00:31:22.140 I think it's reasonable to take  
NOTE Confidence: 0.94333214

00:31:22.202 --> 00:31:23.690 your daily dietary intake.  
NOTE Confidence: 0.94333214

00:31:23.690 --> 00:31:25.650 If you find that your symptoms are worsening,  
NOTE Confidence: 0.94333214

00:31:25.650 --> 00:31:27.428 then stop the calcium but contain the  
NOTE Confidence: 0.94333214

00:31:27.428 --> 00:31:29.250 vitamin D would be my recommendation.  
NOTE Confidence: 0.94333214

00:31:29.250 --> 00:31:31.014 But I would defer to what your  
NOTE Confidence: 0.94333214

00:31:31.014 --> 00:31:32.130 endocrinologist are recommending for you.  
NOTE Confidence: 0.94384134

00:31:34.330 --> 00:31:34.730 Okay  
NOTE Confidence: 0.9267625

00:31:39.920 --> 00:31:42.788 can you have normal hormonal primary  
NOTE Confidence: 0.9267625

00:31:42.788 --> 00:31:44.700 hyperparathyrosism when your calcium  
NOTE Confidence: 0.9267625

00:31:44.765 --> 00:31:47.103 and PTH levels bounce around the range

NOTE Confidence: 0.9267625

00:31:47.103 --> 00:31:49.478 of PTH being 19 to 66 in my case.

NOTE Confidence: 0.9267625

00:31:49.480 --> 00:31:51.840 And so yes, your calcium

NOTE Confidence: 0.9267625

00:31:51.840 --> 00:31:54.200 and PTH levels do fluctuate.

NOTE Confidence: 0.9267625

00:31:54.200 --> 00:31:55.820 Whether you have the classical

NOTE Confidence: 0.9267625

00:31:55.820 --> 00:31:57.116 case of primary hyperparathyroidism,

NOTE Confidence: 0.9267625

00:31:57.120 --> 00:31:58.200 you know your calcium is not

NOTE Confidence: 0.9267625

00:31:58.200 --> 00:31:59.080 always going to be 11.

NOTE Confidence: 0.9267625

00:31:59.080 --> 00:32:01.072 It usually is always elevated in

NOTE Confidence: 0.9267625

00:32:01.072 --> 00:32:03.031 those cases but maybe not exactly

NOTE Confidence: 0.9267625

00:32:03.031 --> 00:32:05.448 you know 11 when you have normal

NOTE Confidence: 0.9267625

00:32:05.448 --> 00:32:06.624 hormonal primary hyperparathyroidism

NOTE Confidence: 0.9267625

00:32:06.624 --> 00:32:08.622 the calcium levels will fluctuate some

NOTE Confidence: 0.9267625

00:32:08.622 --> 00:32:10.836 as well too and but that's why it's

NOTE Confidence: 0.9267625

00:32:10.836 --> 00:32:12.966 important to exclude other sources of

NOTE Confidence: 0.9267625

00:32:12.966 --> 00:32:14.508 the hyperparathyroidism in that case.

NOTE Confidence: 0.9267625

00:32:14.508 --> 00:32:16.380 So you want to make sure that that  
NOTE Confidence: 0.9267625

00:32:16.434 --> 00:32:18.432 patient doesn't truly have a vitamin  
NOTE Confidence: 0.9267625

00:32:18.432 --> 00:32:20.226 D deficiency that's causing the  
NOTE Confidence: 0.9267625

00:32:20.226 --> 00:32:21.862 hyperparathyroidism and not normal  
NOTE Confidence: 0.9267625

00:32:21.862 --> 00:32:23.267 hormonal primary hyperparathyroidism.  
NOTE Confidence: 0.9267625

00:32:23.267 --> 00:32:25.615 So normal hormonal primary  
NOTE Confidence: 0.9267625

00:32:25.615 --> 00:32:27.963 hyperparathyroidism is a diagnosis  
NOTE Confidence: 0.9267625

00:32:27.963 --> 00:32:29.320 of exclusion.  
NOTE Confidence: 0.9267625

00:32:29.320 --> 00:32:30.984 So you have to exclude all of the  
NOTE Confidence: 0.9267625

00:32:30.984 --> 00:32:32.050 reasons to have hyperparathyroidism  
NOTE Confidence: 0.9267625

00:32:32.050 --> 00:32:34.434 and all your left with is this subtype  
NOTE Confidence: 0.9267625

00:32:34.489 --> 00:32:36.139 of normal hormonal and that's why  
NOTE Confidence: 0.9267625

00:32:36.139 --> 00:32:37.564 it's really important to investigate  
NOTE Confidence: 0.9267625

00:32:37.564 --> 00:32:39.184 for kidney dysfunction and vitamin  
NOTE Confidence: 0.9267625

00:32:39.184 --> 00:32:40.960 D deficiency in those patients.  
NOTE Confidence: 0.93532956

00:32:44.600 --> 00:32:47.211 I would love to know why children

NOTE Confidence: 0.93532956

00:32:47.211 --> 00:32:48.846 without genetic conditions like

NOTE Confidence: 0.93532956

00:32:48.846 --> 00:32:51.184 multiple endocrine neoplasia or end

NOTE Confidence: 0.93532956

00:32:51.184 --> 00:32:53.360 up with primary hyperparathyrosome.

NOTE Confidence: 0.93532956

00:32:53.360 --> 00:32:54.836 I think that's a great question.

NOTE Confidence: 0.93532956

00:32:54.840 --> 00:32:56.860 You know, like many diseases

NOTE Confidence: 0.93532956

00:32:56.860 --> 00:32:58.880 that are common in adults,

NOTE Confidence: 0.93532956

00:32:58.880 --> 00:33:00.644 there are some that present in

NOTE Confidence: 0.93532956

00:33:00.644 --> 00:33:02.612 childhood that we just don't don't

NOTE Confidence: 0.93532956

00:33:02.612 --> 00:33:04.437 understand fully why that happens.

NOTE Confidence: 0.93532956

00:33:04.440 --> 00:33:06.920 So yes, I've operated on kids who have

NOTE Confidence: 0.93532956

00:33:06.920 --> 00:33:08.626 had primary hyperparathyrosome and most

NOTE Confidence: 0.93532956

00:33:08.626 --> 00:33:11.472 of those kids do not have a genetic

NOTE Confidence: 0.93532956

00:33:11.472 --> 00:33:14.237 syndrome that has predisposed them to that.

NOTE Confidence: 0.93532956

00:33:14.240 --> 00:33:16.920 So we really don't know why it happens,

NOTE Confidence: 0.93532956

00:33:16.920 --> 00:33:18.396 but it is found in children,

NOTE Confidence: 0.93532956

00:33:18.400 --> 00:33:21.956 not very frequently, but it does occur.  
NOTE Confidence: 0.93532956

00:33:21.960 --> 00:33:24.228 What is the current status for parathyroid  
NOTE Confidence: 0.93532956

00:33:24.228 --> 00:33:26.320 transplants using the patient's own tissue?  
NOTE Confidence: 0.93532956

00:33:26.320 --> 00:33:27.816 Is this widely practiced  
NOTE Confidence: 0.93532956

00:33:27.816 --> 00:33:29.686 and how successful is it?  
NOTE Confidence: 0.93532956

00:33:29.690 --> 00:33:31.951 OK, so this is this question is  
NOTE Confidence: 0.93532956

00:33:31.951 --> 00:33:34.223 kind of asking about parathyroid  
NOTE Confidence: 0.93532956

00:33:34.223 --> 00:33:37.288 transplantation after a subtotal resection,  
NOTE Confidence: 0.93532956

00:33:37.290 --> 00:33:39.486 or at least that's how I'm taking it as.  
NOTE Confidence: 0.93532956

00:33:39.490 --> 00:33:41.362 So there are two trains of thought when  
NOTE Confidence: 0.93532956

00:33:41.362 --> 00:33:42.968 you're dealing with parathyroid disease.  
NOTE Confidence: 0.93532956

00:33:42.970 --> 00:33:45.628 There's those who perform a subtotal  
NOTE Confidence: 0.93532956

00:33:45.628 --> 00:33:47.728 parathyroidectomy where they remove 3  
NOTE Confidence: 0.93532956

00:33:47.728 --> 00:33:49.808 to 3 1/2 of the four glands leading,  
NOTE Confidence: 0.93532956

00:33:49.810 --> 00:33:52.575 leaving a portion of the remaining gland  
NOTE Confidence: 0.93532956

00:33:52.575 --> 00:33:54.730 intact with its natural blood supply.

NOTE Confidence: 0.93532956

00:33:54.730 --> 00:33:57.088 And there are those who perform

NOTE Confidence: 0.93532956

00:33:57.088 --> 00:33:58.882 a total thyroidectomy,

NOTE Confidence: 0.93532956

00:33:58.882 --> 00:34:00.676 an auto transplant,

NOTE Confidence: 0.93532956

00:34:00.680 --> 00:34:03.739 A portion of parathyroid tissue in the

NOTE Confidence: 0.93532956

00:34:03.739 --> 00:34:05.908 forearm that's that is a parathyroid

NOTE Confidence: 0.93532956

00:34:05.908 --> 00:34:08.248 transplant transplant of the patient's

NOTE Confidence: 0.93532956

00:34:08.248 --> 00:34:10.320 own parathyroid tissue and there's

NOTE Confidence: 0.93532956

00:34:10.320 --> 00:34:12.300 pluses and minuses of both camps.

NOTE Confidence: 0.93532956

00:34:12.300 --> 00:34:14.700 So in the subtotal resection,

NOTE Confidence: 0.93532956

00:34:14.700 --> 00:34:17.080 the argument is that you are leaving

NOTE Confidence: 0.93532956

00:34:17.080 --> 00:34:19.205 that a portion of that gland right in

NOTE Confidence: 0.93532956

00:34:19.205 --> 00:34:20.874 its natural element where it's always

NOTE Confidence: 0.93532956

00:34:20.874 --> 00:34:22.572 been with its intact blood supply.

NOTE Confidence: 0.93532956

00:34:22.580 --> 00:34:24.572 So you know that it will have some

NOTE Confidence: 0.93532956

00:34:24.572 --> 00:34:26.620 function and produce parathyroid hormone.

NOTE Confidence: 0.93532956

00:34:26.620 --> 00:34:28.780 And the and many proponents,  
NOTE Confidence: 0.93532956

00:34:28.780 --> 00:34:31.195 many surgeons who are in favor of  
NOTE Confidence: 0.93532956

00:34:31.195 --> 00:34:33.809 that like to see that they intact  
NOTE Confidence: 0.93532956

00:34:33.810 --> 00:34:36.420 intec vascular supply is is maintained  
NOTE Confidence: 0.93532956

00:34:36.420 --> 00:34:37.725 in those cases.  
NOTE Confidence: 0.93532956

00:34:37.730 --> 00:34:39.844 And so I fall into that category.  
NOTE Confidence: 0.93532956

00:34:39.850 --> 00:34:42.448 I prefer performing a subtotal resection.  
NOTE Confidence: 0.93532956

00:34:42.450 --> 00:34:44.834 There are those in the camp of performing  
NOTE Confidence: 0.93532956

00:34:44.834 --> 00:34:47.241 a total thyroidectomy who feel that  
NOTE Confidence: 0.93532956

00:34:47.241 --> 00:34:48.509 I'm sorry total parathyroidectomy  
NOTE Confidence: 0.93532956

00:34:48.509 --> 00:34:50.806 and they do so because they feel that  
NOTE Confidence: 0.93532956

00:34:50.806 --> 00:34:52.849 all four of the glands are diseased.  
NOTE Confidence: 0.93532956

00:34:52.850 --> 00:34:55.454 So in the event that the  
NOTE Confidence: 0.93532956

00:34:55.454 --> 00:34:56.564 remaining parathyroid gland,  
NOTE Confidence: 0.93532956

00:34:56.564 --> 00:34:58.249 a portion of parathyroid gland,  
NOTE Confidence: 0.93532956

00:34:58.250 --> 00:34:59.734 becomes overactive and causes

NOTE Confidence: 0.93532956

00:34:59.734 --> 00:35:01.218 of recurrence of disease,

NOTE Confidence: 0.93532956

00:35:01.220 --> 00:35:03.264 it's easier to open up the forearm

NOTE Confidence: 0.93532956

00:35:03.264 --> 00:35:05.207 and resect that tissue again than it

NOTE Confidence: 0.93532956

00:35:05.207 --> 00:35:07.880 is to go back into the neck where the

NOTE Confidence: 0.93532956

00:35:07.880 --> 00:35:09.720 recurrent laryngeal nerves lie and

NOTE Confidence: 0.93532956

00:35:09.720 --> 00:35:12.065 where there's a higher risk of injury

NOTE Confidence: 0.93532956

00:35:12.065 --> 00:35:14.260 to more important structures in the neck.

NOTE Confidence: 0.93532956

00:35:14.260 --> 00:35:16.690 And I would say that in the hands of an

NOTE Confidence: 0.93532956

00:35:16.760 --> 00:35:19.260 experienced parathyroid surgery surgeon,

NOTE Confidence: 0.93532956

00:35:19.260 --> 00:35:21.060 going back into the neck,

NOTE Confidence: 0.93532956

00:35:21.060 --> 00:35:21.283 yeah,

NOTE Confidence: 0.93532956

00:35:21.283 --> 00:35:22.844 the risk is higher than if you've

NOTE Confidence: 0.93532956

00:35:22.844 --> 00:35:23.700 never had surgery.

NOTE Confidence: 0.93532956

00:35:23.700 --> 00:35:26.010 But the risk still overall is pretty

NOTE Confidence: 0.93532956

00:35:26.010 --> 00:35:28.195 low that you will have any major injury

NOTE Confidence: 0.93532956

00:35:28.195 --> 00:35:30.832 to the nerves or any or development of  
NOTE Confidence: 0.93532956

00:35:30.832 --> 00:35:32.617 permanent hypocalcemia in those settings.  
NOTE Confidence: 0.93532956

00:35:32.620 --> 00:35:34.790 And I would also argue that with  
NOTE Confidence: 0.93532956

00:35:34.790 --> 00:35:36.380 the proper subtotal resection,  
NOTE Confidence: 0.93532956

00:35:36.380 --> 00:35:37.778 the recurrence rate should be low,  
NOTE Confidence: 0.93532956

00:35:37.780 --> 00:35:39.538 should be like less than 5%.  
NOTE Confidence: 0.927016

00:35:39.540 --> 00:35:41.788 So it should be pretty rare that a  
NOTE Confidence: 0.927016

00:35:41.788 --> 00:35:43.994 person who has undergone A subtotal  
NOTE Confidence: 0.927016

00:35:43.994 --> 00:35:46.358 resection ever has a recurrence again.  
NOTE Confidence: 0.927016

00:35:46.360 --> 00:35:47.396 In the event that they do so,  
NOTE Confidence: 0.927016

00:35:47.400 --> 00:35:49.035 sometimes we have younger patients  
NOTE Confidence: 0.927016

00:35:49.035 --> 00:35:51.599 in their 30s or so and then they,  
NOTE Confidence: 0.927016

00:35:51.600 --> 00:35:53.060 they had a subtotal resection  
NOTE Confidence: 0.927016

00:35:53.060 --> 00:35:54.520 performed adequately and for many,  
NOTE Confidence: 0.927016

00:35:54.520 --> 00:35:56.920 many years they had normal  
NOTE Confidence: 0.927016

00:35:56.920 --> 00:35:57.880 parathyroid function,

NOTE Confidence: 0.927016

00:35:57.880 --> 00:35:59.956 normal calcium normal PTH levels and

NOTE Confidence: 0.927016

00:35:59.956 --> 00:36:01.876 lo and behold, 2030 years later,

NOTE Confidence: 0.927016

00:36:01.876 --> 00:36:04.346 they're now in their 60s or 70s and

NOTE Confidence: 0.927016

00:36:04.346 --> 00:36:06.136 they have recurrence of disease.

NOTE Confidence: 0.927016

00:36:06.140 --> 00:36:08.018 That remnant gland usually is large

NOTE Confidence: 0.927016

00:36:08.018 --> 00:36:09.980 enough to be seen on imaging,

NOTE Confidence: 0.927016

00:36:09.980 --> 00:36:11.030 but more importantly,

NOTE Confidence: 0.927016

00:36:11.030 --> 00:36:13.480 it should be documented in their original

NOTE Confidence: 0.927016

00:36:13.545 --> 00:36:15.980 surgical report where that gland was located.

NOTE Confidence: 0.927016

00:36:15.980 --> 00:36:18.960 And also what I do when I leave a remnant

NOTE Confidence: 0.927016

00:36:19.040 --> 00:36:21.940 is I leave a a titanium clip in that area.

NOTE Confidence: 0.927016

00:36:21.940 --> 00:36:24.180 So that's how I resect that tissue.

NOTE Confidence: 0.927016

00:36:24.180 --> 00:36:25.692 I resect the portion of parathyroid

NOTE Confidence: 0.927016

00:36:25.692 --> 00:36:27.454 tissue that is away from where the

NOTE Confidence: 0.927016

00:36:27.454 --> 00:36:29.410 vascular supply is coming in so that I

NOTE Confidence: 0.927016

00:36:29.410 --> 00:36:31.293 know that I'm preserving the vascular supply.

NOTE Confidence: 0.927016

00:36:31.300 --> 00:36:33.199 And I leave a little clip so that in

NOTE Confidence: 0.927016

00:36:33.199 --> 00:36:35.099 the event that a recurrence occurs,

NOTE Confidence: 0.927016

00:36:35.100 --> 00:36:36.498 either I or some other surgeon,

NOTE Confidence: 0.927016

00:36:36.500 --> 00:36:38.028 if you know down the line I move

NOTE Confidence: 0.927016

00:36:38.028 --> 00:36:39.313 or the patient moves somewhere

NOTE Confidence: 0.927016

00:36:39.313 --> 00:36:41.301 else that there's a target to know

NOTE Confidence: 0.927016

00:36:41.354 --> 00:36:42.578 the clip is in this area.

NOTE Confidence: 0.927016

00:36:42.580 --> 00:36:44.000 So that's where that remaining

NOTE Confidence: 0.927016

00:36:44.000 --> 00:36:45.420 one gland is left behind.

NOTE Confidence: 0.927016

00:36:45.420 --> 00:36:48.183 But it is very rare for a patient to

NOTE Confidence: 0.927016

00:36:48.183 --> 00:36:50.493 undergo a subtotal parathyroid resection

NOTE Confidence: 0.927016

00:36:50.493 --> 00:36:52.458 for primary hyperparathyroidism to then

NOTE Confidence: 0.927016

00:36:52.458 --> 00:36:55.180 have a recurrence that requires reoperation

NOTE Confidence: 0.93064713

00:36:57.820 --> 00:36:59.940 auto transplantation where you cryo

NOTE Confidence: 0.93064713

00:36:59.940 --> 00:37:02.060 preserve tissue and reimplant it.

NOTE Confidence: 0.93064713

00:37:02.060 --> 00:37:05.035 The success rates of that tissue functioning

NOTE Confidence: 0.93064713

00:37:05.035 --> 00:37:07.818 again is is variable and and low,

NOTE Confidence: 0.93064713

00:37:07.820 --> 00:37:09.860 you know about 30% or less.

NOTE Confidence: 0.93064713

00:37:09.860 --> 00:37:11.468 So there are not many centers

NOTE Confidence: 0.93064713

00:37:11.468 --> 00:37:13.220 here in the United States that

NOTE Confidence: 0.93064713

00:37:13.220 --> 00:37:14.964 cryopreserve and auto transplant

NOTE Confidence: 0.93064713

00:37:14.964 --> 00:37:17.144 tissue parathyroid tissue for those

NOTE Confidence: 0.93064713

00:37:17.144 --> 00:37:18.989 reasons there's no guarantee that

NOTE Confidence: 0.93064713

00:37:18.989 --> 00:37:21.105 that tissue will take down the line,

NOTE Confidence: 0.93064713

00:37:21.105 --> 00:37:23.100 but there are some centers that do it.

NOTE Confidence: 0.93064713

00:37:23.100 --> 00:37:24.140 We don't do that here.

NOTE Confidence: 0.9302419

00:37:29.910 --> 00:37:32.790 What is the expected recovery time and issues

NOTE Confidence: 0.9302419

00:37:32.790 --> 00:37:37.310 from a three gland hyperplasia resection?

NOTE Confidence: 0.9302419

00:37:37.310 --> 00:37:39.320 I was told I'm biochemically cured

NOTE Confidence: 0.9302419

00:37:39.320 --> 00:37:41.238 but I have residual symptoms,

NOTE Confidence: 0.9302419

00:37:41.238 --> 00:37:42.070 especially anxiety,  
NOTE Confidence: 0.9302419

00:37:42.070 --> 00:37:42.928 depression, helplessness.  
NOTE Confidence: 0.9302419

00:37:42.928 --> 00:37:46.360 So this brings me back to you know  
NOTE Confidence: 0.9302419

00:37:46.440 --> 00:37:48.780 the reasons why I usually don't  
NOTE Confidence: 0.9302419

00:37:48.780 --> 00:37:50.966 operate on normal calcemic primary  
NOTE Confidence: 0.9302419

00:37:50.966 --> 00:37:53.506 hyperpara when the patient solely  
NOTE Confidence: 0.9302419

00:37:53.506 --> 00:37:55.506 has neurocognitive symptoms, right?  
NOTE Confidence: 0.9302419

00:37:55.506 --> 00:37:57.886 Because neurocognitive symptoms can be  
NOTE Confidence: 0.9302419

00:37:57.886 --> 00:38:00.557 caused by many different reasons and  
NOTE Confidence: 0.9302419

00:38:00.557 --> 00:38:03.333 not always are solely due and often are  
NOTE Confidence: 0.9302419

00:38:03.403 --> 00:38:05.989 not solely due to parathyroid disease.  
NOTE Confidence: 0.9302419

00:38:05.990 --> 00:38:09.788 So you have to manage expectations if if is.  
NOTE Confidence: 0.9302419

00:38:09.790 --> 00:38:11.687 And so I'm always honest with my  
NOTE Confidence: 0.9302419

00:38:11.687 --> 00:38:13.556 patients and I say that the cholyuria,  
NOTE Confidence: 0.9302419

00:38:13.556 --> 00:38:15.086 if you have frequent urination,  
NOTE Confidence: 0.9302419

00:38:15.090 --> 00:38:16.506 that's usually one of the first

NOTE Confidence: 0.9302419

00:38:16.506 --> 00:38:17.896 symptoms that clears up after

NOTE Confidence: 0.9302419

00:38:17.896 --> 00:38:19.087 successful parathyroid surgery.

NOTE Confidence: 0.9302419

00:38:19.090 --> 00:38:20.706 And that's usually in a matter of days

NOTE Confidence: 0.9302419

00:38:20.706 --> 00:38:21.960 where patients the day after surgery

NOTE Confidence: 0.9302419

00:38:21.960 --> 00:38:23.389 say that they noticed that they didn't

NOTE Confidence: 0.9302419

00:38:23.389 --> 00:38:24.964 have to get up multiple times to go pee

NOTE Confidence: 0.9302419

00:38:24.970 --> 00:38:27.553 and go use the bathroom and they're

NOTE Confidence: 0.9302419

00:38:27.553 --> 00:38:30.938 very relieved from that bone improvement.

NOTE Confidence: 0.9302419

00:38:30.938 --> 00:38:32.570 So increase in bone,

NOTE Confidence: 0.9302419

00:38:32.570 --> 00:38:33.270 bone density,

NOTE Confidence: 0.9302419

00:38:33.270 --> 00:38:35.370 we can quantify that over time.

NOTE Confidence: 0.9302419

00:38:35.370 --> 00:38:37.780 So patients have osteopenia preoperatively

NOTE Confidence: 0.9302419

00:38:37.780 --> 00:38:40.661 or osteoporosis preoperatively and then we

NOTE Confidence: 0.9302419

00:38:40.661 --> 00:38:42.716 have successful parathyroid surgery.

NOTE Confidence: 0.9302419

00:38:42.720 --> 00:38:45.037 Those patients go on to have bone

NOTE Confidence: 0.9302419

00:38:45.037 --> 00:38:46.736 density testing usually a year  
NOTE Confidence: 0.9302419

00:38:46.736 --> 00:38:48.976 later from their surgery and we see  
NOTE Confidence: 0.9302419

00:38:48.976 --> 00:38:50.471 quantifiable evidence of increased  
NOTE Confidence: 0.9302419

00:38:50.471 --> 00:38:52.331 bone density sometimes the often  
NOTE Confidence: 0.9302419

00:38:52.331 --> 00:38:54.380 times the osteopenia is now back  
NOTE Confidence: 0.9302419

00:38:54.380 --> 00:38:55.680 to normal bone density.  
NOTE Confidence: 0.9302419

00:38:55.680 --> 00:38:57.514 But even in the setting of osteoporosis,  
NOTE Confidence: 0.9302419

00:38:57.520 --> 00:38:59.039 there's an improvement in the bone density.  
NOTE Confidence: 0.9302419

00:38:59.040 --> 00:39:01.060 So those are quantifiable measures.  
NOTE Confidence: 0.9302419

00:39:01.060 --> 00:39:01.891 The neurocognitive symptoms,  
NOTE Confidence: 0.9302419

00:39:01.891 --> 00:39:03.553 there are some people who definitely  
NOTE Confidence: 0.9302419

00:39:03.553 --> 00:39:05.017 feel that their minds are sharper,  
NOTE Confidence: 0.9302419

00:39:05.020 --> 00:39:06.264 their memory is better,  
NOTE Confidence: 0.9302419

00:39:06.264 --> 00:39:07.819 the anxiety has gotten better,  
NOTE Confidence: 0.9302419

00:39:07.820 --> 00:39:09.828 the depression has resolved  
NOTE Confidence: 0.9302419

00:39:09.828 --> 00:39:11.334 or significantly improved.

NOTE Confidence: 0.9302419

00:39:11.340 --> 00:39:14.265 But that happens very gradually

NOTE Confidence: 0.9302419

00:39:14.265 --> 00:39:16.020 in some patients.

NOTE Confidence: 0.9302419

00:39:16.020 --> 00:39:17.276 Some it happens overnight,

NOTE Confidence: 0.9302419

00:39:17.276 --> 00:39:18.218 but in general,

NOTE Confidence: 0.9302419

00:39:18.220 --> 00:39:20.200 it's a more prolonged improvement

NOTE Confidence: 0.9302419

00:39:20.200 --> 00:39:22.180 of those symptoms over time.

NOTE Confidence: 0.9302419

00:39:22.180 --> 00:39:23.290 And often times,

NOTE Confidence: 0.9302419

00:39:23.290 --> 00:39:25.510 they're patients who don't notice any

NOTE Confidence: 0.9302419

00:39:25.510 --> 00:39:27.618 significant improvement of those symptoms.

NOTE Confidence: 0.9302419

00:39:27.620 --> 00:39:29.461 So you just have to manage expectations

NOTE Confidence: 0.9302419

00:39:29.461 --> 00:39:30.854 and be honest with patients

NOTE Confidence: 0.9302419

00:39:30.854 --> 00:39:32.492 about what you think is likely

NOTE Confidence: 0.9302419

00:39:32.492 --> 00:39:34.139 to improve and what can improve,

NOTE Confidence: 0.9302419

00:39:34.140 --> 00:39:36.816 but what can also be multifactorial.

NOTE Confidence: 0.9302419

00:39:36.820 --> 00:39:38.572 And so I think this is the case

NOTE Confidence: 0.9302419

00:39:38.572 --> 00:39:40.343 where this patient may have other  
NOTE Confidence: 0.9302419

00:39:40.343 --> 00:39:41.938 reasons to have ongoing anxiety,  
NOTE Confidence: 0.9302419

00:39:41.940 --> 00:39:43.528 depression and feelings of  
NOTE Confidence: 0.9302419

00:39:43.528 --> 00:39:45.513 helplessness that are not solely  
NOTE Confidence: 0.9302419

00:39:45.513 --> 00:39:47.300 explained by parathyroid disease.  
NOTE Confidence: 0.93289965

00:39:49.900 --> 00:39:50.659 Let's see here  
NOTE Confidence: 0.9306542

00:39:54.320 --> 00:39:56.800 for second parathyroid surgeries, i.e.  
NOTE Confidence: 0.9306542

00:39:56.800 --> 00:39:58.560 looking for a 5th gland  
NOTE Confidence: 0.9306542

00:39:58.560 --> 00:40:00.440 IS4DC to the gold standard.  
NOTE Confidence: 0.9306542

00:40:00.440 --> 00:40:03.177 I would say there is no gold  
NOTE Confidence: 0.9306542

00:40:03.177 --> 00:40:05.262 standard in terms of imaging  
NOTE Confidence: 0.9306542

00:40:05.262 --> 00:40:07.560 studies in the reoperative setting.  
NOTE Confidence: 0.9306542

00:40:07.560 --> 00:40:10.062 What we do want to say is we definitely  
NOTE Confidence: 0.9306542

00:40:10.062 --> 00:40:12.912 want to have a targetable gland to go for.  
NOTE Confidence: 0.9306542

00:40:12.912 --> 00:40:15.182 So whatever imaging study gets you to  
NOTE Confidence: 0.9306542

00:40:15.182 --> 00:40:17.306 that targetable gland is what's ideal.

NOTE Confidence: 0.9306542

00:40:17.310 --> 00:40:18.226 And so by that,

NOTE Confidence: 0.9306542

00:40:18.226 --> 00:40:19.963 I mean there are cases where patients

NOTE Confidence: 0.9306542

00:40:19.963 --> 00:40:22.112 who have never had surgery but they

NOTE Confidence: 0.9306542

00:40:22.112 --> 00:40:23.441 have confirmed parathyroid disease

NOTE Confidence: 0.9306542

00:40:23.441 --> 00:40:25.737 and we send them for imaging and

NOTE Confidence: 0.9306542

00:40:25.737 --> 00:40:27.380 ultrasound assess to maybe a 4D

NOTE Confidence: 0.9306542

00:40:27.380 --> 00:40:29.879 CT and none of the imaging clearly

NOTE Confidence: 0.9306542

00:40:29.879 --> 00:40:32.119 shows abnormal parathyroid tissue.

NOTE Confidence: 0.9306542

00:40:32.120 --> 00:40:33.854 I still offer those patients surgery

NOTE Confidence: 0.9306542

00:40:33.854 --> 00:40:35.639 and that is because number one,

NOTE Confidence: 0.9306542

00:40:35.640 --> 00:40:37.038 I know that they have parathyroid

NOTE Confidence: 0.9306542

00:40:37.038 --> 00:40:38.560 disease based on their biochemistry.

NOTE Confidence: 0.9306542

00:40:38.560 --> 00:40:39.220 And #2,

NOTE Confidence: 0.9306542

00:40:39.220 --> 00:40:41.200 I'm experienced enough that I know

NOTE Confidence: 0.9306542

00:40:41.200 --> 00:40:43.724 where to look for the normal in the

NOTE Confidence: 0.9306542

00:40:43.724 --> 00:40:44.852 normal locations where parathyroid  
NOTE Confidence: 0.9306542

00:40:44.852 --> 00:40:46.833 gland should be and in ectopic or  
NOTE Confidence: 0.9306542

00:40:46.833 --> 00:40:48.435 abnormal locations like in the thymus,  
NOTE Confidence: 0.9306542

00:40:48.440 --> 00:40:50.594 in the thyroid along the carotid  
NOTE Confidence: 0.9306542

00:40:50.594 --> 00:40:52.800 sheet or behind the esophagus.  
NOTE Confidence: 0.9306542

00:40:52.800 --> 00:40:54.410 And so I feel confident that I  
NOTE Confidence: 0.9306542

00:40:54.410 --> 00:40:56.010 can find that gland even when  
NOTE Confidence: 0.9306542

00:40:56.010 --> 00:40:57.708 the imaging doesn't show me in  
NOTE Confidence: 0.9306542

00:40:57.708 --> 00:40:59.196 advance of where it should be.  
NOTE Confidence: 0.9306542

00:40:59.200 --> 00:41:00.320 No, in the reoperative setting,  
NOTE Confidence: 0.9306542

00:41:00.320 --> 00:41:01.524 that's a different story.  
NOTE Confidence: 0.9306542

00:41:01.524 --> 00:41:03.678 That patient has had some parathyroid tissue  
NOTE Confidence: 0.9306542

00:41:03.678 --> 00:41:05.478 removed already from a prior surgery.  
NOTE Confidence: 0.9306542

00:41:05.480 --> 00:41:06.805 And whether that surgery was  
NOTE Confidence: 0.9306542

00:41:06.805 --> 00:41:08.480 successful and they had a recurrence  
NOTE Confidence: 0.9306542

00:41:08.480 --> 00:41:10.274 or that that surgery was unsuccessful

NOTE Confidence: 0.9306542

00:41:10.274 --> 00:41:12.159 and they had persistent disease,

NOTE Confidence: 0.9306542

00:41:12.160 --> 00:41:14.116 the anatomy now has been destroyed.

NOTE Confidence: 0.9306542

00:41:14.120 --> 00:41:16.316 There's scar tissue that has formed.

NOTE Confidence: 0.9306542

00:41:16.320 --> 00:41:17.718 I'm not sure that, you know,

NOTE Confidence: 0.9306542

00:41:17.720 --> 00:41:19.052 the particular surgeon may have said

NOTE Confidence: 0.9306542

00:41:19.052 --> 00:41:20.440 they removed the left upper gland,

NOTE Confidence: 0.9306542

00:41:20.440 --> 00:41:22.001 but they could have mistaken it and

NOTE Confidence: 0.9306542

00:41:22.001 --> 00:41:23.579 it really was a left lower gland.

NOTE Confidence: 0.9306542

00:41:23.580 --> 00:41:24.636 So in those cases,

NOTE Confidence: 0.9306542

00:41:24.636 --> 00:41:24.900 yes,

NOTE Confidence: 0.9306542

00:41:24.900 --> 00:41:27.372 I want to get some preoperative

NOTE Confidence: 0.9306542

00:41:27.372 --> 00:41:29.020 imaging that shows me,

NOTE Confidence: 0.9306542

00:41:29.020 --> 00:41:31.588 gives me a strong indication where

NOTE Confidence: 0.9306542

00:41:31.588 --> 00:41:33.332 the aberrant overactive land remains

NOTE Confidence: 0.9306542

00:41:33.332 --> 00:41:35.671 and often times it's in a normal

NOTE Confidence: 0.9306542

00:41:35.671 --> 00:41:38.135 location in the neck that just got missed.

NOTE Confidence: 0.9306542

00:41:38.140 --> 00:41:40.600 So for me the reoperative imaging

NOTE Confidence: 0.9306542

00:41:40.600 --> 00:41:43.097 studies that I send patients for

NOTE Confidence: 0.9306542

00:41:43.097 --> 00:41:46.370 is usually a 4D CT and that shows

NOTE Confidence: 0.9306542

00:41:46.370 --> 00:41:48.058 structurally where abnormal parent

NOTE Confidence: 0.9306542

00:41:48.058 --> 00:41:50.853 thyroid tissue and and instead of the

NOTE Confidence: 0.9306542

00:41:50.853 --> 00:41:53.235 ultrasound I often get a a functional test.

NOTE Confidence: 0.9306542

00:41:53.240 --> 00:41:55.553 It says to me be a nuclear medicine test

NOTE Confidence: 0.9306542

00:41:55.553 --> 00:41:57.430 because that shows functionally that

NOTE Confidence: 0.9306542

00:41:57.430 --> 00:41:59.385 can show functionally where hyperactivity

NOTE Confidence: 0.9306542

00:41:59.385 --> 00:42:01.279 of parathyroid tissue resides.

NOTE Confidence: 0.9306542

00:42:01.280 --> 00:42:03.760 And so I'd like to see that the

NOTE Confidence: 0.9306542

00:42:03.760 --> 00:42:05.324 cestamebe correlates with the 4D

NOTE Confidence: 0.9306542

00:42:05.324 --> 00:42:07.344 CT before ioffer patients remedial

NOTE Confidence: 0.9306542

00:42:07.344 --> 00:42:08.960 surgery or secondary surgery.

NOTE Confidence: 0.9306412

00:42:14.600 --> 00:42:17.793 See. So I think we've touched on all

NOTE Confidence: 0.9306412

00:42:17.793 --> 00:42:21.928 of the main questions here and I

NOTE Confidence: 0.9306412

00:42:21.928 --> 00:42:23.916 don't want to belabor the time here.

NOTE Confidence: 0.9306412

00:42:23.920 --> 00:42:27.394 So again, I want to thank you all for

NOTE Confidence: 0.9306412

00:42:27.400 --> 00:42:29.616 inviting me to give a talk on parathyroid

NOTE Confidence: 0.9306412

00:42:29.616 --> 00:42:31.528 disease and thank you for sending

NOTE Confidence: 0.9306412

00:42:31.528 --> 00:42:33.153 in such very thoughtful questions.

NOTE Confidence: 0.9306412

00:42:33.160 --> 00:42:35.795 I thank you to Rochelle and I will

NOTE Confidence: 0.9306412

00:42:35.795 --> 00:42:37.385 make sure that this is available

NOTE Confidence: 0.9306412

00:42:37.385 --> 00:42:39.542 for your group and don't hesitate to

NOTE Confidence: 0.9306412

00:42:39.542 --> 00:42:41.439 contact me anytime in the future.

NOTE Confidence: 0.9306412

00:42:41.440 --> 00:42:41.900 All right.

NOTE Confidence: 0.9306412

00:42:41.900 --> 00:42:43.280 So thanks again for the opportunity.

NOTE Confidence: 0.9306412

00:42:43.280 --> 00:42:44.440 Have a wonderful day. I'm

NOTE Confidence: 0.600184

00:42:48.560 --> 00:42:48.600 a.