WEBVTT

NOTE duration:"01:14:46"

NOTE recognizability:0.816

NOTE language:en-us

NOTE Confidence: 0.884569936923077

00:00:00.000 --> 00:00:02.000 Welcome everybody to the second

NOTE Confidence: 0.884569936923077

00:00:02.000 --> 00:00:04.524 installment of the head and neck

NOTE Confidence: 0.884569936923077

00:00:04.524 --> 00:00:07.334 cancer programs 2022 CME Series Co,

NOTE Confidence: 0.884569936923077

00:00:07.334 --> 00:00:10.190 hosted by myself and Doctor Burtness.

NOTE Confidence: 0.884569936923077

00:00:10.190 --> 00:00:10.590 Unfortunately,

NOTE Confidence: 0.884569936923077

00:00:10.590 --> 00:00:12.990 Doctor Burtness can't be here today,

NOTE Confidence: 0.884569936923077

00:00:12.990 --> 00:00:15.084 which is fairly appropriate because we're

NOTE Confidence: 0.884569936923077

00:00:15.084 --> 00:00:17.519 really talking a lot about advancing the

NOTE Confidence: 0.884569936923077

00:00:17.519 --> 00:00:19.801 role of surgery and head neck cancers.

NOTE Confidence: 0.884569936923077

00:00:19.810 --> 00:00:22.624 I'll be filling in for Doctor Burton,

NOTE Confidence: 0.884569936923077

00:00:22.630 --> 00:00:25.346 speaking about a exciting new trial that,

NOTE Confidence: 0.884569936923077

00:00:25.350 --> 00:00:28.166 well, not for us in the academic world,

NOTE Confidence: 0.884569936923077

00:00:28.170 --> 00:00:29.268 not so new,

NOTE Confidence: 0.884569936923077

00:00:29.268 --> 00:00:31.098 but it's recently been published.

NOTE Confidence: 0.884569936923077

00:00:31.100 --> 00:00:34.958 Um, the ECOG Akron 3311 trial.

NOTE Confidence: 0.884569936923077

00:00:34.960 --> 00:00:36.430 And so I'll be filling in

NOTE Confidence: 0.884569936923077

00:00:36.430 --> 00:00:37.720 for Doctor Burtness on that.

NOTE Confidence: 0.884569936923077

00:00:37.720 --> 00:00:40.576 So the this is part two of three

NOTE Confidence: 0.884569936923077

00:00:40.576 --> 00:00:43.439 for our head Neck cancer program

NOTE Confidence: 0.884569936923077

00:00:43.439 --> 00:00:46.014 at Yale New Haven Hospital,

NOTE Confidence: 0.884569936923077

00:00:46.020 --> 00:00:48.618 Smilow Cancer Hospital and Yale University.

NOTE Confidence: 0.884569936923077

00:00:48.620 --> 00:00:51.360 We have 3 speakers today.

NOTE Confidence: 0.884569936923077

00:00:51.360 --> 00:00:53.928 The first will be me filling in for

NOTE Confidence: 0.884569936923077

00:00:53.928 --> 00:00:56.124 Doctor Burtness on the 3311 trial.

NOTE Confidence: 0.884569936923077

00:00:56.124 --> 00:00:58.884 I'm talking about D intensification

NOTE Confidence: 0.884569936923077

00:00:58.884 --> 00:01:01.280 of radiation therapy for HPV.

NOTE Confidence: 0.884569936923077

00:01:01.280 --> 00:01:02.636 Positive oropharynx cancer.

NOTE Confidence: 0.884569936923077

00:01:02.636 --> 00:01:06.283 And then we have Doctor Verma who will

NOTE Confidence: 0.884569936923077

00:01:06.283 --> 00:01:08.318 be speaking about the appropriate

NOTE Confidence: 0.884569936923077

00:01:08.318 --> 00:01:11.331 use of tours and open surgery in

NOTE Confidence: 0.884569936923077

00:01:11.331 --> 00:01:13.506 management of head neck cancer.

NOTE Confidence: 0.884569936923077

00:01:13.510 --> 00:01:14.419 And of course,

NOTE Confidence: 0.884569936923077

00:01:14.419 --> 00:01:16.540 we have Doctor Sam and Payab Avash

NOTE Confidence: 0.884569936923077

00:01:16.608 --> 00:01:18.576 who will be speaking about radiomics

NOTE Confidence: 0.884569936923077

00:01:18.576 --> 00:01:21.091 of head and neck cancer and I'll

NOTE Confidence: 0.884569936923077

00:01:21.091 --> 00:01:22.986 introduce them before they speak.

NOTE Confidence: 0.884569936923077

00:01:22.990 --> 00:01:24.598 So without further ado,

NOTE Confidence: 0.884569936923077

00:01:24.598 --> 00:01:28.328 I think our numbers are kind of leveling off,

NOTE Confidence: 0.884569936923077

00:01:28.330 --> 00:01:28.823 so.

NOTE Confidence: 0.884569936923077

00:01:28.823 --> 00:01:31.781 I'm going to get started talking

NOTE Confidence: 0.884569936923077

00:01:31.781 --> 00:01:34.723 about this very interesting and

NOTE Confidence: 0.884569936923077

00:01:34.723 --> 00:01:37.978 exciting new trial recently published.

NOTE Confidence: 0.886611605714286

00:01:41.220 --> 00:01:43.796 So I'm not going to introduce myself,

NOTE Confidence: 0.886611605714286

00:01:43.800 --> 00:01:45.456 but there I am, Sir Omara,

NOTE Confidence: 0.886611605714286

00:01:45.460 --> 00:01:47.704 I'm associate professor of surgery at

NOTE Confidence: 0.886611605714286

00:01:47.704 --> 00:01:50.679 Yale and the chief of Head Neck surgery.

NOTE Confidence: 0.886611605714286

00:01:50.680 --> 00:01:53.291 Here we have a wonderful head neck

NOTE Confidence: 0.886611605714286

00:01:53.291 --> 00:01:55.761 cancer team and I'm fortunate enough

NOTE Confidence: 0.886611605714286

00:01:55.761 --> 00:01:58.736 to lead the surgical aspect of that.

NOTE Confidence: 0.886611605714286

00:01:58.740 --> 00:02:02.208 So this trial is entitled Transoral

NOTE Confidence: 0.886611605714286

00:02:02.208 --> 00:02:05.082 oral robotic surgical resection followed

NOTE Confidence: 0.886611605714286

00:02:05.082 --> 00:02:07.892 by randomization to lower standard

NOTE Confidence: 0.886611605714286

00:02:07.892 --> 00:02:11.399 dose IRT for resectable P-16 positive.

NOTE Confidence: 0.886611605714286

00:02:11.400 --> 00:02:14.100 Locally advanced oral pharynx cancer.

NOTE Confidence: 0.886611605714286

00:02:14.100 --> 00:02:18.422 This is in our circles really known as 3311,

NOTE Confidence: 0.886611605714286

00:02:18.422 --> 00:02:20.168 basically ECOG 3311.

NOTE Confidence: 0.87369976625

00:02:22.210 --> 00:02:24.266 And the authors you can see are here,

NOTE Confidence: 0.87369976625

00:02:24.270 --> 00:02:25.710 and I am using some of their slides,

NOTE Confidence: 0.87369976625

00:02:25.710 --> 00:02:27.966 particularly Doctor Ferris from

NOTE Confidence: 0.87369976625

00:02:27.966 --> 00:02:29.445 Pittsburgh, the lead author,

NOTE Confidence: 0.87369976625

00:02:29.445 --> 00:02:30.970 and of course Dr Burtness,

NOTE Confidence: 0.87369976625

00:02:30.970 --> 00:02:33.812 the senior author on the paper as

NOTE Confidence: 0.87369976625

00:02:33.812 --> 00:02:37.108 well in the last last author here.

NOTE Confidence: 0.804801572692308

00:02:39.190 --> 00:02:42.039 So this this is a interesting study

NOTE Confidence: 0.804801572692308

00:02:42.039 --> 00:02:44.579 because on the population included

NOTE Confidence: 0.804801572692308

00:02:44.579 --> 00:02:47.669 P 16 positive newly diagnosed

NOTE Confidence: 0.804801572692308

00:02:47.669 --> 00:02:50.697 oropharynx cancer patients who are

NOTE Confidence: 0.804801572692308

00:02:50.697 --> 00:02:52.865 amenable to transoral resection.

NOTE Confidence: 0.804801572692308

00:02:52.870 --> 00:02:55.362 The treatment was essentially

NOTE Confidence: 0.804801572692308

00:02:55.362 --> 00:02:58.365 transoral surgery and then risk

NOTE Confidence: 0.804801572692308

00:02:58.365 --> 00:03:00.705 adjusted post operative therapy.

NOTE Confidence: 0.804801572692308

00:03:00.710 --> 00:03:03.506 So the risk status was determined

NOTE Confidence: 0.804801572692308

00:03:03.506 --> 00:03:04.904 by postoperative pathologic

NOTE Confidence: 0.804801572692308

00:03:04.904 --> 00:03:06.686 parameters like extranodal extension

NOTE Confidence: 0.804801572692308

00:03:06.686 --> 00:03:09.188 margin status and the number of.

NOTE Confidence: 0.804801572692308

00:03:09.190 --> 00:03:10.297 Positive metastatic nodes.

NOTE Confidence: 0.804801572692308

00:03:10.297 --> 00:03:13.355 I'm going to show a schema in the

NOTE Confidence: 0.804801572692308

00:03:13.355 --> 00:03:15.767 next slide that will really describe

NOTE Confidence: 0.804801572692308

00:03:15.767 --> 00:03:18.433 the different groups and how risk

NOTE Confidence: 0.804801572692308

00:03:18.433 --> 00:03:19.819 stratification was performed.

NOTE Confidence: 0.804801572692308

00:03:19.820 --> 00:03:20.782 In addition,

NOTE Confidence: 0.804801572692308

00:03:20.782 --> 00:03:22.706 intermediate risk patients for

NOTE Confidence: 0.804801572692308

00:03:22.706 --> 00:03:25.039 subgroup analysis were stratified by

NOTE Confidence: 0.804801572692308

00:03:25.039 --> 00:03:27.067 smoking history less than 10 versus

NOTE Confidence: 0.804801572692308

00:03:27.067 --> 00:03:29.519 greater than 10 pack years of history.

NOTE Confidence: 0.804801572692308

00:03:29.520 --> 00:03:31.224 And in this study,

NOTE Confidence: 0.804801572692308

00:03:31.224 --> 00:03:32.502 important functional assessments

NOTE Confidence: 0.804801572692308

00:03:32.502 --> 00:03:33.780 were also done,

NOTE Confidence: 0.804801572692308

00:03:33.780 --> 00:03:36.295 including modified barium swallows and

NOTE Confidence: 0.804801572692308

00:03:36.295 --> 00:03:39.200 patient reported outcomes including the fact.

NOTE Confidence: 0.804801572692308

00:03:39.200 --> 00:03:44.080 Your neck and the M daddy dysphagia index.

NOTE Confidence: 0.804801572692308

00:03:44.080 --> 00:03:46.272 So this is really the key slide to

NOTE Confidence: 0.804801572692308

00:03:46.272 --> 00:03:48.280 understand how this study was conducted.

NOTE Confidence: 0.804801572692308

00:03:48.280 --> 00:03:51.151 So that we had HPV P 16 positive squamous

NOTE Confidence: 0.804801572692308

00:03:51.151 --> 00:03:53.421 cell carcinoma or the oral pharynx

NOTE Confidence: 0.804801572692308

00:03:53.421 --> 00:03:56.339 stage in the 7th edition three or four,

NOTE Confidence: 0.804801572692308

00:03:56.340 --> 00:03:59.732 but they were all T1 or T2 and

NOTE Confidence: 0.804801572692308

00:03:59.732 --> 00:04:04.224 N1 or 2B in 122B cancers and they

NOTE Confidence: 0.804801572692308

00:04:04.224 --> 00:04:05.868 were baseline functional and

NOTE Confidence: 0.804801572692308

00:04:05.868 --> 00:04:08.240 quality of life assessments done.

NOTE Confidence: 0.804801572692308

00:04:08.240 --> 00:04:10.890 All patients that underwent transoral

NOTE Confidence: 0.804801572692308

00:04:10.890 --> 00:04:13.956 resection, this could be laser.

NOTE Confidence: 0.804801572692308

00:04:13.956 --> 00:04:17.126 More robotic or bovian headlight,

NOTE Confidence: 0.804801572692308

00:04:17.130 --> 00:04:19.720 but they all had transoral

NOTE Confidence: 0.804801572692308

00:04:19.720 --> 00:04:22.310 resection and a neck dissection.

NOTE Confidence: 0.804801572692308

00:04:22.310 --> 00:04:23.854 Following that patients were

NOTE Confidence: 0.804801572692308

00:04:23.854 --> 00:04:26.170 stratified into the low risk arm,

NOTE Confidence: 0.804801572692308

00:04:26.170 --> 00:04:28.780 which were negative margins and

NOTE Confidence: 0.804801572692308

00:04:28.780 --> 00:04:30.868 no intermediate risk features.

NOTE Confidence: 0.804801572692308

00:04:30.870 --> 00:04:33.120 And these patients went on to

NOTE Confidence: 0.804801572692308

00:04:33.120 --> 00:04:34.614 observation alone, no radiation,

NOTE Confidence: 0.804801572692308

00:04:34.614 --> 00:04:35.358 no chemotherapy.

NOTE Confidence: 0.804801572692308

00:04:35.358 --> 00:04:37.910 Then there was the high risk arm.

NOTE Confidence: 0.804801572692308

00:04:37.910 --> 00:04:40.025 These patients had positive margins

NOTE Confidence: 0.804801572692308

00:04:40.025 --> 00:04:42.140 greater than one millimeter of

NOTE Confidence: 0.804801572692308

00:04:42.213 --> 00:04:44.589 extranodal extension or five or more.

NOTE Confidence: 0.804801572692308

00:04:44.590 --> 00:04:47.040 Metastatic lymph nodes and they

NOTE Confidence: 0.804801572692308

00:04:47.040 --> 00:04:49.490 went on to chemotherapy and

NOTE Confidence: 0.804801572692308

00:04:49.579 --> 00:04:52.239 radiation therapy with 66 great.

NOTE Confidence: 0.804801572692308

00:04:52.240 --> 00:04:54.656 The randomization actually happened

NOTE Confidence: 0.804801572692308

00:04:54.656 --> 00:04:57.676 in these intermediate risk patients

NOTE Confidence: 0.804801572692308

00:04:57.680 --> 00:05:00.000 and these were close margins.

NOTE Confidence: 0.804801572692308

00:05:00.000 --> 00:05:02.288 The less than or equal to 1 millimeter

NOTE Confidence: 0.804801572692308

00:05:02.288 --> 00:05:04.385 VNE and the two to four metastatic

NOTE Confidence: 0.804801572692308

00:05:04.385 --> 00:05:06.510 lymph nodes and PN I perineural

NOTE Confidence: 0.804801572692308

00:05:06.510 --> 00:05:08.898 invasion and lymphovascular invasion.

NOTE Confidence: 0.804801572692308

00:05:08.900 --> 00:05:10.680 These patients were actually

NOTE Confidence: 0.804801572692308

00:05:10.680 --> 00:05:12.905 randomized into either 50 Gray

NOTE Confidence: 0.804801572692308

00:05:12.905 --> 00:05:15.098 over 25 fractions or 60 Gray.

NOTE Confidence: 0.804801572692308

00:05:15.100 --> 00:05:18.118 Over 30 fractions and the outcomes

NOTE Confidence: 0.804801572692308

00:05:18.118 --> 00:05:20.130 were two year progression,

NOTE Confidence: 0.804801572692308

00:05:20.130 --> 00:05:21.288 free survival,

NOTE Confidence: 0.804801572692308

00:05:21.288 --> 00:05:23.604 local regional recurrence and

NOTE Confidence: 0.804801572692308

00:05:23.604 --> 00:05:26.610 functional outcomes and quality of life.

NOTE Confidence: 0.84064258

00:05:29.300 --> 00:05:32.000 There were really two important objectives.

NOTE Confidence: 0.84064258

00:05:32.000 --> 00:05:34.975 One of them was the feasibility of

NOTE Confidence: 0.84064258

00:05:34.975 --> 00:05:37.420 doing a multi institutional study

NOTE Confidence: 0.84064258

00:05:37.505 --> 00:05:40.445 with transoral surgery followed by

NOTE Confidence: 0.84064258

00:05:40.445 --> 00:05:42.797 risk adjusted adjuvant therapy.

NOTE Confidence: 0.84064258

00:05:42.800 --> 00:05:46.784 As I can see many of the participants

NOTE Confidence: 0.84064258

00:05:46.784 --> 00:05:50.730 here know it's pretty challenging to get

NOTE Confidence: 0.84064258

00:05:50.730 --> 00:05:53.680 surgeons into randomized control trials.

NOTE Confidence: 0.84064258

00:05:53.680 --> 00:05:55.680 That's sort of the domain.

NOTE Confidence: 0.84064258

00:05:55.680 --> 00:05:59.810 Generally if of our radiation and more.

NOTE Confidence: 0.84064258

00:05:59.810 --> 00:06:01.610 Commonly our chemotherapy

NOTE Confidence: 0.84064258

00:06:01.610 --> 00:06:03.410 or oncology colleagues,

NOTE Confidence: 0.84064258

00:06:03.410 --> 00:06:05.186 but so one of them was just the

NOTE Confidence: 0.84064258

00:06:05.186 --> 00:06:07.068 feasibility to do this and we looked

NOTE Confidence: 0.84064258

00:06:07.068 --> 00:06:08.448 at overall accrual surgical quality

NOTE Confidence: 0.84064258

00:06:08.499 --> 00:06:10.185 and the risk distribution of patients

NOTE Confidence: 0.84064258

00:06:10.185 --> 00:06:12.024 that we brought into this study.

NOTE Confidence: 0.84064258

00:06:12.024 --> 00:06:14.523 The second outcome which I'll be talking

NOTE Confidence: 0.84064258

00:06:14.523 --> 00:06:17.445 a lot about today is 2 year progression

NOTE Confidence: 0.84064258

00:06:17.445 --> 00:06:20.167 free survival at 50 Gray versus 60

NOTE Confidence: 0.84064258

00:06:20.167 --> 00:06:22.543 Gray for those intermediate risk patients.

NOTE Confidence: 0.84064258

00:06:22.550 --> 00:06:24.860 So can we effectively de intensify

NOTE Confidence: 0.84064258

00:06:24.860 --> 00:06:27.437 therapy to 50 Gray in these

NOTE Confidence: 0.84064258

00:06:27.437 --> 00:06:29.827 intermediate risk patients versus 60?

NOTE Confidence: 0.84064258

00:06:29.830 --> 00:06:32.970 Without impacting 2 year progression

NOTE Confidence: 0.84064258

00:06:32.970 --> 00:06:35.390 free survival then secondary

NOTE Confidence: 0.84064258

00:06:35.390 --> 00:06:37.130 objectives were toxicity,

NOTE Confidence: 0.84064258

00:06:37.130 --> 00:06:38.250 overall survival,

NOTE Confidence: 0.84064258

00:06:38.250 --> 00:06:40.490 swallowing function and the

NOTE Confidence: 0.84064258

00:06:40.490 --> 00:06:42.170 patient reported outcomes.

NOTE Confidence: 0.84064258

00:06:42.170 --> 00:06:44.690 The original study design had

NOTE Confidence: 0.84064258

00:06:44.690 --> 00:06:47.948 180 called for 180 patients who

NOTE Confidence: 0.84064258

00:06:47.948 --> 00:06:50.120 were randomized with intermediate

NOTE Confidence: 0.84064258

00:06:50.213 --> 00:06:53.202 risk and that's assuming that 35%

NOTE Confidence: 0.84064258

00:06:53.202 --> 00:06:56.574 of patients would be valuable in

NOTE Confidence: 0.84064258

00:06:56.574 --> 00:06:59.220 that intermediate risk category.

NOTE Confidence: 0.84064258

00:06:59.220 --> 00:07:00.228 As the study proceeded,

NOTE Confidence: 0.84064258

00:07:00.228 --> 00:07:02.110 there was a higher proportion of patients

NOTE Confidence: 0.84064258

00:07:02.110 --> 00:07:03.690 saying that higher risk category,

NOTE Confidence: 0.84064258

00:07:03.690 --> 00:07:05.979 the RMD where they were getting chemo

NOTE Confidence: 0.84064258

00:07:05.979 --> 00:07:08.474 radiation and so the total accrual goal

NOTE Confidence: 0.84064258

00:07:08.474 --> 00:07:10.960 was actually increased to 515 patients.

NOTE Confidence: 0.84064258

00:07:10.960 --> 00:07:14.565 And there was a plan for interim

NOTE Confidence: 0.84064258

00:07:14.565 --> 00:07:17.337 analysis at one year for R&B and

NOTE Confidence: 0.84064258

00:07:17.340 --> 00:07:19.876 CAB&C arms A/B and C and of course

NOTE Confidence: 0.84064258

00:07:19.876 --> 00:07:21.454 assessing the surgical quality

NOTE Confidence: 0.84064258

00:07:21.454 --> 00:07:24.230 and risk distribution for the 1st

NOTE Confidence: 0.84064258

00:07:24.230 --> 00:07:26.630 59 patients completing surgery.

NOTE Confidence: 0.746682525

00:07:28.690 --> 00:07:34.067 So from this study accrued from 2013 to 2017,

NOTE Confidence: 0.746682525

00:07:34.070 --> 00:07:36.730 there were 87 credentialed

NOTE Confidence: 0.746682525

00:07:36.730 --> 00:07:39.332 surgeons and 68 of them accrued

NOTE Confidence: 0.746682525

00:07:39.332 --> 00:07:41.240 into the study and these patients,

NOTE Confidence: 0.746682525

00:07:41.240 --> 00:07:43.220 these surgeons perform transoral

NOTE Confidence: 0.746682525

00:07:43.220 --> 00:07:46.766 resections in 519 P, 16 positive

NOTE Confidence: 0.746682525

00:07:46.766 --> 00:07:50.600 oropharynx cancers stage T1 to two.

NOTE Confidence: 0.746682525

00:07:50.600 --> 00:07:53.162 Without matted neck nodes and then

NOTE Confidence: 0.746682525

00:07:53.162 --> 00:07:54.870 post operative management was

NOTE Confidence: 0.746682525

00:07:54.938 --> 00:07:57.338 determined based on the risk factor.

NOTE Confidence: 0.746682525

00:07:57.340 --> 00:08:01.225 So arm A which was observation alone

NOTE Confidence: 0.746682525

00:08:01.225 --> 00:08:05.280 enrolled 38 patients and then arm D

NOTE Confidence: 0.746682525

00:08:05.280 --> 00:08:08.145 which was chemotherapy plus radiation,

NOTE Confidence: 0.746682525

00:08:08.150 --> 00:08:10.810 the high risk patients enrolled

NOTE Confidence: 0.746682525

00:08:10.810 --> 00:08:13.876 113 patients and then ARM B,

NOTE Confidence: 0.746682525

00:08:13.880 --> 00:08:15.435 these were the patients that

NOTE Confidence: 0.746682525

00:08:15.435 --> 00:08:17.597 were randomized to 50 or 60 Gray

NOTE Confidence: 0.746682525

00:08:17.597 --> 00:08:20.830 enrolled 100 or 109 patients.

NOTE Confidence: 0.746682525

00:08:20.830 --> 00:08:22.966 And then as I stated before,

NOTE Confidence: 0.746682525

00:08:22.970 --> 00:08:26.386 ARM D assignment was based on Extranodal

NOTE Confidence: 0.746682525

00:08:26.386 --> 00:08:28.766 extension more than one millimeter,

NOTE Confidence: 0.746682525

00:08:28.770 --> 00:08:32.459 greater than 4 nodes and or positive

NOTE Confidence: 0.746682525

00:08:32.459 --> 00:08:35.773 margin overall in this study the

NOTE Confidence: 0.746682525

00:08:35.773 --> 00:08:40.050 positive margin rate was 3.3%.

NOTE Confidence: 0.746682525

00:08:40.050 --> 00:08:41.925 There were some patients that

NOTE Confidence: 0.746682525

00:08:41.925 --> 00:08:43.050 were deemed ineligible,

NOTE Confidence: 0.746682525

00:08:43.050 --> 00:08:46.389 which I will discuss briefly as well.

NOTE Confidence: 0.746682525

00:08:46.390 --> 00:08:49.162 And 27 of those patients had labs

NOTE Confidence: 0.746682525

00:08:49.162 --> 00:08:52.207 or scans just not done to protocol.

NOTE Confidence: 0.746682525

00:08:52.210 --> 00:08:54.412 But the treatment arm distribution for

NOTE Confidence: 0.746682525

00:08:54.412 --> 00:08:56.471 these patients did mirror those for

NOTE Confidence: 0.746682525

00:08:56.471 --> 00:09:00.730 this 360 eligible and treated patients.

NOTE Confidence: 0.746682525

00:09:00.730 --> 00:09:03.152 So you can see the reasons for

NOTE Confidence: 0.746682525

00:09:03.152 --> 00:09:05.492 exclusion from the 519 patients down

NOTE Confidence: 0.746682525

00:09:05.492 --> 00:09:08.096 to the final group of patients.

NOTE Confidence: 0.884093911428572

00:09:11.130 --> 00:09:12.845 And there were a number of reasons.

NOTE Confidence: 0.884093911428572

00:09:12.850 --> 00:09:15.545 Some did not receive a transoral resection.

NOTE Confidence: 0.884093911428572

00:09:15.550 --> 00:09:18.448 Some patients were just deemed ineligible.

NOTE Confidence: 0.884093911428572

00:09:18.450 --> 00:09:20.160 Patients were not assigned or

NOTE Confidence: 0.884093911428572

00:09:20.160 --> 00:09:21.870 randomized or never started treatment.

NOTE Confidence: 0.884093911428572

00:09:21.870 --> 00:09:23.550 For example, patients who

NOTE Confidence: 0.884093911428572

00:09:23.550 --> 00:09:26.070 had end to CN three disease.

NOTE Confidence: 0.884093911428572

00:09:26.070 --> 00:09:28.492 And in the end these were the

NOTE Confidence: 0.884093911428572

00:09:28.492 --> 00:09:30.800 numbers that I just described.

NOTE Confidence: 0.884093911428572

00:09:30.800 --> 00:09:33.810 The reasons patients were ineligible

NOTE Confidence: 0.884093911428572

00:09:33.810 --> 00:09:36.814 more specifically were that, for example,

NOTE Confidence: 0.884093911428572

00:09:36.814 --> 00:09:39.642 pre study scans or labs were not done within

NOTE Confidence: 0.884093911428572

00:09:39.642 --> 00:09:41.940 the four weeks prior to registrations.

NOTE Confidence: 0.884093911428572

00:09:41.940 --> 00:09:44.046 If patients had clinical T3 disease

NOTE Confidence: 0.884093911428572

00:09:44.046 --> 00:09:45.920 at baseline, they were excluded

NOTE Confidence: 0.884093911428572

00:09:45.920 --> 00:09:47.870 or ineligible for this study.

NOTE Confidence: 0.884093911428572

00:09:47.870 --> 00:09:51.244 A few patients were unknown while they

NOTE Confidence: 0.884093911428572

00:09:51.244 --> 00:09:54.018 were ineligible and to see disease.

NOTE Confidence: 0.884093911428572

00:09:54.020 --> 00:09:56.580 The primary was not measurable

NOTE Confidence: 0.884093911428572

00:09:56.580 --> 00:09:58.116 radiographically or clinically,

NOTE Confidence: 0.884093911428572

00:09:58.120 --> 00:10:00.736 so it could not be appropriately

NOTE Confidence: 0.884093911428572

00:10:00.736 --> 00:10:01.608 clinically staged.

NOTE Confidence: 0.884093911428572

00:10:01.610 --> 00:10:05.174 There were no nodes at baseline

NOTE Confidence: 0.884093911428572

00:10:05.174 --> 00:10:08.146 clinically and then and you can see

NOTE Confidence: 0.884093911428572

00:10:08.146 --> 00:10:10.333 the other reasons for ineligibility

NOTE Confidence: 0.884093911428572

00:10:10.333 --> 00:10:13.945 in this cohort of patients Step 2.

NOTE Confidence: 0.884093911428572

00:10:13.950 --> 00:10:16.365 So step one is a transoral resection

NOTE Confidence: 0.884093911428572

00:10:16.365 --> 00:10:18.984 ineligibility and then step two was a

NOTE Confidence: 0.884093911428572

00:10:18.984 --> 00:10:20.504 post operative treatment eligibility.

NOTE Confidence: 0.884093911428572

00:10:20.510 --> 00:10:23.246 And you can see the reasons for this

NOTE Confidence: 0.884093911428572

00:10:23.246 --> 00:10:25.379 for example surgery was performed

NOTE Confidence: 0.884093911428572

00:10:25.379 --> 00:10:28.121 more than four weeks from the

NOTE Confidence: 0.884093911428572

00:10:28.121 --> 00:10:29.717 registration to step one or.

NOTE Confidence: 0.884093911428572

00:10:29.720 --> 00:10:31.392 Starting radiation was greater

NOTE Confidence: 0.884093911428572

00:10:31.392 --> 00:10:33.482 than seven weeks post surgery.

NOTE Confidence: 0.814437266666667

00:10:35.570 --> 00:10:38.042 The results were actually quite intriguing.

NOTE Confidence: 0.814437266666667

00:10:38.042 --> 00:10:41.710 Here you can see the three-year progression

NOTE Confidence: 0.814437266666667

00:10:41.791 --> 00:10:45.120 free survival data in that in ARM a,

NOTE Confidence: 0.814437266666667

00:10:45.120 --> 00:10:46.780 the low risk group or

NOTE Confidence: 0.814437266666667

00:10:46.780 --> 00:10:47.776 there's observational loan,

NOTE Confidence: 0.814437266666667

00:10:47.780 --> 00:10:50.370 no radiation transoral surgery alone.

NOTE Confidence: 0.814437266666667

00:10:50.370 --> 00:10:52.356 three-year progression free

NOTE Confidence: 0.814437266666667

00:10:52.356 --> 00:10:54.305 survival was 96.9%.

NOTE Confidence: 0.814437266666667

00:10:54.305 --> 00:10:58.055 The high risk group who received

NOTE Confidence: 0.814437266666667

00:10:58.055 --> 00:10:59.930 chemotherapy and radiation

NOTE Confidence: 0.814437266666667

00:11:00.026 --> 00:11:01.540 after transoral surgery,

NOTE Confidence: 0.814437266666667

00:11:01.540 --> 00:11:03.100 the three-year progression

NOTE Confidence: 0.814437266666667

00:11:03.100 --> 00:11:05.083 free survival was 91%.

NOTE Confidence: 0.814437266666667

00:11:05.083 --> 00:11:07.621 In these two groups that were

NOTE Confidence: 0.814437266666667

00:11:07.621 --> 00:11:10.436 randomized to either 50 Gray or 60 Gray,

NOTE Confidence: 0.814437266666667

00:11:10.440 --> 00:11:12.000 50 Gray or 60 Gray,

NOTE Confidence: 0.814437266666667

00:11:12.000 --> 00:11:14.892 you can see the three-year progression

NOTE Confidence: 0.814437266666667

00:11:14.892 --> 00:11:18.808 free survival was 94.9% and 93.5%.

NOTE Confidence: 0.814437266666667

00:11:18.808 --> 00:11:20.648 There were some deaths without

NOTE Confidence: 0.814437266666667

00:11:20.648 --> 00:11:23.289 recurrence and you can see here in

NOTE Confidence: 0.814437266666667

00:11:23.289 --> 00:11:25.129 the chemoradiation group there were

NOTE Confidence: 0.814437266666667

00:11:25.129 --> 00:11:27.181 three deaths in the observation group

NOTE Confidence: 0.814437266666667

00:11:27.181 --> 00:11:31.328 there were none and one in each of the.

NOTE Confidence: 0.814437266666667

00:11:31.330 --> 00:11:33.210 Randomized groups and you can

NOTE Confidence: 0.814437266666667

00:11:33.210 --> 00:11:34.714 see the recurrence numbers,

NOTE Confidence: 0.814437266666667

00:11:34.720 --> 00:11:36.530 the absolute numbers as well.

NOTE Confidence: 0.8343073525

00:11:38.860 --> 00:11:41.902 The transoral surgery and low dose

NOTE Confidence: 0.8343073525

00:11:41.902 --> 00:11:44.900 radiation radiation based on this study,

NOTE Confidence: 0.8343073525

00:11:44.900 --> 00:11:47.096 based on these preliminary results is

NOTE Confidence: 0.8343073525

00:11:47.096 --> 00:11:49.619 were there was worthy of further study

NOTE Confidence: 0.8343073525

00:11:49.620 --> 00:11:53.718 based on criteria created a priori.

NOTE Confidence: 0.8343073525

00:11:53.720 --> 00:11:55.631 We also looked at in this study

NOTE Confidence: 0.8343073525

00:11:55.631 --> 00:11:57.915 at the M Daddy scores and the

NOTE Confidence: 0.8343073525

00:11:57.915 --> 00:11:59.660 fact head and neck score,

NOTE Confidence: 0.8343073525

00:11:59.660 --> 00:12:01.550 so patient reported outcomes and what

NOTE Confidence: 0.8343073525

00:12:01.550 --> 00:12:03.869 you can see here is the following.

NOTE Confidence: 0.8343073525

00:12:03.870 --> 00:12:08.641 This is arm a, the M Daddy dysphagia MD

NOTE Confidence: 0.8343073525

00:12:08.641 --> 00:12:11.146 Anderson Dysphasia index composite scores.

NOTE Confidence: 0.8343073525

00:12:11.150 --> 00:12:14.108 You can see the baseline dysphagia

NOTE Confidence: 0.8343073525

00:12:14.108 --> 00:12:16.366 index at 89% post surgery.

NOTE Confidence: 0.8343073525

00:12:16.366 --> 00:12:20.036 There was obviously a drop in the Dysphasia

NOTE Confidence: 0.8343073525

00:12:20.036 --> 00:12:23.798 index and then patients actually recovered.

NOTE Confidence: 0.8343073525

00:12:23.800 --> 00:12:27.385 Quite nicely and you can see the same numbers

NOTE Confidence: 0.8343073525

00:12:27.385 --> 00:12:31.135 here which I'll show graphically shortly.

NOTE Confidence: 0.8343073525

00:12:31.140 --> 00:12:34.137 For arm B, the randomized groups to 50 Gray,

NOTE Confidence: 0.8343073525

00:12:34.140 --> 00:12:37.843 60 Gray and the chemo radiation groups

NOTE Confidence: 0.8343073525

00:12:37.843 --> 00:12:41.790 here and you can see the the decline

NOTE Confidence: 0.8343073525

00:12:41.790 --> 00:12:44.496 in dysphasia index PRO's here in this

NOTE Confidence: 0.8343073525

00:12:44.496 --> 00:12:47.530 in this group of patients and the same

NOTE Confidence: 0.8343073525

00:12:47.530 --> 00:12:50.724 thing was done for the fact head and

NOTE Confidence: 0.8343073525

00:12:50.724 --> 00:12:53.094 neck patient reported outcomes tool.

NOTE Confidence: 0.835075051666667

00:12:55.240 --> 00:12:56.962 And the survival curves you can see

NOTE Confidence: 0.835075051666667

00:12:56.962 --> 00:12:59.083 for the these are this is for the

NOTE Confidence: 0.835075051666667

00:12:59.083 --> 00:13:00.413 eligible and treated patients the

NOTE Confidence: 0.835075051666667

00:13:00.468 --> 00:13:02.316 numbers we went over and you can see

NOTE Confidence: 0.835075051666667

00:13:02.316 --> 00:13:06.620 how tight they are arm D did have

NOTE Confidence: 0.835075051666667

00:13:06.620 --> 00:13:09.892 a slightly lower overall survival,

NOTE Confidence: 0.835075051666667

00:13:09.892 --> 00:13:12.596 progression free survival here.

NOTE Confidence: 0.835075051666667

00:13:12.600 --> 00:13:14.798 And in the ineligible and treated groups,

NOTE Confidence: 0.835075051666667

00:13:14.800 --> 00:13:19.090 this was measured here as well.

NOTE Confidence: 0.835075051666667

00:13:19.090 --> 00:13:21.722 And graphically you can see the uh

NOTE Confidence: 0.835075051666667

00:13:21.722 --> 00:13:24.948 in the M daddy composite scores,

NOTE Confidence: 0.835075051666667

00:13:24.950 --> 00:13:28.130 the observational loan group did best,

NOTE Confidence: 0.835075051666667

00:13:28.130 --> 00:13:30.615 RMD chemo radiated did worse

NOTE Confidence: 0.835075051666667

00:13:30.615 --> 00:13:32.106 compared to baseline.

NOTE Confidence: 0.835075051666667

00:13:32.110 --> 00:13:34.350 But overall these tumors are still quite,

NOTE Confidence: 0.835075051666667

00:13:34.350 --> 00:13:36.414 quite, quite good and the intermediate

NOTE Confidence: 0.835075051666667

00:13:36.414 --> 00:13:38.438 risk groups and same for the

NOTE Confidence: 0.835075051666667

00:13:38.438 --> 00:13:40.190 fact head and neck total scores.

NOTE Confidence: 0.835075051666667

00:13:40.190 --> 00:13:42.920 So the conclusion of this study

NOTE Confidence: 0.835075051666667

00:13:42.920 --> 00:13:45.234 were the transoral resection for

NOTE Confidence: 0.835075051666667

00:13:45.234 --> 00:13:47.694 P-16 positive or famous cancer is

NOTE Confidence: 0.835075051666667

00:13:47.694 --> 00:13:50.368 safe and results in good oncologic.

NOTE Confidence: 0.835075051666667

00:13:50.370 --> 00:13:54.262 Outcomes and this can offer a promising

NOTE Confidence: 0.835075051666667

00:13:54.262 --> 00:13:57.234 de intensification approach to treatment

NOTE Confidence: 0.835075051666667

00:13:57.234 --> 00:13:59.670 for oropharynx cancer patients.

NOTE Confidence: 0.835075051666667

00:13:59.670 --> 00:14:03.184 In patients who have low risk disease

NOTE Confidence: 0.835075051666667

00:14:03.184 --> 00:14:06.002 progression free survival is favorable

NOTE Confidence: 0.835075051666667

00:14:06.002 --> 00:14:08.817 without any postoperative therapy and

NOTE Confidence: 0.835075051666667

00:14:08.817 --> 00:14:11.019 in those patients who have uninvolved

NOTE Confidence: 0.835075051666667

00:14:11.019 --> 00:14:12.869 margins less than five nodes,

NOTE Confidence: 0.835075051666667

00:14:12.870 --> 00:14:17.750 minimal or no ENE we can reduce postoperative

NOTE Confidence: 0.835075051666667

00:14:17.750 --> 00:14:21.099 radiation therapy without chemotherapy.

NOTE Confidence: 0.835075051666667

00:14:21.100 --> 00:14:24.920 Without impacting progression free survival.

NOTE Confidence: 0.835075051666667

00:14:24.920 --> 00:14:27.270 So finally transoral surgery with

NOTE Confidence: 0.835075051666667

00:14:27.270 --> 00:14:30.825 50 Gray should be in the future

NOTE Confidence: 0.835075051666667

00:14:30.825 --> 00:14:33.053 compared to optimal nonsurgical

NOTE Confidence: 0.835075051666667

00:14:33.053 --> 00:14:36.622 therapy in some phase three trials

NOTE Confidence: 0.835075051666667

00:14:36.622 --> 00:14:41.530 for patients with intermediate risk.

NOTE Confidence: 0.835075051666667

00:14:41.530 --> 00:14:44.666 This was coordinated by the ECOG Akron

NOTE Confidence: 0.835075051666667

00:14:44.666 --> 00:14:47.958 group here and there were these were

NOTE Confidence: 0.835075051666667

00:14:47.958 --> 00:14:51.090 the centers that accrued and Yale was

NOTE Confidence: 0.835075051666667

00:14:51.090 --> 00:14:55.906 definitely a major accrued to this study.

NOTE Confidence: 0.835075051666667

00:14:55.910 --> 00:14:58.645 I did want to spend a few minutes talking

NOTE Confidence: 0.835075051666667

00:14:58.645 --> 00:15:01.805 about two more items related to this study.

NOTE Confidence: 0.835075051666667

00:15:01.810 --> 00:15:05.242 One is an abstract that was just recently

NOTE Confidence: 0.835075051666667

00:15:05.242 --> 00:15:07.967 presented a few weeks ago at ASCO,

NOTE Confidence: 0.835075051666667

00:15:07.970 --> 00:15:11.154 based on data from 3311 not yet published,

NOTE Confidence: 0.835075051666667

00:15:11.160 --> 00:15:17.360 but was presented in abstract form with this.

NOTE Confidence: 0.835075051666667

00:15:17.360 --> 00:15:20.345 Abstract tried to analyze the

NOTE Confidence: 0.835075051666667

00:15:20.345 --> 00:15:22.000 patients from 3311,

NOTE Confidence: 0.835075051666667

00:15:22.000 --> 00:15:24.760 looking at patients who smoked 10

NOTE Confidence: 0.835075051666667

00:15:24.760 --> 00:15:27.630 greater than 10 Packers or versus

NOTE Confidence: 0.835075051666667

00:15:27.630 --> 00:15:29.494 less than 10 Packers.

NOTE Confidence: 0.835075051666667

00:15:29.500 --> 00:15:31.615 As most of the people on this call know,

NOTE Confidence: 0.835075051666667

00:15:31.620 --> 00:15:33.272 smoking can be a.

NOTE Confidence: 0.835075051666667

00:15:33.272 --> 00:15:36.387 A risk factor for worse survival in

NOTE Confidence: 0.835075051666667

00:15:36.387 --> 00:15:39.152 oropharynx cancer and HPV associated

NOTE Confidence: 0.835075051666667

00:15:39.152 --> 00:15:41.915 cancer puts classically has been

NOTE Confidence: 0.835075051666667

00:15:41.915 --> 00:15:44.687 described as an intermediate risk as

NOTE Confidence: 0.835075051666667

00:15:44.687 --> 00:15:47.408 opposed to the the high risk patient

NOTE Confidence: 0.835075051666667

00:15:47.408 --> 00:15:49.400 and to the favorable risk patients.

NOTE Confidence: 0.835075051666667

00:15:49.400 --> 00:15:51.563 This study however showed let me just

NOTE Confidence: 0.835075051666667

00:15:51.563 --> 00:15:54.395 get to the the data that there was

NOTE Confidence: 0.835075051666667

00:15:54.395 --> 00:15:56.230 no difference in overall survival

NOTE Confidence: 0.835075051666667

00:15:56.300 --> 00:15:58.170 or progression free survival for

NOTE Confidence: 0.835075051666667

00:15:58.170 --> 00:16:00.517 smokers in this cohort of patients

NOTE Confidence: 0.835075051666667

00:16:00.517 --> 00:16:03.379 in 3311 who had transoral resections.

NOTE Confidence: 0.835075051666667

00:16:03.380 --> 00:16:05.300 So these even these intermediate.

NOTE Confidence: 0.835075051666667

00:16:05.300 --> 00:16:07.502 Risk HPV oral various cancer patients

NOTE Confidence: 0.835075051666667

00:16:07.502 --> 00:16:10.122 who are current smokers or who have a

NOTE Confidence: 0.835075051666667

00:16:10.122 --> 00:16:12.196 history of greater than 10 pack years

NOTE Confidence: 0.835075051666667

00:16:12.196 --> 00:16:14.506 had favorable 3 year progression free

NOTE Confidence: 0.835075051666667

00:16:14.506 --> 00:16:16.384 survival and overall survival that

NOTE Confidence: 0.835075051666667

00:16:16.384 --> 00:16:18.560 were not worse than those non-smokers

NOTE Confidence: 0.835075051666667

00:16:18.560 --> 00:16:21.290 or less than 10 pack your history.

NOTE Confidence: 0.835075051666667

00:16:21.290 --> 00:16:24.909 So this data actually shows the first

NOTE Confidence: 0.835075051666667

00:16:24.909 --> 00:16:29.190 treatment approach meaning surgery plus.

NOTE Confidence: 0.835075051666667

00:16:29.190 --> 00:16:31.502 Radiation therapy without chemo,

NOTE Confidence: 0.835075051666667

00:16:31.502 --> 00:16:34.970 in which outcomes were not influenced

NOTE Confidence: 0.835075051666667

00:16:35.061 --> 00:16:36.549 by smoking status.

NOTE Confidence: 0.835075051666667

00:16:36.550 --> 00:16:38.446 A final study I want to share with

NOTE Confidence: 0.835075051666667

00:16:38.446 --> 00:16:40.377 you is tours in the real world.

NOTE Confidence: 0.859084905

00:16:42.710 --> 00:16:44.042 Where you're treated matters.

NOTE Confidence: 0.859084905

00:16:44.042 --> 00:16:47.017 This is a study we published a few years ago.

NOTE Confidence: 0.859084905

00:16:47.020 --> 00:16:49.036 This is actually in 2019 was published,

NOTE Confidence: 0.859084905

00:16:49.040 --> 00:16:52.076 but I think is quite apropos

NOTE Confidence: 0.859084905

00:16:52.076 --> 00:16:54.288 to this this discussion.

NOTE Confidence: 0.859084905

00:16:54.290 --> 00:16:56.630 We looked at the National Cancer

NOTE Confidence: 0.859084905

00:16:56.630 --> 00:16:58.770 database and looked at positive

NOTE Confidence: 0.859084905

00:16:58.770 --> 00:17:01.290 margin rates and predictors in

NOTE Confidence: 0.859084905

00:17:01.290 --> 00:17:03.306 transoral robotic surgery after

NOTE Confidence: 0.859084905

00:17:03.377 --> 00:17:08.380 federal approval of the robot for.

NOTE Confidence: 0.859084905

00:17:08.380 --> 00:17:11.209 Oropharynx cancer treatment.

NOTE Confidence: 0.859084905

00:17:11.210 --> 00:17:14.276 We looked at 3000 patients in the

NOTE Confidence: 0.859084905

00:17:14.276 --> 00:17:16.113 National Cancer Cancer database

NOTE Confidence: 0.859084905

00:17:16.113 --> 00:17:18.338 who underwent tours from 2010

NOTE Confidence: 0.859084905

00:17:18.338 --> 00:17:21.111 to 2014 soon after approval and

NOTE Confidence: 0.859084905

00:17:21.111 --> 00:17:22.797 we had to exclude some patients,

NOTE Confidence: 0.859084905

00:17:22.800 --> 00:17:26.007 but ended up with about 2600

NOTE Confidence: 0.859084905

00:17:26.007 --> 00:17:29.238 patients for analysis.

NOTE Confidence: 0.859084905

00:17:29.240 --> 00:17:32.012 In the real world during this study

NOTE Confidence: 0.859084905

00:17:32.012 --> 00:17:34.605 period the positive margin rate was not

NOTE Confidence: 0.859084905

00:17:34.605 --> 00:17:36.935 the three-point 3% presented in this

NOTE Confidence: 0.859084905

00:17:36.935 --> 00:17:40.340 study at the at at academic centers,

NOTE Confidence: 0.859084905

00:17:40.340 --> 00:17:42.088 at credentialed by credentialed

NOTE Confidence: 0.859084905

00:17:42.088 --> 00:17:45.104 surgeons and it was actually a higher

NOTE Confidence: 0.859084905

00:17:45.104 --> 00:17:47.957 than a lot of the studies that look at

NOTE Confidence: 0.859084905

00:17:48.034 --> 00:17:51.135 transoral surgery in at high volume centers.

NOTE Confidence: 0.859084905

00:17:51.140 --> 00:17:53.196 Nationally the overall positive

NOTE Confidence: 0.859084905

00:17:53.196 --> 00:17:56.248 margin rate was 17% of patients with

NOTE Confidence: 0.859084905

00:17:56.248 --> 00:17:59.180 T1 and T2 had a positive margin.

NOTE Confidence: 0.859084905

00:17:59.180 --> 00:18:02.922 Type of less than 20 percent, 13% and 17%.

NOTE Confidence: 0.859084905

00:18:02.922 --> 00:18:06.289 And when you get to T3 and T4 cancers,

NOTE Confidence: 0.859084905

00:18:06.290 --> 00:18:08.050 which I will mention it,

NOTE Confidence: 0.859084905

00:18:08.050 --> 00:18:10.339 for which the da Vinci robot at

NOTE Confidence: 0.859084905

00:18:10.339 --> 00:18:12.370 least is not FDA approved,

NOTE Confidence: 0.859084905

00:18:12.370 --> 00:18:14.455 positive marginal rates

NOTE Confidence: 0.859084905

00:18:14.455 --> 00:18:16.540 are significantly higher.

NOTE Confidence: 0.859084905

00:18:16.540 --> 00:18:17.656 In this study,

NOTE Confidence: 0.859084905

00:18:17.656 --> 00:18:19.516 we looked at factors associated

NOTE Confidence: 0.859084905

00:18:19.516 --> 00:18:21.416 with positive margin rate and

NOTE Confidence: 0.859084905

00:18:21.416 --> 00:18:23.236 we found that T classification,

NOTE Confidence: 0.859084905

00:18:23.240 --> 00:18:25.444 Lymphovascular invasion and volume

NOTE Confidence: 0.859084905

00:18:25.444 --> 00:18:28.750 of cases by the facility patients

NOTE Confidence: 0.859084905

00:18:28.832 --> 00:18:31.550 treated at high volume centers were

NOTE Confidence: 0.859084905

00:18:31.550 --> 00:18:34.830 less likely to yield positive margins.

NOTE Confidence: 0.859084905

00:18:34.830 --> 00:18:37.166 You can see how we define this was

NOTE Confidence: 0.859084905

00:18:37.166 --> 00:18:39.208 less than three cases per year,

NOTE Confidence: 0.859084905

00:18:39.210 --> 00:18:40.506 three to 10 cases,

NOTE Confidence: 0.859084905

00:18:40.506 --> 00:18:43.159 and then more than 10 cases per year.

NOTE Confidence: 0.859084905

00:18:43.160 --> 00:18:44.456 And you can see the difference.

NOTE Confidence: 0.859084905

00:18:44.460 --> 00:18:47.204 A high volume facilities had a rate

NOTE Confidence: 0.859084905

00:18:47.204 --> 00:18:49.884 still much higher than this study

NOTE Confidence: 0.859084905

00:18:49.884 --> 00:18:52.940 with credentialed academic surgeons,

NOTE Confidence: 0.859084905

00:18:52.940 --> 00:18:56.240 but 13% versus 21 percent,

NOTE Confidence: 0.859084905

00:18:56.240 --> 00:18:58.380 22% for low volume sensors.

NOTE Confidence: 0.859084905

00:18:58.380 --> 00:19:01.506 So the conclusion of this retrospective

NOTE Confidence: 0.859084905

00:19:01.506 --> 00:19:04.634 database study was in the year

NOTE Confidence: 0.859084905

00:19:04.634 --> 00:19:06.068 since FDA approval.

NOTE Confidence: 0.859084905

00:19:06.070 --> 00:19:07.915 Positive margin rates has been

NOTE Confidence: 0.859084905

00:19:07.915 --> 00:19:09.391 substantially higher than reported

NOTE Confidence: 0.859084905

00:19:09.391 --> 00:19:11.303 in high volume tour centers

NOTE Confidence: 0.859084905

00:19:11.303 --> 00:19:12.419 with academic surgeons.

NOTE Confidence: 0.859084905

00:19:12.420 --> 00:19:15.832 When you get to higher T stages,

NOTE Confidence: 0.859084905

00:19:15.832 --> 00:19:20.003 these rates can exceed 28% and then

NOTE Confidence: 0.859084905

00:19:20.003 --> 00:19:21.808 high volume facilities are half

NOTE Confidence: 0.859084905

00:19:21.808 --> 00:19:24.049 as likely to yield to positive

NOTE Confidence: 0.859084905

00:19:24.049 --> 00:19:26.215 margins as compared to low volume

NOTE Confidence: 0.859084905

00:19:26.289 --> 00:19:28.497 centers on multivariate analysis.

NOTE Confidence: 0.859084905

00:19:28.500 --> 00:19:30.572 So that's what I wanted to tell

NOTE Confidence: 0.859084905

00:19:30.572 --> 00:19:33.230 you all about the ECOT 3311 trial,

NOTE Confidence: 0.859084905

00:19:33.230 --> 00:19:36.155 which basically showed that D

NOTE Confidence: 0.859084905

00:19:36.155 --> 00:19:37.910 intensification approaches are

NOTE Confidence: 0.859084905

00:19:37.993 --> 00:19:41.038 possible for HPV associated P-16

NOTE Confidence: 0.859084905

00:19:41.038 --> 00:19:42.865 positive oropharynx cancer.

NOTE Confidence: 0.8415203

00:19:48.820 --> 00:19:53.402 Right. So you guys are welcome to

NOTE Confidence: 0.8415203

00:19:53.402 --> 00:19:55.480 put any questions in the chat.

NOTE Confidence: 0.8415203

00:19:55.480 --> 00:19:56.570 I'm going to be moderating.

NOTE Confidence: 0.8415203

00:19:56.570 --> 00:19:57.626 You probably won't see them all,

NOTE Confidence: 0.8415203

00:19:57.630 --> 00:20:01.086 but I'll I'll moderate them and.

NOTE Confidence: 0.8415203

00:20:01.090 --> 00:20:04.120 We'll move on to our next.

NOTE Confidence: 0.8415203

00:20:04.120 --> 00:20:06.376 Next, speakers and we'll do the

NOTE Confidence: 0.8415203

00:20:06.376 --> 00:20:08.271 questions probably at the end

NOTE Confidence: 0.8415203

00:20:08.271 --> 00:20:10.490 unless I see something that I think

NOTE Confidence: 0.8415203

00:20:10.490 --> 00:20:12.777 needs to be addressed right away.

NOTE Confidence: 0.8415203

00:20:12.780 --> 00:20:15.630 So our next speaker, thanks,

NOTE Confidence: 0.8415203

00:20:15.630 --> 00:20:17.520 Evan, you must start sharing.

NOTE Confidence: 0.8415203

00:20:17.520 --> 00:20:20.054 Our next speaker is Doctor Avanti Verma,

NOTE Confidence: 0.8415203

00:20:20.060 --> 00:20:24.520 who returned to us at Yale after

NOTE Confidence: 0.8415203

00:20:24.520 --> 00:20:27.040 her years as an undergraduate here.

NOTE Confidence: 0.8415203

00:20:27.040 --> 00:20:28.992 And even additionally you're

NOTE Confidence: 0.8415203

00:20:28.992 --> 00:20:30.456 doing research here.

NOTE Confidence: 0.8415203

00:20:30.460 --> 00:20:33.420 She went off to New York and Atlanta to do.

NOTE Confidence: 0.8415203

00:20:33.420 --> 00:20:35.884 Our ENT and advanced head and neck

NOTE Confidence: 0.8415203

00:20:35.884 --> 00:20:37.923 cancer training and we were lucky

NOTE Confidence: 0.8415203

00:20:37.923 --> 00:20:40.065 enough to recruit her back to New

NOTE Confidence: 0.8415203

00:20:40.134 --> 00:20:41.900 Haven as into our section of head

NOTE Confidence: 0.8415203

00:20:41.900 --> 00:20:43.309 and neck surgery here at Yale.

NOTE Confidence: 0.8415203

00:20:43.310 --> 00:20:46.090 She's assistant professor of surgery

NOTE Confidence: 0.8415203

00:20:46.090 --> 00:20:49.490 and the lead of head neck surgery at

NOTE Confidence: 0.8415203

00:20:49.490 --> 00:20:53.206 the VA in Connecticut here as well.

NOTE Confidence: 0.8415203

00:20:53.210 --> 00:20:54.752 So Doctor Verma will be speaking

NOTE Confidence: 0.8415203

00:20:54.752 --> 00:20:56.460 to us about the appropriate use

NOTE Confidence: 0.8415203

00:20:56.460 --> 00:20:58.025 of tours in open surgery.

NOTE Confidence: 0.8415203

00:20:58.030 --> 00:20:58.862 Thank you so much.

NOTE Confidence: 0.8415203

00:20:58.862 --> 00:20:59.278 Doctor Verma.

NOTE Confidence: 0.810771837142857

00:20:59.810 --> 00:21:02.827 Yes, thank you for the kind introduction.

NOTE Confidence: 0.810771837142857

00:21:02.830 --> 00:21:06.372 So I. We'll be speaking about using

NOTE Confidence: 0.810771837142857

00:21:06.372 --> 00:21:09.454 transoral robotic surgery and it was one

NOTE Confidence: 0.810771837142857

00:21:09.454 --> 00:21:12.240 of the modalities used in ECOG 3311,

NOTE Confidence: 0.810771837142857

00:21:12.240 --> 00:21:14.120 but probably the most

NOTE Confidence: 0.810771837142857

00:21:14.120 --> 00:21:15.888 prominent one and sort of.

NOTE Confidence: 0.810771837142857

00:21:15.888 --> 00:21:17.820 Think of this as an option and

NOTE Confidence: 0.810771837142857

00:21:17.885 --> 00:21:19.477 alternative compared to open

NOTE Confidence: 0.810771837142857

00:21:19.477 --> 00:21:21.865 surgery and we'll soon learn that

NOTE Confidence: 0.810771837142857

00:21:21.931 --> 00:21:24.047 patient selection really matters.

NOTE Confidence: 0.810771837142857

00:21:24.050 --> 00:21:26.690 So I will go through that and some of the

NOTE Confidence: 0.810771837142857

00:21:26.757 --> 00:21:29.396 technical aspects of the surgery as well.

NOTE Confidence: 0.916647868571429

00:21:31.870 --> 00:21:34.222 OK. So you know, just as an overview

NOTE Confidence: 0.916647868571429

00:21:34.222 --> 00:21:37.045 of the head and neck anatomy, Umm,

NOTE Confidence: 0.916647868571429

00:21:37.045 --> 00:21:40.918 we think about tumors in these in

NOTE Confidence: 0.916647868571429

00:21:40.918 --> 00:21:43.400 this whole region as occurring in

NOTE Confidence: 0.916647868571429

00:21:43.400 --> 00:21:45.110 different sites and then within sites,

NOTE Confidence: 0.916647868571429

00:21:45.110 --> 00:21:47.108 different sub sites. So there's many,

NOTE Confidence: 0.916647868571429

00:21:47.110 --> 00:21:48.990 many different sites of the head and neck.

NOTE Confidence: 0.916647868571429

00:21:48.990 --> 00:21:51.573 And how we manage a patient really

NOTE Confidence: 0.916647868571429

00:21:51.573 --> 00:21:54.720 depends on the the location of the tumor.

NOTE Confidence: 0.916647868571429

00:21:54.720 --> 00:21:57.296 And in all these areas there's blood vessels,

NOTE Confidence: 0.916647868571429

00:21:57.300 --> 00:21:59.676 lymphatic channels, nerves that we are

NOTE Confidence: 0.916647868571429

00:21:59.676 --> 00:22:02.110 trying to preserve the best we can.

NOTE Confidence: 0.916647868571429

00:22:02.110 --> 00:22:04.558 Muscles, bone, cartilage, everything.

NOTE Confidence: 0.916647868571429

00:22:04.558 --> 00:22:07.490 So you know, anatomic considerations

NOTE Confidence: 0.916647868571429

00:22:07.490 --> 00:22:10.944 are very important to us in general,

NOTE Confidence: 0.916647868571429

00:22:10.944 --> 00:22:13.116 the principles of head neck cancer

NOTE Confidence: 0.916647868571429

00:22:13.116 --> 00:22:14.777 surgery include complete visualization

NOTE Confidence: 0.916647868571429

00:22:14.777 --> 00:22:16.529 of the surgical field,

NOTE Confidence: 0.916647868571429

00:22:16.530 --> 00:22:19.855 which can be a challenge given that

NOTE Confidence: 0.916647868571429

00:22:19.855 --> 00:22:23.045 we're working in in small areas and

NOTE Confidence: 0.916647868571429

00:22:23.045 --> 00:22:25.415 with that visualization we want to

NOTE Confidence: 0.916647868571429

00:22:25.415 --> 00:22:27.998 achieve on block tumor resection all

NOTE Confidence: 0.916647868571429

00:22:27.998 --> 00:22:30.632 in one piece with negative margins,

NOTE Confidence: 0.916647868571429

00:22:30.640 --> 00:22:31.562 traditionally margins.

NOTE Confidence: 0.916647868571429

00:22:31.562 --> 00:22:35.250 5 millimeters or greater and and then in

NOTE Confidence: 0.916647868571429

00:22:35.327 --> 00:22:38.324 addition to doing that as best as we can,

NOTE Confidence: 0.916647868571429

00:22:38.330 --> 00:22:40.800 we'd like to preserve surrounding

NOTE Confidence: 0.916647868571429

00:22:40.800 --> 00:22:42.776 structures that are important

NOTE Confidence: 0.916647868571429

00:22:42.776 --> 00:22:45.197 for function of our patients.

NOTE Confidence: 0.916647868571429

00:22:45.200 --> 00:22:47.400 So the the gold standard or

NOTE Confidence: 0.916647868571429

00:22:47.400 --> 00:22:48.920 traditional or open approaches.

NOTE Confidence: 0.916647868571429

00:22:48.920 --> 00:22:51.164 Generally all of these approaches are

NOTE Confidence: 0.916647868571429

00:22:51.164 --> 00:22:53.000 transcervical or through the neck,

NOTE Confidence: 0.916647868571429

00:22:53.000 --> 00:22:54.855 requiring a neck or facial

NOTE Confidence: 0.916647868571429

00:22:54.855 --> 00:22:57.140 incision on the left hand side.

NOTE Confidence: 0.916647868571429

00:22:57.140 --> 00:22:58.676 In the oropharynx category,

NOTE Confidence: 0.916647868571429

00:22:58.676 --> 00:23:01.442 the the few approaches to the orphans

NOTE Confidence: 0.916647868571429

00:23:01.442 --> 00:23:03.788 that were traditionally used for quite

NOTE Confidence: 0.916647868571429

00:23:03.788 --> 00:23:06.365 a while are the mandibular automy

NOTE Confidence: 0.916647868571429

00:23:06.365 --> 00:23:09.035 approach which requires a lip split

NOTE Confidence: 0.916647868571429

00:23:09.035 --> 00:23:11.825 incision most often and you can see in

NOTE Confidence: 0.916647868571429

00:23:11.825 --> 00:23:14.619 that cartoon down there that the mandible.

NOTE Confidence: 0.916647868571429

00:23:14.620 --> 00:23:16.354 Sort of split open and you

NOTE Confidence: 0.916647868571429

00:23:16.354 --> 00:23:17.510 can see this tongue.

NOTE Confidence: 0.916647868571429

00:23:17.510 --> 00:23:18.968 The tongue is retracted to one

NOTE Confidence: 0.916647868571429

00:23:18.968 --> 00:23:20.945 side and you can see this tongue

NOTE Confidence: 0.916647868571429

00:23:20.945 --> 00:23:22.530 based tumor in the visualization.

NOTE Confidence: 0.916647868571429

00:23:22.530 --> 00:23:23.439 As I said,

NOTE Confidence: 0.916647868571429

00:23:23.439 --> 00:23:24.954 which is important here is

NOTE Confidence: 0.916647868571429

00:23:24.954 --> 00:23:26.847 is very good in this case,

NOTE Confidence: 0.916647868571429

00:23:26.850 --> 00:23:29.340 but it requires a lot of work and a lot

NOTE Confidence: 0.916647868571429

00:23:29.404 --> 00:23:31.828 of potential morbidity to the patient.

NOTE Confidence: 0.916647868571429

00:23:31.830 --> 00:23:34.638 Another approach to large tongue based

NOTE Confidence: 0.916647868571429

00:23:34.638 --> 00:23:36.634 tumors includes going through the

NOTE Confidence: 0.916647868571429

00:23:36.634 --> 00:23:38.920 floor of mouth sling and musculature

NOTE Confidence: 0.916647868571429

00:23:38.981 --> 00:23:41.011 there to bring the tongue down into

NOTE Confidence: 0.916647868571429

00:23:41.011 --> 00:23:43.289 the neck and so you can visualize

NOTE Confidence: 0.916647868571429

00:23:43.289 --> 00:23:44.969 the almost the entire tongue,

NOTE Confidence: 0.916647868571429

00:23:44.970 --> 00:23:46.266 essentially the entire tongue.

NOTE Confidence: 0.916647868571429

00:23:46.266 --> 00:23:47.886 Through the neck and respect

NOTE Confidence: 0.916647868571429

00:23:47.886 --> 00:23:49.028 your tumor that way,

NOTE Confidence: 0.916647868571429

00:23:49.030 --> 00:23:52.300 which again is associated with morbidity.

NOTE Confidence: 0.916647868571429

00:23:52.300 --> 00:23:55.184 For smaller tumors of the tongue base,

NOTE Confidence: 0.916647868571429

00:23:55.190 --> 00:23:58.256 a trans hyoid approach with the

NOTE Confidence: 0.916647868571429

00:23:58.256 --> 00:24:01.140 fairing gotami can also be used.

NOTE Confidence: 0.916647868571429

00:24:01.140 --> 00:24:03.316 Don't focus too much on the larynx today,

NOTE Confidence: 0.916647868571429

00:24:03.320 --> 00:24:07.580 but you know the open approach to the larynx.

NOTE Confidence: 0.916647868571429

00:24:07.580 --> 00:24:09.800 The gold standard again is a

NOTE Confidence: 0.916647868571429

00:24:09.800 --> 00:24:11.239 total laryngectomy for Laura.

NOTE Confidence: 0.916647868571429

00:24:11.240 --> 00:24:12.640 You know especially advanced

NOTE Confidence: 0.916647868571429

00:24:12.640 --> 00:24:13.690 stage laryngeal tumors,

NOTE Confidence: 0.916647868571429

00:24:13.690 --> 00:24:15.282 partial interjections can be

NOTE Confidence: 0.916647868571429

00:24:15.282 --> 00:24:17.272 considered depending on the location

NOTE Confidence: 0.916647868571429

00:24:17.272 --> 00:24:20.026 and the stage of the tumor and the

NOTE Confidence: 0.916647868571429

00:24:20.026 --> 00:24:21.521 patients comorbidities and those

NOTE Confidence: 0.916647868571429

00:24:21.521 --> 00:24:23.297 include vertical partial laryngectomy

NOTE Confidence: 0.916647868571429

00:24:23.297 --> 00:24:25.073 is super cricoid laryngectomy

NOTE Confidence: 0.916647868571429

00:24:25.073 --> 00:24:26.591 and a supraglottic laryngectomy.

NOTE Confidence: 0.916647868571429

00:24:26.591 --> 00:24:29.090 And later in this talk I'm going

NOTE Confidence: 0.916647868571429

00:24:29.149 --> 00:24:30.727 to mention that the robot can

NOTE Confidence: 0.916647868571429

00:24:30.727 --> 00:24:32.659 be used for the Super Glottic.

NOTE Confidence: 0.916647868571429

00:24:32.660 --> 00:24:35.246 Enemy on the right hand side,

NOTE Confidence: 0.916647868571429

00:24:35.250 --> 00:24:37.554 the parapharyngeal space usually

NOTE Confidence: 0.916647868571429

00:24:37.554 --> 00:24:39.858 requires a transcervical approach,

NOTE Confidence: 0.916647868571429

00:24:39.860 --> 00:24:42.482 which can be achieved with mobilization

NOTE Confidence: 0.916647868571429

00:24:42.482 --> 00:24:45.514 or excision of the submandibular gland

NOTE Confidence: 0.916647868571429

00:24:45.514 --> 00:24:48.529 into the parapharyngeal space there.

NOTE Confidence: 0.939279612

00:24:48.530 --> 00:24:51.490 Or it can be done in a trans parotid

NOTE Confidence: 0.939279612

00:24:51.490 --> 00:24:55.280 approach, which requires a facial nerve

NOTE Confidence: 0.939279612

00:24:55.280 --> 00:24:57.850 dissection and removal and mobilization of

NOTE Confidence: 0.939279612

00:24:57.850 --> 00:25:00.730 the deep lobe of the of the parotid gland,

NOTE Confidence: 0.939279612

00:25:00.730 --> 00:25:03.790 which can be quite extensive.

NOTE Confidence: 0.939279612

00:25:03.790 --> 00:25:06.394 So some minimally invasive approaches that

NOTE Confidence: 0.939279612

00:25:06.394 --> 00:25:09.422 have come up recently and are robotic

NOTE Confidence: 0.939279612

00:25:09.422 --> 00:25:12.350 surgery, which I'll focus on today.

NOTE Confidence: 0.939279612

00:25:12.350 --> 00:25:14.793 And robotic surgery can be used to

NOTE Confidence: 0.939279612

00:25:14.793 --> 00:25:17.346 access the oropharynx in lieu of those

NOTE Confidence: 0.939279612

00:25:17.346 --> 00:25:19.146 bigger approaches that I mentioned.

NOTE Confidence: 0.939279612

00:25:19.150 --> 00:25:21.383 The supraglottic larynx can also be accessed

NOTE Confidence: 0.939279612

00:25:21.383 --> 00:25:23.848 as well as the parapharyngeal space.

NOTE Confidence: 0.939279612

00:25:23.850 --> 00:25:24.990 And in that photo below,

NOTE Confidence: 0.939279612

00:25:24.990 --> 00:25:27.528 you can see that the surgeon is at the

NOTE Confidence: 0.939279612

00:25:27.528 --> 00:25:30.147 surgeon console controlling the robotic arms,

NOTE Confidence: 0.939279612

00:25:30.150 --> 00:25:32.646 which are closer to the patient

NOTE Confidence: 0.939279612

00:25:32.650 --> 00:25:33.926 and there's an assistant.

NOTE Confidence: 0.939279612

00:25:33.926 --> 00:25:35.840 Of making sure the arms and

NOTE Confidence: 0.939279612

00:25:35.905 --> 00:25:37.049 the patient are OK.

NOTE Confidence: 0.939279612

00:25:37.050 --> 00:25:38.390 On the right hand side,

NOTE Confidence: 0.939279612

00:25:38.390 --> 00:25:39.606 again there's laser surgery

NOTE Confidence: 0.939279612

00:25:39.606 --> 00:25:41.126 which has existed for longer,

NOTE Confidence: 0.939279612

00:25:41.130 --> 00:25:42.815 a couple more decades than

NOTE Confidence: 0.939279612

00:25:42.815 --> 00:25:44.500 robotic surgery which has really

NOTE Confidence: 0.939279612

00:25:44.560 --> 00:25:46.387 come up in the past two decades.

NOTE Confidence: 0.939279612

00:25:46.390 --> 00:25:48.970 And there's many kinds of lasers,

NOTE Confidence: 0.939279612

00:25:48.970 --> 00:25:51.140 but primarily this is used for the

NOTE Confidence: 0.939279612

00:25:51.140 --> 00:25:52.749 Super glottic larynx and larynx.

NOTE Confidence: 0.939279612

00:25:52.750 --> 00:25:55.326 It can be used for the oropharynx

NOTE Confidence: 0.939279612

00:25:55.326 --> 00:25:58.157 as well and and for the trachea.

NOTE Confidence: 0.939279612

00:25:58.160 --> 00:25:59.970 So for transoral robotic surgery,

NOTE Confidence: 0.939279612

00:25:59.970 --> 00:26:03.024 when it was first being used for head

NOTE Confidence: 0.939279612

00:26:03.024 --> 00:26:06.020 and neck and it was really the US side,

NOTE Confidence: 0.939279612

00:26:06.020 --> 00:26:07.900 that was the model that was being used.

NOTE Confidence: 0.939279612

00:26:07.900 --> 00:26:09.856 And on the left hand side,

NOTE Confidence: 0.939279612

00:26:09.860 --> 00:26:12.408 you can see that there's a surgeon

NOTE Confidence: 0.939279612

00:26:12.408 --> 00:26:14.552 console with sort of those eye

NOTE Confidence: 0.939279612

00:26:14.552 --> 00:26:16.670 pieces where the surgeon can see

NOTE Confidence: 0.939279612

00:26:16.746 --> 00:26:19.218 and have a great view of the field.

NOTE Confidence: 0.939279612

00:26:19.220 --> 00:26:21.302 And then there's the controls there

NOTE Confidence: 0.939279612

00:26:21.302 --> 00:26:24.146 that you know the fingers go into and

NOTE Confidence: 0.939279612

00:26:24.146 --> 00:26:26.228 sort of control the robotic arms,

NOTE Confidence: 0.939279612

00:26:26.230 --> 00:26:27.750 there's petals that provide.

NOTE Confidence: 0.939279612

00:26:27.750 --> 00:26:30.030 Pottery and a left sided pedal

NOTE Confidence: 0.939279612

00:26:30.101 --> 00:26:32.225 that controls the camera as well.

NOTE Confidence: 0.939279612

00:26:32.230 --> 00:26:35.726 So you really have control of of everything.

NOTE Confidence: 0.939279612

00:26:35.730 --> 00:26:38.173 In the middle is the patient cart

NOTE Confidence: 0.939279612

00:26:38.173 --> 00:26:40.354 which is basically what's right at

NOTE Confidence: 0.939279612

00:26:40.354 --> 00:26:42.839 the patient and the arms have trocars

NOTE Confidence: 0.939279612

00:26:42.914 --> 00:26:44.959 and instruments going through them

NOTE Confidence: 0.939279612

00:26:44.959 --> 00:26:47.590 that go into the patient's mouth which

NOTE Confidence: 0.939279612

00:26:47.590 --> 00:26:49.910 you can see on the right hand side.

NOTE Confidence: 0.939279612

00:26:49.910 --> 00:26:52.780 And then the final component is the

NOTE Confidence: 0.939279612

00:26:52.780 --> 00:26:55.834 vision cart which is this tower and a

NOTE Confidence: 0.939279612

00:26:55.834 --> 00:26:58.510 a screen with really high definition.

NOTE Confidence: 0.939279612

00:26:58.510 --> 00:27:00.195 Images there for the assistant

NOTE Confidence: 0.939279612

00:27:00.195 --> 00:27:01.880 to be able to see,

NOTE Confidence: 0.939279612

00:27:01.880 --> 00:27:03.854 and for the scrub tech and anyone

NOTE Confidence: 0.939279612

00:27:03.854 --> 00:27:05.548 assisting in the surgery to be

NOTE Confidence: 0.939279612

00:27:05.548 --> 00:27:07.126 able to see what's going on.

NOTE Confidence: 0.7989513

00:27:10.090 --> 00:27:13.450 More recently, the A new 4th generation

NOTE Confidence: 0.7989513

00:27:13.450 --> 00:27:15.878 of robot, also from da Vinci,

NOTE Confidence: 0.7989513

00:27:15.878 --> 00:27:17.713 has been FDA approved for

NOTE Confidence: 0.7989513

00:27:17.713 --> 00:27:19.609 surgery of the head and neck,

NOTE Confidence: 0.7989513

00:27:19.610 --> 00:27:21.848 and it's the single port robots.

NOTE Confidence: 0.7989513

00:27:21.850 --> 00:27:22.970 On the left hand side,

NOTE Confidence: 0.7989513

00:27:22.970 --> 00:27:25.161 you can see that there's just one

NOTE Confidence: 0.7989513

00:27:25.161 --> 00:27:26.769 cannula instead of the three,

NOTE Confidence: 0.7989513

00:27:26.770 --> 00:27:28.737 and there's a camera and robotic arms

NOTE Confidence: 0.7989513

00:27:28.737 --> 00:27:31.128 that come out through the single cannula,

NOTE Confidence: 0.7989513

00:27:31.130 --> 00:27:34.208 which measures 2.5 centimeters in diameter.

NOTE Confidence: 0.7989513

00:27:34.210 --> 00:27:37.178 So it is quite small and the

NOTE Confidence: 0.7989513

00:27:37.178 --> 00:27:40.109 camera itself has some flexibility.

NOTE Confidence: 0.7989513

00:27:40.110 --> 00:27:41.574 As you can see in the middle photo,

NOTE Confidence: 0.7989513

00:27:41.580 --> 00:27:43.986 you can bend, there's certain pose,

NOTE Confidence: 0.7989513

00:27:43.990 --> 00:27:45.635 you know, we call it the Cobra

NOTE Confidence: 0.7989513

00:27:45.635 --> 00:27:47.431 pose so that it can sort of bend

NOTE Confidence: 0.7989513

00:27:47.431 --> 00:27:49.240 to look up or bend to look down.

NOTE Confidence: 0.7989513

00:27:49.240 --> 00:27:51.580 And the robotic arms have

NOTE Confidence: 0.7989513

00:27:51.580 --> 00:27:53.920 more mobility in the wrist.

NOTE Confidence: 0.7989513

00:27:53.920 --> 00:27:57.476 There's much more degrees of mobility there.

NOTE Confidence: 0.7989513

00:27:57.480 --> 00:28:00.702 So there's usually one arm that has a four

NOTE Confidence: 0.7989513

00:28:00.702 --> 00:28:03.459 steps to help retract or grab tissue.

NOTE Confidence: 0.7989513

00:28:03.460 --> 00:28:05.752 The other arm usually has cautery

NOTE Confidence: 0.7989513

00:28:05.752 --> 00:28:08.563 and even the forceps arm can be

NOTE Confidence: 0.7989513

00:28:08.563 --> 00:28:10.179 connected to bipolar cautery,

NOTE Confidence: 0.7989513

00:28:10.180 --> 00:28:11.740 so you can cauterize.

NOTE Confidence: 0.7989513

00:28:11.740 --> 00:28:14.896 Both arms and then this model of robot

NOTE Confidence: 0.7989513

00:28:14.896 --> 00:28:17.465 actually has the option of a fourth

NOTE Confidence: 0.7989513

00:28:17.465 --> 00:28:20.665 arm that you can use however you'd like,

NOTE Confidence: 0.7989513

00:28:20.670 --> 00:28:23.054 and some of us will put a second

NOTE Confidence: 0.7989513

00:28:23.054 --> 00:28:25.331 four steps there to keep longer

NOTE Confidence: 0.7989513

00:28:25.331 --> 00:28:27.336 retraction on tissue if needed.

NOTE Confidence: 0.7989513

00:28:27.340 --> 00:28:28.720 On the right hand side,

NOTE Confidence: 0.7989513

00:28:28.720 --> 00:28:31.424 there's a photo of what the port looks

NOTE Confidence: 0.7989513

00:28:31.424 --> 00:28:33.310 like going into the patient's mouth.

NOTE Confidence: 0.7989513

00:28:33.310 --> 00:28:34.760 And then there's a retractor.

NOTE Confidence: 0.7989513

00:28:34.760 --> 00:28:36.992 This is the FKW retractor that's

NOTE Confidence: 0.7989513

00:28:36.992 --> 00:28:39.160 holding the mouth open and keeping

NOTE Confidence: 0.7989513

00:28:39.160 --> 00:28:41.592 the tongue out of out of the way.

NOTE Confidence: 0.712505505

00:28:43.670 --> 00:28:45.830 So the indications for towards Umm,

NOTE Confidence: 0.712505505

00:28:45.830 --> 00:28:47.405 you know we discussed it a little

NOTE Confidence: 0.712505505

00:28:47.405 --> 00:28:49.415 bit when we were talking about ECOG

NOTE Confidence: 0.712505505

00:28:49.415 --> 00:28:51.725 3311 on particularly early stage or

NOTE Confidence: 0.712505505

00:28:51.725 --> 00:28:53.550 financial squamous cell carcinoma.

NOTE Confidence: 0.712505505

00:28:53.550 --> 00:28:57.262 So T1 and T2 lesions of the tonsil

NOTE Confidence: 0.712505505

00:28:57.262 --> 00:29:00.174 and tongue base cancers of the soft

NOTE Confidence: 0.712505505

00:29:00.174 --> 00:29:02.370 palate primarily you know are not

NOTE Confidence: 0.712505505

00:29:02.444 --> 00:29:05.054 always so amenable to this because

NOTE Confidence: 0.712505505

00:29:05.054 --> 00:29:07.354 of functional downsides such as

NOTE Confidence: 0.712505505

00:29:07.354 --> 00:29:09.290 Villa Ferringer and sufficiency.

NOTE Confidence: 0.712505505

00:29:09.290 --> 00:29:11.095 Isolated lesions of the posterior

NOTE Confidence: 0.712505505

00:29:11.095 --> 00:29:12.900 pharyngeal wall may be considered,

NOTE Confidence: 0.712505505

00:29:12.900 --> 00:29:13.780 but if quite a bit.

NOTE Confidence: 0.712505505

00:29:13.780 --> 00:29:16.503 That is being resected and we usually

NOTE Confidence: 0.712505505

00:29:16.503 --> 00:29:19.170 do not proceed with this approach.

NOTE Confidence: 0.712505505

00:29:19.170 --> 00:29:21.195 I mentioned early stage supraglottic

NOTE Confidence: 0.712505505

00:29:21.195 --> 00:29:22.815 squamous cell carcinoma which

NOTE Confidence: 0.712505505

00:29:22.815 --> 00:29:25.019 I'll mention again later and then

NOTE Confidence: 0.712505505

00:29:25.019 --> 00:29:26.759 benign tumors of the oropharynx,

NOTE Confidence: 0.712505505

00:29:26.760 --> 00:29:29.552 supraglottis and the parapharyngeal

NOTE Confidence: 0.712505505

00:29:29.552 --> 00:29:32.470 space could also be considered

NOTE Confidence: 0.712505505

00:29:32.470 --> 00:29:34.690 for transoral robotic resection.

NOTE Confidence: 0.712505505

00:29:34.690 --> 00:29:35.810 Transoral robotic surgery can

NOTE Confidence: 0.712505505

00:29:35.810 --> 00:29:37.490 also be used for sleep apnea,

NOTE Confidence: 0.712505505

00:29:37.490 --> 00:29:40.290 but I I won't focus on that today.

NOTE Confidence: 0.712505505

00:29:40.290 --> 00:29:41.920 Lingual tonsillectomy or tongue based

NOTE Confidence: 0.712505505

00:29:41.920 --> 00:29:44.280 reduction can be done for patients who.

NOTE Confidence: 0.712505505

00:29:44.280 --> 00:29:45.912 To have this contributing

NOTE Confidence: 0.712505505

00:29:45.912 --> 00:29:47.544 to their sleep apnea,

NOTE Confidence: 0.712505505

00:29:47.550 --> 00:29:50.049 the first photo is sort of our

NOTE Confidence: 0.712505505

00:29:50.049 --> 00:29:52.948 view when we have good retraction,

NOTE Confidence: 0.712505505

00:29:52.950 --> 00:29:54.700 there's a tonsil tumor on the right

NOTE Confidence: 0.712505505

00:29:54.700 --> 00:29:56.548 hand side and you know the head is

NOTE Confidence: 0.712505505

00:29:56.548 --> 00:29:58.260 at the bottom of the screen and the

NOTE Confidence: 0.712505505

00:29:58.260 --> 00:30:00.035 chin is at the top of the screen.

NOTE Confidence: 0.712505505

00:30:00.035 --> 00:30:02.795 And so we're looking from above and you

NOTE Confidence: 0.712505505

00:30:02.795 --> 00:30:05.668 know we can see the tip of the epiglottis,

NOTE Confidence: 0.712505505

00:30:05.670 --> 00:30:07.200 the tongue base on both sides.

NOTE Confidence: 0.712505505

00:30:07.200 --> 00:30:09.615 We have full view of the tonsil

NOTE Confidence: 0.712505505

00:30:09.615 --> 00:30:11.800 cancer and even margins of tissue

NOTE Confidence: 0.712505505

00:30:11.800 --> 00:30:14.313 around it and you can see that.

NOTE Confidence: 0.712505505

00:30:14.320 --> 00:30:16.658 Four steps in the left hand corner

NOTE Confidence: 0.712505505

00:30:16.658 --> 00:30:18.309 corner just ready to start.

NOTE Confidence: 0.712505505

00:30:18.310 --> 00:30:21.454 And then on the right hand side there's

NOTE Confidence: 0.712505505

00:30:21.454 --> 00:30:24.284 a specimen post resection that I was

NOTE Confidence: 0.712505505

00:30:24.284 --> 00:30:26.582 trying to Orient for the pathologist.

NOTE Confidence: 0.712505505

00:30:26.582 --> 00:30:28.850 So using some of the anatomic

NOTE Confidence: 0.712505505

00:30:28.926 --> 00:30:30.886 landmarks can help because this

NOTE Confidence: 0.712505505

00:30:30.886 --> 00:30:33.320 is very much A3 dimensional tumor

NOTE Confidence: 0.712505505

00:30:33.320 --> 00:30:35.345 and A3 dimensional resection and

NOTE Confidence: 0.712505505

00:30:35.345 --> 00:30:37.644 all of this technology helps us,

NOTE Confidence: 0.712505505

00:30:37.644 --> 00:30:38.318 you know,

NOTE Confidence: 0.712505505

00:30:38.318 --> 00:30:41.878 see where we need to see to to achieve this.

NOTE Confidence: 0.712505505

00:30:41.880 --> 00:30:44.046 So the clinical evaluation for tours

NOTE Confidence: 0.712505505

00:30:44.046 --> 00:30:46.950 when we see a patient who's referred to

NOTE Confidence: 0.712505505

00:30:46.950 --> 00:30:49.909 to see if this is even something that

NOTE Confidence: 0.712505505

00:30:49.909 --> 00:30:52.716 we can offer depend on many things.

NOTE Confidence: 0.712505505

00:30:52.720 --> 00:30:54.610 The tumor factors include the

NOTE Confidence: 0.712505505

00:30:54.610 --> 00:30:57.290 size and size is close is closely

NOTE Confidence: 0.712505505

00:30:57.290 --> 00:30:59.060 in hand with the stage.

NOTE Confidence: 0.712505505

00:30:59.060 --> 00:31:00.830 So T1 or T2 tumors,

NOTE Confidence: 0.712505505

00:31:00.830 --> 00:31:02.685 anything bigger than that we

NOTE Confidence: 0.712505505

00:31:02.685 --> 00:31:04.540 probably would not consider this.

NOTE Confidence: 0.712505505

00:31:04.540 --> 00:31:08.240 The location is also important

NOTE Confidence: 0.712505505

00:31:08.240 --> 00:31:09.575 midline tumors sometimes.

NOTE Confidence: 0.712505505

00:31:09.575 --> 00:31:13.325 Are at risk of injury to both lingual

NOTE Confidence: 0.712505505

00:31:13.325 --> 00:31:16.412 arteries which I'll mention again later.

NOTE Confidence: 0.712505505

00:31:16.412 --> 00:31:19.310 So you know we we prefer to do this

NOTE Confidence: 0.712505505

00:31:19.392 --> 00:31:21.848 approach for lateralized tumors.

NOTE Confidence: 0.712505505

00:31:21.850 --> 00:31:24.727 The depth also factors into stage and

NOTE Confidence: 0.712505505

00:31:24.727 --> 00:31:28.309 we can tell that sometimes by palpation

NOTE Confidence: 0.712505505

00:31:28.310 --> 00:31:31.068 on clinical exam and some you know

NOTE Confidence: 0.712505505

00:31:31.070 --> 00:31:33.650 it definitely with imaging as well.

NOTE Confidence: 0.712505505

00:31:33.650 --> 00:31:35.894 If there's trismus this patient can

NOTE Confidence: 0.712505505

00:31:35.894 --> 00:31:38.958 only open 2 centimeters and and you know

NOTE Confidence: 0.712505505

00:31:38.958 --> 00:31:41.202 someone's really pushing with their thumb.

NOTE Confidence: 0.712505505

00:31:41.210 --> 00:31:42.938 You know then that that you

NOTE Confidence: 0.712505505

00:31:42.938 --> 00:31:44.599 know won't be good for us,

NOTE Confidence: 0.712505505

00:31:44.600 --> 00:31:46.920 especially with the 2.5 centimeter,

NOTE Confidence: 0.712505505

00:31:46.920 --> 00:31:47.164 uh,

NOTE Confidence: 0.712505505

00:31:47.164 --> 00:31:49.360 cannula that it has to get in the mouth.

NOTE Confidence: 0.712505505

00:31:49.360 --> 00:31:51.185 So that's something that's important

NOTE Confidence: 0.712505505

00:31:51.185 --> 00:31:51.915 to consider.

NOTE Confidence: 0.878180918333333

00:31:51.920 --> 00:31:55.148 The tongue size is also important.

NOTE Confidence: 0.878180918333333

00:31:55.150 --> 00:31:56.296 There's a lot of tease here.

NOTE Confidence: 0.878180918333333

00:31:56.300 --> 00:31:58.883 So people sort of remember this as the rule

NOTE Confidence: 0.878180918333333

00:31:58.883 --> 00:32:01.497 of the teas status of the teeth and the jaw,

NOTE Confidence: 0.878180918333333

00:32:01.500 --> 00:32:04.530 whether they're mandibular Tori and then

NOTE Confidence: 0.878180918333333

00:32:04.530 --> 00:32:07.569 neck mobility or tilting of the neck,

NOTE Confidence: 0.878180918333333

00:32:07.570 --> 00:32:09.422 anyone who's had spinal

NOTE Confidence: 0.878180918333333

00:32:09.422 --> 00:32:11.274 instability or spinal surgery.

NOTE Confidence: 0.878180918333333

00:32:11.280 --> 00:32:13.086 You know we have to evaluate for

NOTE Confidence: 0.878180918333333

00:32:13.086 --> 00:32:14.981 that to make sure we can get

NOTE Confidence: 0.878180918333333

00:32:14.981 --> 00:32:16.565 the exposure we need for this.

NOTE Confidence: 0.878180918333333

00:32:16.570 --> 00:32:20.287 I added to this prior treatment as well in

NOTE Confidence: 0.878180918333333

00:32:20.287 --> 00:32:23.206 patients who have had previous surgery,

NOTE Confidence: 0.878180918333333

00:32:23.210 --> 00:32:25.335 previous radiation in particular and

NOTE Confidence: 0.878180918333333

00:32:25.335 --> 00:32:28.810 this is sort of a salvage surgery.

NOTE Confidence: 0.878180918333333

00:32:28.810 --> 00:32:31.230 We have other considerations including

NOTE Confidence: 0.878180918333333

00:32:31.230 --> 00:32:34.596 you know whether that when we do

NOTE Confidence: 0.878180918333333

00:32:34.596 --> 00:32:36.756 these resections we don't necessarily

NOTE Confidence: 0.878180918333333

00:32:36.756 --> 00:32:40.010 put tissue you know to reconstruct,

NOTE Confidence: 0.878180918333333

00:32:40.010 --> 00:32:40.990 but in these patients we

NOTE Confidence: 0.878180918333333

00:32:40.990 --> 00:32:41.970 might have to do that.

NOTE Confidence: 0.878180918333333

00:32:41.970 --> 00:32:43.935 To protect the carotid artery

NOTE Confidence: 0.878180918333333

00:32:43.935 --> 00:32:45.900 or any other vital structures,

NOTE Confidence: 0.878180918333333

00:32:45.900 --> 00:32:48.498 because healing might not be as

NOTE Confidence: 0.878180918333333

00:32:48.498 --> 00:32:51.531 optimal as As for patients who

NOTE Confidence: 0.878180918333333

00:32:51.531 --> 00:32:53.947 haven't been treated before.

NOTE Confidence: 0.878180918333333

00:32:53.950 --> 00:32:55.852 So the you know the clinical

NOTE Confidence: 0.878180918333333

00:32:55.852 --> 00:32:58.891 exam it you know we rely on a

NOTE Confidence: 0.878180918333333

00:32:58.891 --> 00:33:00.583 transoral inspection and palpation,

NOTE Confidence: 0.878180918333333

00:33:00.590 --> 00:33:03.915 but we also rely on a flexible

NOTE Confidence: 0.878180918333333

00:33:03.915 --> 00:33:04.865 laryngoscopic exam.

NOTE Confidence: 0.878180918333333

00:33:04.870 --> 00:33:06.688 And between those two things we

NOTE Confidence: 0.878180918333333

00:33:06.688 --> 00:33:09.287 kind of have a sense of the extent,

NOTE Confidence: 0.878180918333333

00:33:09.290 --> 00:33:09.716 location,

NOTE Confidence: 0.878180918333333

00:33:09.716 --> 00:33:12.272 depth of the tumor whether we

NOTE Confidence: 0.878180918333333

00:33:12.272 --> 00:33:13.550 could access this.

NOTE Confidence: 0.878180918333333

00:33:13.550 --> 00:33:16.244 But a radiology is also very

NOTE Confidence: 0.878180918333333

00:33:16.244 --> 00:33:19.225 helpful for us when we evaluate

NOTE Confidence: 0.878180918333333

00:33:19.225 --> 00:33:22.026 patients and and tumors the location

NOTE Confidence: 0.878180918333333

00:33:22.026 --> 00:33:23.566 of the carotid artery is.

NOTE Confidence: 0.878180918333333

00:33:23.570 --> 00:33:24.569 Is very important,

NOTE Confidence: 0.878180918333333

00:33:24.569 --> 00:33:26.567 especially if we're looking at a

NOTE Confidence: 0.878180918333333

00:33:26.567 --> 00:33:28.181 patient who has a retropharyngeal

NOTE Confidence: 0.878180918333333

00:33:28.181 --> 00:33:30.011 carotid and you can see that

NOTE Confidence: 0.878180918333333

00:33:30.069 --> 00:33:31.594 pretty prominently in the left

NOTE Confidence: 0.878180918333333

00:33:31.594 --> 00:33:34.016 side in that image with the arrows.

NOTE Confidence: 0.878180918333333

00:33:34.016 --> 00:33:36.704 So if this patient needed a

NOTE Confidence: 0.878180918333333

00:33:36.704 --> 00:33:37.600 radical tonsillectomy,

NOTE Confidence: 0.878180918333333

00:33:37.600 --> 00:33:39.424 we we probably would not consider

NOTE Confidence: 0.878180918333333

00:33:39.424 --> 00:33:41.993 that in this case if we thought that

NOTE Confidence: 0.878180918333333

00:33:41.993 --> 00:33:43.925 the carotid artery would be exposed

NOTE Confidence: 0.878180918333333

00:33:43.990 --> 00:33:46.138 or even potentially injured by this,

NOTE Confidence: 0.878180918333333

00:33:46.140 --> 00:33:48.708 by this approach.

NOTE Confidence: 0.878180918333333

00:33:48.710 --> 00:33:49.868 Tongue based tumors,

NOTE Confidence: 0.878180918333333

00:33:49.868 --> 00:33:51.026 sometimes we can,

NOTE Confidence: 0.878180918333333

00:33:51.030 --> 00:33:54.374 we can still do um resections on a

NOTE Confidence: 0.878180918333333

00:33:54.374 --> 00:33:56.108 patient with a retropharyngeal carotid,

NOTE Confidence: 0.878180918333333

00:33:56.108 --> 00:33:58.980 but that takes a lot of you know

NOTE Confidence: 0.878180918333333

00:33:59.051 --> 00:34:01.172 very intense study of the of the

NOTE Confidence: 0.878180918333333

00:34:01.172 --> 00:34:03.719 skin and making sure that it it will

NOTE Confidence: 0.878180918333333

00:34:03.719 --> 00:34:05.723 stay away from your resection bed

NOTE Confidence: 0.878180918333333

00:34:05.723 --> 00:34:08.684 or that you won't keep it exposed.

NOTE Confidence: 0.878180918333333

00:34:08.690 --> 00:34:10.424 Then you know the I mentioned

NOTE Confidence: 0.878180918333333

00:34:10.424 --> 00:34:12.337 before that the tumor could be

NOTE Confidence: 0.878180918333333

00:34:12.337 --> 00:34:14.067 closely associated with the lingual

NOTE Confidence: 0.878180918333333

00:34:14.067 --> 00:34:16.243 arteries on both sides and that

NOTE Confidence: 0.878180918333333

00:34:16.243 --> 00:34:18.033 would be a contraindication to

NOTE Confidence: 0.878180918333333

00:34:18.033 --> 00:34:19.108 transoral robotic surgery.

NOTE Confidence: 0.878180918333333

00:34:19.108 --> 00:34:20.540 In the middle image,

NOTE Confidence: 0.878180918333333

00:34:20.540 --> 00:34:22.478 you can see a very endophytic

NOTE Confidence: 0.878180918333333

00:34:22.478 --> 00:34:25.019 tumor um that is invading and

NOTE Confidence: 0.878180918333333

00:34:25.019 --> 00:34:26.786 extrinsic tongue musculature.

NOTE Confidence: 0.878180918333333

00:34:26.790 --> 00:34:28.624 So this would already be a higher

NOTE Confidence: 0.878180918333333

00:34:28.624 --> 00:34:30.988 stage and a contraindication to tours,

NOTE Confidence: 0.878180918333333

00:34:30.990 --> 00:34:32.855 but this likely would involve

NOTE Confidence: 0.878180918333333

00:34:32.855 --> 00:34:35.130 the lingual artery on that side.

NOTE Confidence: 0.878180918333333

00:34:35.130 --> 00:34:37.503 On the right hand side is probably

NOTE Confidence: 0.878180918333333

00:34:37.503 --> 00:34:39.764 a similarly sized tumor but much

NOTE Confidence: 0.878180918333333

00:34:39.764 --> 00:34:40.546 more exophytic.

NOTE Confidence: 0.878180918333333

00:34:40.550 --> 00:34:42.811 So that's sort of a counterpoint to

NOTE Confidence: 0.878180918333333

00:34:42.811 --> 00:34:44.976 that middle image that sometimes we

NOTE Confidence: 0.878180918333333

00:34:44.976 --> 00:34:46.866 see these endophytic tumors that

NOTE Confidence: 0.878180918333333

00:34:46.866 --> 00:34:49.387 wouldn't be ideal for transoral surgery,

NOTE Confidence: 0.878180918333333

00:34:49.390 --> 00:34:50.680 but then sometimes we see these.

NOTE Confidence: 0.878180918333333

00:34:50.680 --> 00:34:53.382 Exophytic ones where we know we can

NOTE Confidence: 0.878180918333333

00:34:53.382 --> 00:34:56.011 stay away from the lingual artery

NOTE Confidence: 0.878180918333333

00:34:56.011 --> 00:34:58.789 and and resect it with minimal

NOTE Confidence: 0.878180918333333

00:34:58.789 --> 00:35:01.270 functional morbidity to the patient.

NOTE Confidence: 0.878180918333333

00:35:01.270 --> 00:35:03.370 So the the benefits of tours

NOTE Confidence: 0.878180918333333

00:35:03.370 --> 00:35:04.770 is avoidance of tracheostomy

NOTE Confidence: 0.891057378260869

00:35:04.840 --> 00:35:07.640 which would be necessary in some of these

NOTE Confidence: 0.891057378260869

00:35:07.640 --> 00:35:10.009 open approaches and faster rehabilitation,

NOTE Confidence: 0.891057378260869

00:35:10.010 --> 00:35:13.070 recovery of speech and swallow function.

NOTE Confidence: 0.891057378260869

00:35:13.070 --> 00:35:15.020 The surgery is shorter as

NOTE Confidence: 0.891057378260869

00:35:15.020 --> 00:35:16.970 well as the hospital stay.

NOTE Confidence: 0.891057378260869

00:35:16.970 --> 00:35:19.735 And we would really consider this as

NOTE Confidence: 0.891057378260869

00:35:19.735 --> 00:35:22.063 Doctor Mayer mentioned in his talk if

NOTE Confidence: 0.891057378260869

00:35:22.063 --> 00:35:24.626 we were able to reduce or eliminate even

NOTE Confidence: 0.891057378260869

00:35:24.626 --> 00:35:27.290 the need for post operative treatment.

NOTE Confidence: 0.891057378260869

00:35:27.290 --> 00:35:29.320 So post operative or adjuvant

NOTE Confidence: 0.891057378260869

00:35:29.320 --> 00:35:30.538 radiation or chemo.

NOTE Confidence: 0.891057378260869

00:35:30.540 --> 00:35:33.478 Therapy and I just put the ECOG

NOTE Confidence: 0.891057378260869

00:35:33.478 --> 00:35:34.630 3311 schema up there.

NOTE Confidence: 0.891057378260869

00:35:34.630 --> 00:35:36.726 Just as a reminder as to you know

NOTE Confidence: 0.891057378260869

00:35:36.726 --> 00:35:39.424 one of the reasons we do transoral

NOTE Confidence: 0.891057378260869

00:35:39.424 --> 00:35:41.104 robotic surgery to minimize

NOTE Confidence: 0.891057378260869

00:35:41.104 --> 00:35:42.908 adjuvant treatment if we can.

NOTE Confidence: 0.891057378260869

00:35:42.910 --> 00:35:44.822 If we think that we could not say

NOTE Confidence: 0.891057378260869

00:35:44.822 --> 00:35:46.470 there's a small primary tumor,

NOTE Confidence: 0.891057378260869

00:35:46.470 --> 00:35:49.248 but there's matted nodes and obvious

NOTE Confidence: 0.891057378260869

00:35:49.248 --> 00:35:51.788 extranodal extension that you know that

NOTE Confidence: 0.891057378260869

00:35:51.788 --> 00:35:54.610 would put them in in the high risk arm,

NOTE Confidence: 0.891057378260869

00:35:54.610 --> 00:35:58.276 then maybe you know we should

NOTE Confidence: 0.891057378260869

00:35:58.276 --> 00:36:00.720 consider upfront chemo radiation.

NOTE Confidence: 0.891057378260869

00:36:00.720 --> 00:36:03.968 The risk of tours include taste disturbance

NOTE Confidence: 0.891057378260869

00:36:03.968 --> 00:36:07.149 and tongue numbness on those 2GO hand

NOTE Confidence: 0.891057378260869

00:36:07.149 --> 00:36:09.711 in hand primarily because of retraction.

NOTE Confidence: 0.891057378260869

00:36:09.720 --> 00:36:12.268 Using these FK retractors or the Med

NOTE Confidence: 0.891057378260869

00:36:12.268 --> 00:36:14.403 robotic retractors or even the Crow

NOTE Confidence: 0.891057378260869

00:36:14.403 --> 00:36:16.685 Davis and having that that blade blade

NOTE Confidence: 0.891057378260869

00:36:16.754 --> 00:36:19.036 against the tongue for quite a while

NOTE Confidence: 0.891057378260869

00:36:19.036 --> 00:36:21.964 can cause these things and and some

NOTE Confidence: 0.891057378260869

00:36:21.964 --> 00:36:24.394 patients last longer than others.

NOTE Confidence: 0.891057378260869

00:36:24.400 --> 00:36:25.996 Even though one of the things

NOTE Confidence: 0.891057378260869

00:36:25.996 --> 00:36:27.830 that is improved with Torres is

NOTE Confidence: 0.891057378260869

00:36:27.830 --> 00:36:29.620 swallowing return to swallow function,

NOTE Confidence: 0.891057378260869

00:36:29.620 --> 00:36:31.330 there still can be problems with

NOTE Confidence: 0.891057378260869

00:36:31.330 --> 00:36:32.470 swallowing in the immediate.

NOTE Confidence: 0.891057378260869

00:36:32.470 --> 00:36:34.598 Post operative period Velopharyngeal

NOTE Confidence: 0.891057378260869

00:36:34.598 --> 00:36:37.790 insufficiency is something that I mentioned,

NOTE Confidence: 0.891057378260869

00:36:37.790 --> 00:36:40.202 particularly if there is a significant

NOTE Confidence: 0.891057378260869

00:36:40.202 --> 00:36:42.900 portion of the soft palate that's

NOTE Confidence: 0.891057378260869

00:36:42.900 --> 00:36:45.170 resected if in in oropharyngeal

NOTE Confidence: 0.891057378260869

00:36:45.170 --> 00:36:47.370 squamous cell carcinoma in particular,

NOTE Confidence: 0.891057378260869

00:36:47.370 --> 00:36:50.574 a neck dissection typically is performed

NOTE Confidence: 0.891057378260869

00:36:50.574 --> 00:36:53.430 with the transoral robotic surgery.

NOTE Confidence: 0.891057378260869

00:36:53.430 --> 00:36:54.950 And so when that happens,

NOTE Confidence: 0.891057378260869

00:36:54.950 --> 00:36:58.044 there is a risk of fistula between

NOTE Confidence: 0.891057378260869

00:36:58.044 --> 00:37:00.395 the oropharynx resection and the neck

NOTE Confidence: 0.891057378260869

00:37:00.395 --> 00:37:03.050 and so we have to monitor for that.

NOTE Confidence: 0.891057378260869

00:37:03.050 --> 00:37:03.840 Carefully, um,

NOTE Confidence: 0.891057378260869

00:37:03.840 --> 00:37:06.210 during the surgeries in some cases,

NOTE Confidence: 0.891057378260869

00:37:06.210 --> 00:37:08.040 in some surgeons would tend you

NOTE Confidence: 0.891057378260869

00:37:08.040 --> 00:37:10.273 know would tend to stage the neck

NOTE Confidence: 0.891057378260869

00:37:10.273 --> 00:37:12.175 dissection for do that first and

NOTE Confidence: 0.891057378260869

00:37:12.175 --> 00:37:13.866 then do the robotic surgery later

NOTE Confidence: 0.891057378260869

00:37:13.866 --> 00:37:16.832 or if we do it at the same time,

NOTE Confidence: 0.891057378260869

00:37:16.832 --> 00:37:18.897 there are some local reconstruction

NOTE Confidence: 0.891057378260869

00:37:18.897 --> 00:37:21.035 options that we can consider to

NOTE Confidence: 0.891057378260869

00:37:21.035 --> 00:37:23.570 close a fistula and you know those

NOTE Confidence: 0.891057378260869

00:37:23.570 --> 00:37:26.335 that's important to keep an eye out

NOTE Confidence: 0.891057378260869

00:37:26.335 --> 00:37:29.040 for the other thing about the neck

NOTE Confidence: 0.891057378260869

00:37:29.040 --> 00:37:31.560 portion of the surgery particularly in

NOTE Confidence: 0.891057378260869

00:37:31.560 --> 00:37:33.360 oropharyngeal squamous cell carcinoma.

NOTE Confidence: 0.891057378260869

00:37:33.360 --> 00:37:35.310 Is ligation of the external

NOTE Confidence: 0.891057378260869

00:37:35.310 --> 00:37:37.260 carotid artery or its branches.

NOTE Confidence: 0.891057378260869

00:37:37.260 --> 00:37:39.580 Because bleeding is a very

NOTE Confidence: 0.891057378260869

00:37:39.580 --> 00:37:41.436 feared risk of tours,

NOTE Confidence: 0.891057378260869

00:37:41.440 --> 00:37:43.660 it can be life threatening and

NOTE Confidence: 0.891057378260869

00:37:43.660 --> 00:37:45.140 it doesn't happen immediately.

NOTE Confidence: 0.891057378260869

00:37:45.140 --> 00:37:47.340 It tends to happen over

NOTE Confidence: 0.891057378260869

00:37:47.340 --> 00:37:48.660 a week postoperatively.

NOTE Confidence: 0.891057378260869

00:37:48.660 --> 00:37:53.124 So it is standard of care to ligate these

NOTE Confidence: 0.891057378260869

00:37:53.124 --> 00:37:55.558 branches to minimize the risk of bleeding.

NOTE Confidence: 0.851145724

00:37:57.740 --> 00:37:59.700 Contraindications to transoral robotic

NOTE Confidence: 0.851145724

00:37:59.700 --> 00:38:02.150 surgery include inability to visualize

NOTE Confidence: 0.851145724

00:38:02.150 --> 00:38:04.579 the lesion or any relevant anatomy.

NOTE Confidence: 0.851145724

00:38:04.580 --> 00:38:07.190 Trans orally if there is carotid

NOTE Confidence: 0.851145724

00:38:07.190 --> 00:38:09.840 artery involvement of the tumor which

NOTE Confidence: 0.851145724

00:38:09.840 --> 00:38:12.318 would upstage the tumor as well,

NOTE Confidence: 0.851145724

00:38:12.320 --> 00:38:14.288 prevertebral fashion involvement,

NOTE Confidence: 0.851145724

00:38:14.288 --> 00:38:16.256 any mandibular invasion,

NOTE Confidence: 0.851145724

00:38:16.260 --> 00:38:19.065 and if there's greater than 50% tongue

NOTE Confidence: 0.851145724

00:38:19.065 --> 00:38:21.375 based involvement or greater than 50%

NOTE Confidence: 0.851145724

00:38:21.380 --> 00:38:23.316 posterior pharyngeal wall involvement.

NOTE Confidence: 0.851145724

00:38:23.316 --> 00:38:25.736 I also mentioned the medicalized

NOTE Confidence: 0.851145724

00:38:25.736 --> 00:38:27.859 or retropharyngeal carotid.

NOTE Confidence: 0.851145724

00:38:27.860 --> 00:38:30.758 Um, which is generally a contraindication.

NOTE Confidence: 0.851145724

00:38:30.760 --> 00:38:32.935 Um, but sometimes it particularly

NOTE Confidence: 0.851145724

00:38:32.935 --> 00:38:34.675 in tongue based resections.

NOTE Confidence: 0.851145724

00:38:34.680 --> 00:38:36.508 If it's really posterior,

NOTE Confidence: 0.851145724

00:38:36.508 --> 00:38:38.793 it can be still considered.

NOTE Confidence: 0.897337554444444

00:38:41.010 --> 00:38:43.650 So this is sort of some

NOTE Confidence: 0.897337554444444

00:38:43.650 --> 00:38:44.970 relevant internal anatomy.

NOTE Confidence: 0.897337554444444

00:38:44.970 --> 00:38:47.814 The the two pictures on the

NOTE Confidence: 0.897337554444444

00:38:47.814 --> 00:38:50.473 left depict the initial approach

NOTE Confidence: 0.897337554444444

00:38:50.473 --> 00:38:53.149 to a radical tonsillectomy.

NOTE Confidence: 0.897337554444444

00:38:53.150 --> 00:38:55.622 So the forceps is holding the

NOTE Confidence: 0.897337554444444

00:38:55.622 --> 00:38:57.647 pharyngeal constrictor muscle and this

NOTE Confidence: 0.897337554444444

00:38:57.647 --> 00:38:59.796 is sort of the first incision that

NOTE Confidence: 0.897337554444444

00:38:59.796 --> 00:39:02.250 we make in a radical tonsillectomy.

NOTE Confidence: 0.897337554444444

00:39:02.250 --> 00:39:04.512 We expose that medial teratoid muscle

NOTE Confidence: 0.897337554444444

00:39:04.512 --> 00:39:07.084 and and use that pharyngeal constrictor

NOTE Confidence: 0.897337554444444

00:39:07.084 --> 00:39:10.066 as as our deep margin essentially.

NOTE Confidence: 0.897337554444444

00:39:10.070 --> 00:39:12.338 And as that's being retracted medially

NOTE Confidence: 0.897337554444444

00:39:12.338 --> 00:39:15.188 and that sort of whitish fluffy thing

NOTE Confidence: 0.897337554444444

00:39:15.188 --> 00:39:18.128 stuff you see is the parapharyngeal fat.

NOTE Confidence: 0.897337554444444

00:39:18.130 --> 00:39:19.980 And so that's where the,

NOTE Confidence: 0.897337554444444

00:39:19.980 --> 00:39:21.798 the blood vessels are the things

NOTE Confidence: 0.897337554444444

00:39:21.798 --> 00:39:23.010 you want to avoid.

NOTE Confidence: 0.897337554444444

00:39:23.010 --> 00:39:27.014 And so that sort of bluntly gets.

NOTE Confidence: 0.897337554444444

00:39:27.020 --> 00:39:28.985 Dissected laterally so we can

NOTE Confidence: 0.897337554444444

00:39:28.985 --> 00:39:30.950 continue working on the muscle

NOTE Confidence: 0.897337554444444

00:39:31.017 --> 00:39:33.297 that can get transected and often

NOTE Confidence: 0.897337554444444

00:39:33.297 --> 00:39:35.232 does is the styloglossus muscle

NOTE Confidence: 0.897337554444444

00:39:35.232 --> 00:39:36.977 where that blue arrow is.

NOTE Confidence: 0.897337554444444

00:39:36.980 --> 00:39:39.278 So there's a lot of internal

NOTE Confidence: 0.897337554444444

00:39:39.278 --> 00:39:41.212 anatomy that we're thinking about

NOTE Confidence: 0.897337554444444

00:39:41.212 --> 00:39:43.508 as we do these resections and on

NOTE Confidence: 0.897337554444444

00:39:43.508 --> 00:39:45.717 the right hand side that's that's

NOTE Confidence: 0.897337554444444

00:39:45.717 --> 00:39:48.338 a depiction of the location of the

NOTE Confidence: 0.897337554444444

00:39:48.338 --> 00:39:50.328 lingual artery because during a

NOTE Confidence: 0.897337554444444

00:39:50.328 --> 00:39:52.285 tongue based resection or focused

NOTE Confidence: 0.897337554444444

00:39:52.285 --> 00:39:54.637 on where that is and you can see

NOTE Confidence: 0.897337554444444

00:39:54.637 --> 00:39:56.760 that that dorsal lingual artery.

NOTE Confidence: 0.897337554444444

00:39:56.760 --> 00:39:59.030 In in the circle there that that's

NOTE Confidence: 0.897337554444444

00:39:59.030 --> 00:40:01.270 often that often can show up and we

NOTE Confidence: 0.897337554444444

00:40:01.270 --> 00:40:03.201 are watching out for it especially

NOTE Confidence: 0.897337554444444

00:40:03.201 --> 00:40:05.372 it almost comes up as like a

NOTE Confidence: 0.897337554444444

00:40:05.372 --> 00:40:07.206 knuckle of a vessel as you're in

NOTE Confidence: 0.897337554444444

00:40:07.206 --> 00:40:08.538 the tongue based musculature.

NOTE Confidence: 0.897337554444444

00:40:08.538 --> 00:40:10.318 So we're always watching out

NOTE Confidence: 0.897337554444444

00:40:10.318 --> 00:40:12.049 for that when we do these,

NOTE Confidence: 0.897337554444444

00:40:12.050 --> 00:40:14.598 do these cases and thanks to the

NOTE Confidence: 0.897337554444444

00:40:14.598 --> 00:40:17.641 technology of the robot we really have

NOTE Confidence: 0.897337554444444

00:40:17.641 --> 00:40:19.986 great visualization as we're working.

NOTE Confidence: 0.897337554444444

00:40:19.990 --> 00:40:23.301 So moving on to Super Glottic squamous

NOTE Confidence: 0.897337554444444

00:40:23.301 --> 00:40:26.249 cell carcinoma exposure is still important.

NOTE Confidence: 0.897337554444444

00:40:26.250 --> 00:40:27.660 Sometimes it can be more

NOTE Confidence: 0.897337554444444

00:40:27.660 --> 00:40:29.470 challenging in in in that photo,

NOTE Confidence: 0.897337554444444

00:40:29.470 --> 00:40:32.190 some of those longer blades are used to

NOTE Confidence: 0.897337554444444

00:40:32.190 --> 00:40:34.908 get deeper and exposed to super glottis.

NOTE Confidence: 0.897337554444444

00:40:34.910 --> 00:40:35.391 Again,

NOTE Confidence: 0.897337554444444

00:40:35.391 --> 00:40:37.796 transoral robotic surgery is used

NOTE Confidence: 0.897337554444444

00:40:37.796 --> 00:40:40.789 for early stage tumors at T1 and T2.

NOTE Confidence: 0.897337554444444

00:40:40.790 --> 00:40:42.615 Some surgeons do report using

NOTE Confidence: 0.897337554444444

00:40:42.615 --> 00:40:45.249 this for T3 tumors as long as

NOTE Confidence: 0.897337554444444

00:40:45.249 --> 00:40:47.089 both vocal cords are mobile,

NOTE Confidence: 0.897337554444444

00:40:47.090 --> 00:40:50.150 which basically precludes paragliding.

NOTE Confidence: 0.897337554444444

00:40:50.150 --> 00:40:51.680 Face involvement.

NOTE Confidence: 0.897337554444444

00:40:51.680 --> 00:40:54.120 The airway considerations you know

NOTE Confidence: 0.897337554444444

00:40:54.120 --> 00:40:56.560 are interesting and super chaotic.

NOTE Confidence: 0.897337554444444

00:40:56.560 --> 00:40:57.718 Squamous cell carcinoma.

NOTE Confidence: 0.897337554444444

00:40:57.718 --> 00:41:00.420 I think there are some cases in

NOTE Confidence: 0.897337554444444

00:41:00.493 --> 00:41:02.851 which doing a tracheostomy up front

NOTE Confidence: 0.897337554444444

00:41:02.851 --> 00:41:05.425 to protect the airway and and in

NOTE Confidence: 0.897337554444444

00:41:05.425 --> 00:41:07.285 the event of any bleeding could

NOTE Confidence: 0.897337554444444

00:41:07.285 --> 00:41:10.192 be considered more so than for or

NOTE Confidence: 0.897337554444444

00:41:10.192 --> 00:41:11.920 pharyngeal squamous cell carcinoma.

NOTE Confidence: 0.897337554444444

00:41:11.920 --> 00:41:13.504 And the major source of bleeding

NOTE Confidence: 0.897337554444444

00:41:13.504 --> 00:41:15.929 if it were to occur would be from

NOTE Confidence: 0.897337554444444

00:41:15.929 --> 00:41:17.564 the superior laryngeal artery in

NOTE Confidence: 0.897337554444444

00:41:17.564 --> 00:41:19.616 this case and in the bottom photo.

NOTE Confidence: 0.897337554444444

00:41:19.620 --> 00:41:21.622 You can see that there's on the

NOTE Confidence: 0.897337554444444

00:41:21.622 --> 00:41:23.399 lingual surface of the epiglottis,

NOTE Confidence: 0.897337554444444

00:41:23.400 --> 00:41:26.095 there is a tumor there and so

NOTE Confidence: 0.897337554444444

00:41:26.095 --> 00:41:28.917 there the robot is being used to

NOTE Confidence: 0.897337554444444

00:41:28.917 --> 00:41:31.882 sort of visualize it and also then

NOTE Confidence: 0.897337554444444

00:41:31.882 --> 00:41:33.510 for resection contraindications

NOTE Confidence: 0.897337554444444

00:41:33.510 --> 00:41:36.510 to this include limited exposure.

NOTE Confidence: 0.897337554444444

00:41:36.510 --> 00:41:38.900 Poor pulmonary reserve is actually

NOTE Confidence: 0.897337554444444

00:41:38.900 --> 00:41:41.290 a contraindication to a supraglottic

NOTE Confidence: 0.897337554444444

00:41:41.359 --> 00:41:43.135 laryngectomy as well as you know

NOTE Confidence: 0.897337554444444

00:41:43.135 --> 00:41:45.670 it can be a difficult recovery,

NOTE Confidence: 0.897337554444444

00:41:45.670 --> 00:41:49.630 there can be aspiration postoperatively.

NOTE Confidence: 0.897337554444444

00:41:49.630 --> 00:41:51.875 Involvement of the anterior commissure

NOTE Confidence: 0.897337554444444

00:41:51.875 --> 00:41:54.120 thyroid cartilage is also contraindication,

NOTE Confidence: 0.897337554444444

00:41:54.120 --> 00:41:56.360 as is periodic space invasion.

NOTE Confidence: 0.897337554444444

00:41:56.360 --> 00:42:00.464 That could cause vocal cord fixation

NOTE Confidence: 0.897337554444444

00:42:00.464 --> 00:42:02.516 or a hypomobility.

NOTE Confidence: 0.806366932666667

00:42:02.520 --> 00:42:04.200 Some tumors that with minimal

NOTE Confidence: 0.806366932666667

00:42:04.200 --> 00:42:05.544 involvement of the pyriform

NOTE Confidence: 0.806366932666667

00:42:05.544 --> 00:42:07.278 sinus can be resected this way.

NOTE Confidence: 0.806366932666667

00:42:07.280 --> 00:42:08.990 But if there is involvement of

NOTE Confidence: 0.806366932666667

00:42:08.990 --> 00:42:10.939 the apex of the pyriform sinus

NOTE Confidence: 0.806366932666667

00:42:10.939 --> 00:42:12.799 or any post cricoid mucosa,

NOTE Confidence: 0.806366932666667

00:42:12.800 --> 00:42:14.520 that's also a contraindication.

NOTE Confidence: 0.867625767142857

00:42:16.540 --> 00:42:18.738 And just briefly for the final slides,

NOTE Confidence: 0.867625767142857

00:42:18.740 --> 00:42:20.948 wanted to review trends or robotic

NOTE Confidence: 0.867625767142857

00:42:20.948 --> 00:42:22.820 surgery for the parapharyngeal space.

NOTE Confidence: 0.867625767142857

00:42:22.820 --> 00:42:26.072 Generally it's used for a well

NOTE Confidence: 0.867625767142857

00:42:26.072 --> 00:42:28.028 circumscribed tumors most commonly

NOTE Confidence: 0.867625767142857

00:42:28.028 --> 00:42:31.066 for a deep lobe parotid neoplasm such

NOTE Confidence: 0.867625767142857

00:42:31.066 --> 00:42:33.832 as a pleomorphic adenoma and these

NOTE Confidence: 0.867625767142857

00:42:33.832 --> 00:42:37.290 generally are in the pre styloid space.

NOTE Confidence: 0.867625767142857

00:42:37.290 --> 00:42:39.334 And the the bottom picture if you

NOTE Confidence: 0.867625767142857

00:42:39.334 --> 00:42:42.144 can see it sort of depicts the pre

NOTE Confidence: 0.867625767142857

00:42:42.144 --> 00:42:44.004 styloid versus the post styloid,

NOTE Confidence: 0.867625767142857

00:42:44.010 --> 00:42:45.775 but generally the pre styloid

NOTE Confidence: 0.867625767142857

00:42:45.775 --> 00:42:47.187 space is occupied by.

NOTE Confidence: 0.867625767142857

00:42:47.190 --> 00:42:49.278 Parapharyngeal fat in the post dilate

NOTE Confidence: 0.867625767142857

00:42:49.278 --> 00:42:51.818 space is where the great vessels are

NOTE Confidence: 0.867625767142857

00:42:51.818 --> 00:42:53.972 and and and the associated nerves.

NOTE Confidence: 0.867625767142857

00:42:53.980 --> 00:42:57.036 So This is why we would probably not

NOTE Confidence: 0.867625767142857

00:42:57.036 --> 00:42:59.839 use this for post thyroid tumor.

NOTE Confidence: 0.867625767142857

00:42:59.840 --> 00:43:02.762 There have been reports of resecting

NOTE Confidence: 0.867625767142857

00:43:02.762 --> 00:43:05.760 benign tumors as large as 8

NOTE Confidence: 0.867625767142857

00:43:05.760 --> 00:43:08.032 centimeters trans orally there are.

NOTE Confidence: 0.867625767142857

00:43:08.032 --> 00:43:10.944 I think again selection is very important.

NOTE Confidence: 0.867625767142857

00:43:10.950 --> 00:43:12.585 The relationship to the internal

NOTE Confidence: 0.867625767142857

00:43:12.585 --> 00:43:14.220 carotid artery is key here.

NOTE Confidence: 0.867625767142857

00:43:14.220 --> 00:43:16.122 So if the artery is displaced

NOTE Confidence: 0.867625767142857

00:43:16.122 --> 00:43:17.889 laterally and you can see it.

NOTE Confidence: 0.867625767142857

00:43:17.890 --> 00:43:20.530 A plane between the tumor and the carotid,

NOTE Confidence: 0.867625767142857

00:43:20.530 --> 00:43:22.630 I think you know that that's a

NOTE Confidence: 0.867625767142857

00:43:22.630 --> 00:43:25.403 sign that this could be safe to do

NOTE Confidence: 0.867625767142857

00:43:25.403 --> 00:43:27.203 with a transoral robotic approach.

NOTE Confidence: 0.867625767142857

00:43:27.210 --> 00:43:29.562 In some cases with these deep lobe

NOTE Confidence: 0.867625767142857

00:43:29.562 --> 00:43:31.357 salivary gland tumors or prodded

NOTE Confidence: 0.867625767142857

00:43:31.357 --> 00:43:32.077 gland tumors,

NOTE Confidence: 0.867625767142857

00:43:32.080 --> 00:43:34.660 extension through the stylo mandibular

NOTE Confidence: 0.867625767142857

00:43:34.660 --> 00:43:37.715 tunnel may require a combined or

NOTE Confidence: 0.867625767142857

00:43:37.715 --> 00:43:40.830 an open approach because of that.

NOTE Confidence: 0.867625767142857

00:43:40.830 --> 00:43:42.684 Because it's hard to get laterally

NOTE Confidence: 0.867625767142857

00:43:42.684 --> 00:43:44.557 beyond and I'll show you photos

NOTE Confidence: 0.867625767142857

00:43:44.557 --> 00:43:46.566 of that and that this creates a

NOTE Confidence: 0.867625767142857

00:43:46.566 --> 00:43:48.150 dumbbell appearance on imaging.

NOTE Confidence: 0.867625767142857

00:43:48.150 --> 00:43:50.355 So the the graphic on top just

NOTE Confidence: 0.867625767142857

00:43:50.355 --> 00:43:52.189 shows where the stylo mandibular

NOTE Confidence: 0.867625767142857

00:43:52.189 --> 00:43:54.649 ligament is and that barrier sort

NOTE Confidence: 0.867625767142857

00:43:54.649 --> 00:43:57.256 of causes the tumor to grow around

NOTE Confidence: 0.867625767142857

00:43:57.256 --> 00:43:58.966 it and create a dumbbell.

NOTE Confidence: 0.867625767142857

00:43:58.970 --> 00:44:01.602 And so part of that could be accessed

NOTE Confidence: 0.867625767142857

00:44:01.602 --> 00:44:03.708 very easily trans orally as you

NOTE Confidence: 0.867625767142857

00:44:03.708 --> 00:44:05.766 can see the bottom right image.

NOTE Confidence: 0.867625767142857

00:44:05.770 --> 00:44:07.548 But the part that's abutting the deep

NOTE Confidence: 0.867625767142857

00:44:07.548 --> 00:44:09.670 lobe of the product can be difficult.

NOTE Confidence: 0.867625767142857

00:44:09.670 --> 00:44:11.050 So sometimes this.

NOTE Confidence: 0.867625767142857

00:44:11.050 --> 00:44:13.383 This would require just an open

NOTE Confidence: 0.867625767142857

00:44:13.383 --> 00:44:16.209 approach or or a combined approach.

NOTE Confidence: 0.867625767142857

00:44:16.210 --> 00:44:18.709 The advantages of of going trans orally

NOTE Confidence: 0.867625767142857

00:44:18.709 --> 00:44:21.153 to approach these is that there's less

NOTE Confidence: 0.867625767142857

00:44:21.153 --> 00:44:23.990 risk of first bite syndrome and fry syndrome,

NOTE Confidence: 0.867625767142857

00:44:23.990 --> 00:44:26.950 which are well described after

NOTE Confidence: 0.867625767142857

00:44:26.950 --> 00:44:29.046 transcervical or Transpara added

NOTE Confidence: 0.867625767142857

00:44:29.046 --> 00:44:31.666 approaches to the parapharyngeal space.

NOTE Confidence: 0.867625767142857

00:44:31.670 --> 00:44:34.120 There's less risk of Cialis steel because

NOTE Confidence: 0.867625767142857

00:44:34.120 --> 00:44:36.228 you're not dissecting the parotid gland,

NOTE Confidence: 0.867625767142857

00:44:36.230 --> 00:44:37.938 and then there's less risk of facial

NOTE Confidence: 0.867625767142857

00:44:37.938 --> 00:44:39.306 nerve injury because you're you're

NOTE Confidence: 0.867625767142857

00:44:39.306 --> 00:44:40.478 not dissecting that either.

NOTE Confidence: 0.867625767142857

00:44:40.480 --> 00:44:44.638 And of course there's no external incision.

NOTE Confidence: 0.867625767142857

00:44:44.640 --> 00:44:45.003 That,

NOTE Confidence: 0.867625767142857

00:44:45.003 --> 00:44:45.729 you know,

NOTE Confidence: 0.867625767142857

00:44:45.729 --> 00:44:48.270 the main disadvantage is that there's a

NOTE Confidence: 0.867625767142857

00:44:48.344 --> 00:44:51.316 very narrow corridor of exposure and if

NOTE Confidence: 0.867625767142857

00:44:51.316 --> 00:44:53.760 there's any bleeding that occurs there,

NOTE Confidence: 0.867625767142857

00:44:53.760 --> 00:44:55.560 there can be a lot of

NOTE Confidence: 0.867625767142857

00:44:55.560 --> 00:44:56.460 difficulty controlling that.

NOTE Confidence: 0.867625767142857

00:44:56.460 --> 00:44:58.835 So sometimes when when surgeons

NOTE Confidence: 0.867625767142857

00:44:58.835 --> 00:45:00.260 are doing this,

NOTE Confidence: 0.867625767142857

00:45:00.260 --> 00:45:02.402 they'll have a backup open approach

NOTE Confidence: 0.867625767142857

00:45:02.402 --> 00:45:05.326 so you can convert to an open approach

NOTE Confidence: 0.867625767142857

00:45:05.326 --> 00:45:07.468 if needed to control any bleeding,

NOTE Confidence: 0.867625767142857

00:45:07.470 --> 00:45:09.480 even though there's a decreased

NOTE Confidence: 0.867625767142857

00:45:09.480 --> 00:45:11.947 risk of facial nerve injury and

NOTE Confidence: 0.867625767142857

00:45:11.947 --> 00:45:13.103 other adverse effects,

NOTE Confidence: 0.867625767142857

00:45:13.103 --> 00:45:14.252 the glossopharyngeal nerve.

NOTE Confidence: 0.867625767142857

00:45:14.252 --> 00:45:15.784 Is actually closely associated

NOTE Confidence: 0.867625767142857

00:45:15.784 --> 00:45:17.610 with the styloglossus muscle,

NOTE Confidence: 0.867625767142857

00:45:17.610 --> 00:45:21.634 so that's an increased risk of injury here.

NOTE Confidence: 0.867625767142857

00:45:21.640 --> 00:45:24.069 So the you know in conclusion traditional

NOTE Confidence: 0.867625767142857

00:45:24.069 --> 00:45:26.121 open surgery is the gold standard

NOTE Confidence: 0.867625767142857

00:45:26.121 --> 00:45:28.333 and and what's been done for many,

NOTE Confidence: 0.848373691034483

00:45:28.340 --> 00:45:30.391 many, many years to approach the tumors

NOTE Confidence: 0.848373691034483

00:45:30.391 --> 00:45:33.109 of the head and neck with the following

NOTE Confidence: 0.848373691034483

00:45:33.109 --> 00:45:34.889 purposes to visualization on block

NOTE Confidence: 0.848373691034483

00:45:34.949 --> 00:45:37.344 resection with negative margins and

NOTE Confidence: 0.848373691034483

00:45:37.344 --> 00:45:39.260 preservation of surrounding structures.

NOTE Confidence: 0.848373691034483

00:45:39.260 --> 00:45:41.000 Robotic surgery over the past

NOTE Confidence: 0.848373691034483

00:45:41.000 --> 00:45:43.172 two decades or slightly more has

NOTE Confidence: 0.848373691034483

00:45:43.172 --> 00:45:45.404 demonstrated that you know we can

NOTE Confidence: 0.848373691034483

00:45:45.404 --> 00:45:47.288 achieve similar outcomes with improved

NOTE Confidence: 0.848373691034483

00:45:47.288 --> 00:45:49.058 functional outcomes but we have

NOTE Confidence: 0.848373691034483

00:45:49.058 --> 00:45:51.218 to select our patients carefully.

NOTE Confidence: 0.848373691034483

00:45:51.218 --> 00:45:53.963 Based on clinical aspects and

NOTE Confidence: 0.848373691034483

00:45:53.963 --> 00:45:55.960 radio graphic aspects too.

NOTE Confidence: 0.841653413684211

00:45:58.430 --> 00:46:00.824 So here are my references and I

NOTE Confidence: 0.841653413684211

00:46:00.824 --> 00:46:03.379 had a question slide while we were

NOTE Confidence: 0.841653413684211

00:46:03.379 --> 00:46:05.470 waiting till the end so. Thank

NOTE Confidence: 0.756700756666667

00:46:05.480 --> 00:46:07.608 you. We'll wait till the end. That's great.

NOTE Confidence: 0.756700756666667

00:46:07.608 --> 00:46:10.821 Thank you so much Doctor Verma for

NOTE Confidence: 0.756700756666667

00:46:10.821 --> 00:46:14.165 that great run through a transoral

NOTE Confidence: 0.756700756666667

00:46:14.165 --> 00:46:17.630 robotic surgery and Susan head neck.

NOTE Confidence: 0.756700756666667

00:46:17.630 --> 00:46:20.174 Great. So our final speaker for

NOTE Confidence: 0.756700756666667

00:46:20.174 --> 00:46:22.790 this evening is not a surgeon,

NOTE Confidence: 0.756700756666667

00:46:22.790 --> 00:46:25.654 but we work very closely with him as

NOTE Confidence: 0.756700756666667

00:46:25.654 --> 00:46:28.196 surgeons and he's done some really

NOTE Confidence: 0.756700756666667

00:46:28.196 --> 00:46:30.386 exciting work on road radiomics.

NOTE Confidence: 0.756700756666667

00:46:30.390 --> 00:46:34.422 Dr Pavish is did his MD at Tehran University,

NOTE Confidence: 0.756700756666667

00:46:34.430 --> 00:46:37.048 was a research fellow at Mass General,

NOTE Confidence: 0.756700756666667

00:46:37.050 --> 00:46:40.386 went through his radiology training and

NOTE Confidence: 0.756700756666667

00:46:40.386 --> 00:46:43.630 did a neuro Neuroradiology fellowship,

NOTE Confidence: 0.756700756666667

00:46:43.630 --> 00:46:46.970 highly coveted at UCSF.

NOTE Confidence: 0.756700756666667

00:46:46.970 --> 00:46:48.320 Probably more than five years

NOTE Confidence: 0.756700756666667

00:46:48.320 --> 00:46:49.400 ago at this point.

NOTE Confidence: 0.756700756666667

00:46:49.400 --> 00:46:52.010 And now he's assistant professor

NOTE Confidence: 0.756700756666667

00:46:52.010 --> 00:46:54.620 at of Radiology in Neuroradiology

NOTE Confidence: 0.756700756666667

00:46:54.706 --> 00:46:57.238 here with us at Yale University.

NOTE Confidence: 0.756700756666667

00:46:57.240 --> 00:46:58.990 And he's going to be speaking about

NOTE Confidence: 0.756700756666667

00:46:58.990 --> 00:47:00.815 Radiomics, so I'll hand it over to him.

NOTE Confidence: 0.41141814

00:47:02.640 --> 00:47:05.948 Um. Thank you very much.

NOTE Confidence: 0.41141814

00:47:05.948 --> 00:47:07.336 Thanks Doctor Mehta for

NOTE Confidence: 0.41141814

00:47:07.336 --> 00:47:08.720 introduction and invitation.

NOTE Confidence: 0.41141814

00:47:08.720 --> 00:47:13.865 Um, so I will be speaking about

NOTE Confidence: 0.41141814

00:47:13.865 --> 00:47:18.620 Radiomics in head and neck cancer.

NOTE Confidence: 0.41141814

00:47:18.620 --> 00:47:22.512 Do not have any conflict of interest

NOTE Confidence: 0.41141814

00:47:22.512 --> 00:47:26.388 and the talk will be focused on

NOTE Confidence: 0.41141814

00:47:26.390 --> 00:47:30.018 the application of radiomics.

NOTE Confidence: 0.41141814

00:47:30.020 --> 00:47:32.582 A short and brief description of

NOTE Confidence: 0.41141814

00:47:32.582 --> 00:47:35.079 what we are talking about when

NOTE Confidence: 0.41141814

00:47:35.079 --> 00:47:38.124 we are referring to radio mix,

NOTE Confidence: 0.41141814

00:47:38.124 --> 00:47:41.640 how this can help with diagnosis

NOTE Confidence: 0.41141814

00:47:41.749 --> 00:47:45.309 and molecular subtyping of tumors,

NOTE Confidence: 0.41141814

00:47:45.310 --> 00:47:45.890 prognostication,

NOTE Confidence: 0.41141814

00:47:45.890 --> 00:47:48.790 prediction of survival and perhaps

NOTE Confidence: 0.41141814

00:47:48.790 --> 00:47:51.110 treatment planning in patients

NOTE Confidence: 0.41141814

00:47:51.181 --> 00:47:53.016 with head and neck cancer.

NOTE Confidence: 0.41141814

00:47:53.020 --> 00:47:55.974 And this was a review article that

NOTE Confidence: 0.41141814

00:47:55.974 --> 00:47:58.230 we published with Doctor Burtness

NOTE Confidence: 0.41141814

00:47:58.230 --> 00:48:03.030 a couple of years ago. And so.

NOTE Confidence: 0.41141814

00:48:03.030 --> 00:48:07.218 When we talk about radiomics,

NOTE Confidence: 0.41141814

00:48:07.218 --> 00:48:11.850 this basically represent a hard coded

NOTE Confidence: 0.41141814

00:48:11.983 --> 00:48:16.843 series of hard coded algorithm that

NOTE Confidence: 0.41141814

00:48:16.843 --> 00:48:22.080 extract numeric features from medical images.

NOTE Confidence: 0.41141814

00:48:22.080 --> 00:48:25.900 So it was basically started

NOTE Confidence: 0.41141814

00:48:25.900 --> 00:48:29.400 along with the omics spectrum,

NOTE Confidence: 0.41141814

00:48:29.400 --> 00:48:33.257 as you might have heard about genomics,

NOTE Confidence: 0.41141814

00:48:33.260 --> 00:48:33.837 proteomics.

NOTE Confidence: 0.41141814

00:48:33.837 --> 00:48:38.453 The idea is that we extract a large

NOTE Confidence: 0.41141814

00:48:38.453 --> 00:48:42.005 amount of numeric and quantitative

NOTE Confidence: 0.41141814

00:48:42.005 --> 00:48:44.869 information from medical images

NOTE Confidence: 0.41141814

00:48:44.869 --> 00:48:48.334 and try to harness information

NOTE Confidence: 0.41141814

00:48:48.334 --> 00:48:51.692 from them for precision diagnosis.

NOTE Confidence: 0.41141814

00:48:51.692 --> 00:48:54.556 And precision treatment planning.

NOTE Confidence: 0.41141814

00:48:54.560 --> 00:48:57.512 Now the RADIOMICS features or the

NOTE Confidence: 0.41141814

00:48:57.512 --> 00:49:00.285 radiomics numbers are in generally

NOTE Confidence: 0.41141814

00:49:00.285 --> 00:49:03.137 representative of the intensity,

NOTE Confidence: 0.41141814

00:49:03.140 --> 00:49:07.438 shape and texture of a target lesion.

NOTE Confidence: 0.41141814

00:49:07.440 --> 00:49:11.702 In this case head and neck cancer intensity,

NOTE Confidence: 0.41141814

00:49:11.702 --> 00:49:15.314 basically the brightness of the tumor

NOTE Confidence: 0.41141814

00:49:15.314 --> 00:49:19.887 or lesion of interest on medical images.

NOTE Confidence: 0.41141814

00:49:19.890 --> 00:49:21.940 We are pretty much always

NOTE Confidence: 0.41141814

00:49:21.940 --> 00:49:23.580 working with grayscale images,

NOTE Confidence: 0.41141814

00:49:23.580 --> 00:49:25.788 Umm, the shape of the tumor.

NOTE Confidence: 0.41141814

00:49:25.790 --> 00:49:27.634 And also the texture,

NOTE Confidence: 0.41141814

00:49:27.634 --> 00:49:31.000 how much it is heterogeneous and this

NOTE Confidence: 0.41141814

00:49:31.000 --> 00:49:34.072 large amount of information that we

NOTE Confidence: 0.41141814

00:49:34.072 --> 00:49:37.436 extract or actually well suited for

NOTE Confidence: 0.41141814

00:49:37.436 --> 00:49:39.752 machine learning algorithms because

NOTE Confidence: 0.41141814

00:49:39.752 --> 00:49:43.049 those are preferred and suitable

NOTE Confidence: 0.41141814

00:49:43.049 --> 00:49:47.327 statistical models to make a prediction.

NOTE Confidence: 0.835043614615384

00:49:49.580 --> 00:49:52.484 So some of the references that I make

NOTE Confidence: 0.835043614615384

00:49:52.484 --> 00:49:57.258 are related to brain tumors, but you can.

NOTE Confidence: 0.835043614615384

00:49:57.260 --> 00:49:58.700 Basically apply the same

NOTE Confidence: 0.835043614615384

00:49:58.700 --> 00:50:00.860 concept to head and neck tumors.

NOTE Confidence: 0.835043614615384

00:50:00.860 --> 00:50:04.535 So when we talk about intensity features,

NOTE Confidence: 0.835043614615384

00:50:04.540 --> 00:50:07.851 you can think about the mean or

NOTE Confidence: 0.835043614615384

00:50:07.851 --> 00:50:11.172 range of the intensity or brightness

NOTE Confidence: 0.835043614615384

00:50:11.172 --> 00:50:15.184 that you see in a specific lesion,

NOTE Confidence: 0.835043614615384

00:50:15.184 --> 00:50:18.152 but it can also get a little

NOTE Confidence: 0.835043614615384

00:50:18.152 --> 00:50:20.420 bit more sophisticated.

NOTE Confidence: 0.835043614615384

00:50:20.420 --> 00:50:23.828 We can think about the magnitude of the

NOTE Confidence: 0.835043614615384

00:50:23.828 --> 00:50:27.246 changes of the voxel values in an image.

NOTE Confidence: 0.835043614615384

00:50:27.250 --> 00:50:29.875 Now would be referred to as energy

NOTE Confidence: 0.835043614615384

00:50:29.875 --> 00:50:32.256 or entropy like or like randomness

NOTE Confidence: 0.835043614615384

00:50:32.256 --> 00:50:34.608 of the values and the image.

NOTE Confidence: 0.835043614615384

00:50:34.610 --> 00:50:36.400 So that's why, you know,

NOTE Confidence: 0.835043614615384

00:50:36.400 --> 00:50:40.329 we basically get a larger number of

NOTE Confidence: 0.835043614615384

00:50:40.329 --> 00:50:44.274 numeric values that are representative

NOTE Confidence: 0.835043614615384

00:50:44.274 --> 00:50:48.030 of the intensity feature and.

NOTE Confidence: 0.835043614615384

00:50:48.030 --> 00:50:49.455 In medical images,

NOTE Confidence: 0.835043614615384

00:50:49.455 --> 00:50:52.305 when we talk about the radiomics

NOTE Confidence: 0.835043614615384

00:50:52.305 --> 00:50:55.998 intensity feature, this is again.

NOTE Confidence: 0.835043614615384

00:50:56.000 --> 00:50:58.125 Course we did with posterior

NOTE Confidence: 0.835043614615384

00:50:58.125 --> 00:51:01.386 fossa tumors and this was like the

NOTE Confidence: 0.835043614615384

00:51:01.386 --> 00:51:03.486 information from the histogram,

NOTE Confidence: 0.835043614615384

00:51:03.490 --> 00:51:05.919 ADC histogram in these tumors and you

NOTE Confidence: 0.835043614615384

00:51:05.919 --> 00:51:08.616 can see how this is different from

NOTE Confidence: 0.835043614615384

00:51:08.616 --> 00:51:10.992 one tumor subtypes to another and

NOTE Confidence: 0.835043614615384

00:51:11.069 --> 00:51:13.415 we apply this for differentiation of

NOTE Confidence: 0.835043614615384

00:51:13.415 --> 00:51:15.790 this posterior fossa brain tumors.

NOTE Confidence: 0.835043614615384

00:51:15.790 --> 00:51:19.670 The shape of a tumor may also have an impact.

NOTE Confidence: 0.835043614615384

00:51:19.670 --> 00:51:21.788 We usually think about the volume

NOTE Confidence: 0.835043614615384

00:51:21.788 --> 00:51:24.451 how big a tumor is but sometimes

NOTE Confidence: 0.835043614615384

00:51:24.451 --> 00:51:26.015 the surface and it's.

NOTE Confidence: 0.835043614615384

00:51:26.020 --> 00:51:28.750 We may also have an impact.

NOTE Confidence: 0.835043614615384

00:51:28.750 --> 00:51:31.226 I haven't found like a good example

NOTE Confidence: 0.835043614615384

00:51:31.226 --> 00:51:34.082 in terms of head and neck tumors,

NOTE Confidence: 0.835043614615384

00:51:34.090 --> 00:51:36.979 but for example.

NOTE Confidence: 0.835043614615384

00:51:36.980 --> 00:51:40.592 This paper which was done on

NOTE Confidence: 0.835043614615384

00:51:40.592 --> 00:51:43.537 glioblastoma showed that how much

NOTE Confidence: 0.835043614615384

00:51:43.537 --> 00:51:46.272 did the basically minimum volume

NOTE Confidence: 0.835043614615384

00:51:46.272 --> 00:51:49.740 of a bounding ellipsoid may have

NOTE Confidence: 0.835043614615384

00:51:49.839 --> 00:51:53.253 an impact on the overall survival

NOTE Confidence: 0.835043614615384

00:51:53.253 --> 00:51:54.960 of the glioblastoma.

NOTE Confidence: 0.835043614615384

00:51:54.960 --> 00:51:58.299 So there is some work that can be done

NOTE Confidence: 0.835043614615384

00:51:58.299 --> 00:52:01.292 on looking into how does the shape

NOTE Confidence: 0.835043614615384

00:52:01.292 --> 00:52:07.628 of a tumor affect the prognosis or.

NOTE Confidence: 0.835043614615384

00:52:07.630 --> 00:52:12.046 Perhaps the way affect treatment planning.

NOTE Confidence: 0.835043614615384

00:52:12.050 --> 00:52:13.576 And then the last thing that I

NOTE Confidence: 0.835043614615384

00:52:13.576 --> 00:52:15.259 mentioned or the texture of the tumor,

NOTE Confidence: 0.835043614615384

00:52:15.260 --> 00:52:18.459 how how much the tumor is heterogeneous.

NOTE Confidence: 0.835043614615384

00:52:18.460 --> 00:52:20.868 Now the numbers or the metrics that we

NOTE Confidence: 0.835043614615384

00:52:20.868 --> 00:52:23.498 use for this are a little bit complex.

NOTE Confidence: 0.835043614615384

00:52:23.500 --> 00:52:26.181 But in general you can think about

NOTE Confidence: 0.835043614615384

00:52:26.181 --> 00:52:29.239 it as we are looking into seeing

NOTE Confidence: 0.835043614615384

00:52:29.239 --> 00:52:32.514 how much the intensity of 1 region

NOTE Confidence: 0.835043614615384

00:52:32.514 --> 00:52:35.244 is different from the region next

NOTE Confidence: 0.835043614615384

00:52:35.244 --> 00:52:38.698 to it kind of the same concept that

NOTE Confidence: 0.835043614615384

00:52:38.698 --> 00:52:41.301 the more heterogeneous tumor is we

NOTE Confidence: 0.835043614615384

00:52:41.301 --> 00:52:43.828 perhaps expected. Could be more advanced.

NOTE Confidence: 0.835043614615384

00:52:43.828 --> 00:52:47.059 It's perhaps has like more time to grow.

NOTE Confidence: 0.835043614615384

00:52:47.060 --> 00:52:48.929 There are some areas that have necrosis,

NOTE Confidence: 0.835043614615384

00:52:48.930 --> 00:52:50.830 some are still, you know,

NOTE Confidence: 0.835043614615384

00:52:50.830 --> 00:52:55.156 growing and some are more vascular.

NOTE Confidence: 0.835043614615384

00:52:55.160 --> 00:52:56.760 And this was the work that was done

NOTE Confidence: 0.835043614615384

00:52:56.760 --> 00:53:01.445 for example for subtyping of the

NOTE Confidence: 0.835043614615384

00:53:01.445 --> 00:53:03.732 medulloblastoma along the same line.

NOTE Confidence: 0.835043614615384

00:53:03.732 --> 00:53:06.340 When we are looking at the texture

NOTE Confidence: 0.835043614615384

00:53:06.340 --> 00:53:08.940 or heterogeneity of the tumor,

NOTE Confidence: 0.835043614615384

00:53:08.940 --> 00:53:14.380 we can apply some filters and this

NOTE Confidence: 0.835043614615384

00:53:14.380 --> 00:53:17.020 is like a example of how does these

NOTE Confidence: 0.835043614615384

00:53:17.104 --> 00:53:19.659 filters change the original image.

NOTE Confidence: 0.835043614615384

00:53:19.660 --> 00:53:21.100 For example we can pass,

NOTE Confidence: 0.835043614615384

00:53:21.100 --> 00:53:23.501 we can apply low pass and High

NOTE Confidence: 0.835043614615384

00:53:23.501 --> 00:53:25.319 Pass filter a low pass.

NOTE Confidence: 0.835043614615384

00:53:25.320 --> 00:53:28.386 Winter kind of smooths out the image,

NOTE Confidence: 0.835043614615384

00:53:28.390 --> 00:53:32.723 gets the overall view of the what

NOTE Confidence: 0.835043614615384

00:53:32.723 --> 00:53:36.056 the original vision is by in a

NOTE Confidence: 0.835043614615384

00:53:36.056 --> 00:53:38.737 high pass filter you can look more

NOTE Confidence: 0.835043614615384

00:53:38.737 --> 00:53:41.386 into the contrast or the edges

NOTE Confidence: 0.879755833333333

00:53:41.390 --> 00:53:43.054 of the image. So.

NOTE Confidence: 0.879755833333333

00:53:43.054 --> 00:53:46.100 This is, for example, a prostate cancer.

NOTE Confidence: 0.879755833333333

00:53:46.100 --> 00:53:49.453 This is how we apply these filters

NOTE Confidence: 0.879755833333333

00:53:49.453 --> 00:53:51.870 in three directions and we get

NOTE Confidence: 0.879755833333333

00:53:51.870 --> 00:53:54.909 eight different derivatives.

NOTE Confidence: 0.879755833333333

00:53:54.910 --> 00:53:57.400 Again, these are all sorts of

NOTE Confidence: 0.879755833333333

00:53:57.400 --> 00:54:00.399 manipulation that we do just to get

NOTE Confidence: 0.879755833333333

00:54:00.399 --> 00:54:02.907 more and more information about the.

NOTE Confidence: 0.879755833333333

00:54:02.910 --> 00:54:06.883 Are the tumor going above and

NOTE Confidence: 0.879755833333333

00:54:06.883 --> 00:54:10.069 beyond the intensity and shape and

NOTE Confidence: 0.879755833333333

00:54:10.069 --> 00:54:11.954 specifically trying to figure out

NOTE Confidence: 0.879755833333333

00:54:11.954 --> 00:54:13.970 what we can get in terms of the

NOTE Confidence: 0.879755833333333

00:54:14.038 --> 00:54:15.578 information from the heterogeneity

NOTE Confidence: 0.879755833333333

00:54:15.578 --> 00:54:19.820 or the texture of the tumors, so.

NOTE Confidence: 0.879755833333333

00:54:19.820 --> 00:54:23.160 I just referred to like.

NOTE Confidence: 0.879755833333333

00:54:23.160 --> 00:54:24.900 Think that you know like three

NOTE Confidence: 0.879755833333333

00:54:24.900 --> 00:54:26.974 of the works that we have done

NOTE Confidence: 0.879755833333333

00:54:26.974 --> 00:54:28.678 here could showcase of what we

NOTE Confidence: 0.879755833333333

00:54:28.678 --> 00:54:30.454 can achieve with radiomics.

NOTE Confidence: 0.879755833333333

00:54:30.454 --> 00:54:33.974 One as I mentioned is

NOTE Confidence: 0.879755833333333

00:54:33.974 --> 00:54:36.790 molecular subtyping of tumor.

NOTE Confidence: 0.879755833333333

00:54:36.790 --> 00:54:40.381 So as you all know HPV status is very

NOTE Confidence: 0.879755833333333

00:54:40.381 --> 00:54:43.250 important in terms of prognostication.

NOTE Confidence: 0.879755833333333

00:54:43.250 --> 00:54:45.530 It's indeed the first step for

NOTE Confidence: 0.879755833333333

00:54:45.530 --> 00:54:47.888 us to decide how we're going

NOTE Confidence: 0.879755833333333

00:54:47.888 --> 00:54:52.790 to stage a tumor after 2018.

NOTE Confidence: 0.879755833333333

00:54:52.790 --> 00:54:54.746 Adjustment of the AGC.

NOTE Confidence: 0.879755833333333

00:54:54.746 --> 00:54:58.271 So we tried to use radiomics features

NOTE Confidence: 0.879755833333333

00:54:58.271 --> 00:55:01.694 from Pet city to predict the HPV

NOTE Confidence: 0.879755833333333

00:55:01.694 --> 00:55:04.790 status of head and neck tumors.

NOTE Confidence: 0.879755833333333

00:55:04.790 --> 00:55:10.790 So we segmented the the.

NOTE Confidence: 0.879755833333333

00:55:10.790 --> 00:55:14.276 The primary lesion is segmented the

NOTE Confidence: 0.879755833333333

00:55:14.276 --> 00:55:17.603 metastatic lymph nodes on pet CT

NOTE Confidence: 0.879755833333333

00:55:17.603 --> 00:55:20.778 we extracted it roughly like 1000.

NOTE Confidence: 0.879755833333333

00:55:20.778 --> 00:55:23.700 Features are representing the intensity,

NOTE Confidence: 0.879755833333333

00:55:23.700 --> 00:55:27.532 shape and texture of these primary

NOTE Confidence: 0.879755833333333

00:55:27.532 --> 00:55:31.024 lesion and tumors we were using.

NOTE Confidence: 0.66507816

00:55:33.520 --> 00:55:38.248 Roughly A144 from the Cancer

NOTE Confidence: 0.66507816

00:55:38.248 --> 00:55:41.396 Imaging Archive and 291 from Yale,

NOTE Confidence: 0.66507816

00:55:41.396 --> 00:55:46.326 and we split it into a training slash,

NOTE Confidence: 0.66507816

00:55:46.326 --> 00:55:49.214 cross validation and an

NOTE Confidence: 0.66507816

00:55:49.214 --> 00:55:51.380 independent validation cohort.

NOTE Confidence: 0.66507816

00:55:51.380 --> 00:55:54.780 We were trying to see which image

NOTE Confidence: 0.66507816

00:55:54.780 --> 00:55:58.280 modality and which combination of

NOTE Confidence: 0.66507816

00:55:58.280 --> 00:56:01.095 the input variables are important for

NOTE Confidence: 0.66507816

00:56:01.095 --> 00:56:04.181 are are would be most accurate in

NOTE Confidence: 0.66507816

00:56:04.181 --> 00:56:06.839 terms of prediction of HPV status.

NOTE Confidence: 0.66507816

00:56:06.840 --> 00:56:08.800 So here you can see that it

NOTE Confidence: 0.66507816

00:56:08.800 --> 00:56:10.010 was very extensive work.

NOTE Confidence: 0.66507816

00:56:10.010 --> 00:56:12.394 We were trying to see whether pets alone,

NOTE Confidence: 0.66507816

00:56:12.400 --> 00:56:16.355 city alone or pet city

NOTE Confidence: 0.66507816

00:56:16.355 --> 00:56:19.519 information using primary tumor.

NOTE Confidence: 0.66507816

00:56:19.520 --> 00:56:22.824 Lymph nodes or the consensus of the

NOTE Confidence: 0.66507816

00:56:22.824 --> 00:56:26.728 tumor and nodes or consensus of all lymph

NOTE Confidence: 0.66507816

00:56:26.728 --> 00:56:30.094 nodes will be give us the best model.

NOTE Confidence: 0.66507816

00:56:30.100 --> 00:56:32.590 Long story short, is that what?

NOTE Confidence: 0.66507816

00:56:32.590 --> 00:56:36.321 We found that a combination of the

NOTE Confidence: 0.66507816

00:56:36.321 --> 00:56:40.050 pet CT using the consensus of the

NOTE Confidence: 0.66507816

00:56:40.050 --> 00:56:43.290 primary lesion and the lymph nodes

NOTE Confidence: 0.66507816

00:56:43.290 --> 00:56:46.128 can give us the best prediction.

NOTE Confidence: 0.66507816

00:56:46.130 --> 00:56:48.636 And these are the AU says that

NOTE Confidence: 0.66507816

00:56:48.636 --> 00:56:51.627 we could get in our independent

NOTE Confidence: 0.66507816

00:56:51.627 --> 00:56:54.059 and external validation cohorts.

NOTE Confidence: 0.66507816

00:56:54.060 --> 00:56:57.910 So you may question that, OK,

NOTE Confidence: 0.66507816

00:56:57.910 --> 00:57:02.896 so how does this really affect our,

NOTE Confidence: 0.66507816

00:57:02.900 --> 00:57:04.512 you know, staging really,

NOTE Confidence: 0.66507816

00:57:04.512 --> 00:57:06.527 because you always will have

NOTE Confidence: 0.66507816

00:57:06.527 --> 00:57:08.660 a tumor sample to decide.

NOTE Confidence: 0.66507816

00:57:08.660 --> 00:57:11.020 Now if you look at how the

NOTE Confidence: 0.66507816

00:57:11.020 --> 00:57:12.620 pathologists actually do it,

NOTE Confidence: 0.66507816

00:57:12.620 --> 00:57:15.580 there are different stages sometimes,

NOTE Confidence: 0.66507816

00:57:15.580 --> 00:57:16.193 well,

NOTE Confidence: 0.66507816

00:57:16.193 --> 00:57:18.645 technically the guideline from

NOTE Confidence: 0.66507816

00:57:18.645 --> 00:57:20.472 the American Pathological

NOTE Confidence: 0.66507816

00:57:20.472 --> 00:57:24.108 Association is that they first do.

NOTE Confidence: 0.66507816

00:57:24.110 --> 00:57:26.270 And immunohistochemistry and then they

NOTE Confidence: 0.66507816

00:57:26.270 --> 00:57:29.190 do if depending on how certain they

NOTE Confidence: 0.66507816

00:57:29.190 --> 00:57:32.390 are based on the IHC, they do the PCR.

NOTE Confidence: 0.66507816

00:57:32.390 --> 00:57:35.088 Here at Yale we pretty much go

NOTE Confidence: 0.66507816

00:57:35.088 --> 00:57:37.398 for everything we go for PCR.

NOTE Confidence: 0.66507816

00:57:37.400 --> 00:57:37.888 However,

NOTE Confidence: 0.66507816

00:57:37.888 --> 00:57:41.792 what we proposed in our paper is that

NOTE Confidence: 0.66507816

00:57:41.792 --> 00:57:46.214 this is not a substitute for tissue sampling,

NOTE Confidence: 0.66507816

00:57:46.220 --> 00:57:48.644 but this can mostly work as an adjunct

NOTE Confidence: 0.66507816

00:57:48.644 --> 00:57:50.939 to the tissue sampling results.

NOTE Confidence: 0.66507816

00:57:50.940 --> 00:57:52.860 In other words,

NOTE Confidence: 0.66507816

00:57:52.860 --> 00:57:58.560 if you have a PC order or even

NOTE Confidence: 0.66507816

00:57:58.560 --> 00:58:01.700 histochemistry that is equivocal,

NOTE Confidence: 0.66507816

00:58:01.700 --> 00:58:07.200 maybe we can use this to supplement that.

NOTE Confidence: 0.66507816

00:58:07.200 --> 00:58:11.026 Analysis and that pathology report, so.

NOTE Confidence: 0.66507816

00:58:11.026 --> 00:58:11.502 Again,

NOTE Confidence: 0.66507816

00:58:11.502 --> 00:58:14.358 something that is perhaps not going

NOTE Confidence: 0.66507816

00:58:14.358 --> 00:58:17.940 to at this point we are still far

NOTE Confidence: 0.66507816

00:58:17.940 --> 00:58:20.929 away from replacing tissue sampling,

NOTE Confidence: 0.66507816

00:58:20.929 --> 00:58:25.207 but perhaps we have some quantitative

NOTE Confidence: 0.66507816

00:58:25.207 --> 00:58:29.108 and reliable and reliable methods

NOTE Confidence: 0.66507816

00:58:29.108 --> 00:58:32.953 to supplement those whenever needed.

NOTE Confidence: 0.66507816

00:58:32.960 --> 00:58:35.376 Now how about prognostication?

NOTE Confidence: 0.66507816

00:58:35.376 --> 00:58:40.592 So we try to see whether or not using

NOTE Confidence: 0.66507816

00:58:40.592 --> 00:58:43.270 the RADIOMICS features can help

NOTE Confidence: 0.66507816

00:58:43.270 --> 00:58:45.330 with prediction and prognostication

NOTE Confidence: 0.66507816

00:58:45.330 --> 00:58:48.100 and prediction of the survival

NOTE Confidence: 0.66507816

00:58:48.100 --> 00:58:50.012 beyond the JC staging.

NOTE Confidence: 0.66507816

00:58:50.012 --> 00:58:53.420 And the reason why we looked at

NOTE Confidence: 0.66507816

00:58:53.420 --> 00:58:55.610 a JC staging was because.

NOTE Confidence: 0.66507816

00:58:55.610 --> 00:58:58.898 It's kind of like you can say like

NOTE Confidence: 0.66507816

00:58:58.898 --> 00:59:01.700 the benchmark for a prognostication.

NOTE Confidence: 0.66507816

00:59:01.700 --> 00:59:05.760 So we use the HCA is addition.

NOTE Confidence: 0.66507816

00:59:05.760 --> 00:59:08.763 We were again using a series of

NOTE Confidence: 0.66507816

00:59:08.763 --> 00:59:11.220 HPV positive and HPV negative

NOTE Confidence: 0.66507816

00:59:11.220 --> 00:59:14.916 patients and our modeling was to

NOTE Confidence: 0.66507816

00:59:14.916 --> 00:59:18.155 predict those both progression for

NOTE Confidence: 0.66507816

00:59:18.155 --> 00:59:20.855 survival and overall survival

NOTE Confidence: 0.66507816

00:59:20.855 --> 00:59:24.230 using these radiomics features and.

NOTE Confidence: 0.66507816

00:59:24.230 --> 00:59:24.922 This is,

NOTE Confidence: 0.66507816

00:59:24.922 --> 00:59:28.290 I think it can give you the gist of it.

NOTE Confidence: 0.66507816

00:59:28.290 --> 00:59:31.370 So these are a different time points,

NOTE Confidence: 0.66507816

00:59:31.370 --> 00:59:34.410 2 year, three-year, four year and five year.

NOTE Confidence: 0.66507816

00:59:34.410 --> 00:59:38.298 And as you can see for both HPV

NOTE Confidence: 0.66507816

00:59:38.298 --> 00:59:41.168 positive and for HPV negative,

NOTE Confidence: 0.66507816

00:59:41.170 --> 00:59:43.322 the RADIOMICS features could

NOTE Confidence: 0.66507816

00:59:43.322 --> 00:59:47.030 differentiate between high risk and low risk.

NOTE Confidence: 0.66507816

00:59:47.030 --> 00:59:49.990 Uh, patients? Fairly well.

NOTE Confidence: 0.66507816

00:59:49.990 --> 00:59:51.700 As you can see, uh,

NOTE Confidence: 0.66507816

00:59:51.700 --> 00:59:55.130 for HIV positive in all four time

NOTE Confidence: 0.66507816

00:59:55.130 --> 00:59:56.600 points that we

NOTE Confidence: 0.744778033636364

00:59:56.707 --> 01:00:00.368 tried, we could achieve significance.

NOTE Confidence: 0.744778033636364

01:00:00.368 --> 01:00:03.416 P value for differentiation,

NOTE Confidence: 0.744778033636364

01:00:03.420 --> 01:00:08.160 but really the agency is staging.

NOTE Confidence: 0.744778033636364

01:00:08.160 --> 01:00:10.260 Was not able to differentiate the

NOTE Confidence: 0.744778033636364

01:00:10.260 --> 01:00:12.699 low risk and high risk patients.

NOTE Confidence: 0.744778033636364

01:00:12.700 --> 01:00:16.186 Uh with this I mean even achieving

NOTE Confidence: 0.744778033636364

01:00:16.186 --> 01:00:17.680 the statistical significance,

NOTE Confidence: 0.744778033636364

01:00:17.680 --> 01:00:20.480 I should note that we actually excluded

NOTE Confidence: 0.744778033636364

01:00:20.480 --> 01:00:23.996 any stage four patients from our

NOTE Confidence: 0.744778033636364

01:00:23.996 --> 01:00:27.820 analysis and the same thing as you.

NOTE Confidence: 0.744778033636364

01:00:27.820 --> 01:00:30.040 This was actually, I'm sorry,

NOTE Confidence: 0.744778033636364

01:00:30.040 --> 01:00:32.762 this was an HP negative series, ohh,

NOTE Confidence: 0.744778033636364

01:00:32.762 --> 01:00:34.694 sorry, this is the overall survival,

NOTE Confidence: 0.744778033636364

01:00:34.700 --> 01:00:37.160 this is the progression free survival,

NOTE Confidence: 0.744778033636364

01:00:37.160 --> 01:00:40.676 so kind of. Same story here.

NOTE Confidence: 0.744778033636364

01:00:40.680 --> 01:00:43.158 Could be I forgot to include this

NOTE Confidence: 0.744778033636364

01:00:43.158 --> 01:00:45.750 slide about the HPV negative series.

NOTE Confidence: 0.744778033636364

01:00:45.750 --> 01:00:50.714 But the bottom line is that we and

NOTE Confidence: 0.744778033636364

01:00:50.714 --> 01:00:54.330 the way we envision this is that in

NOTE Confidence: 0.744778033636364

01:00:54.443 --> 01:00:59.368 future in addition to just tumor size,

NOTE Confidence: 0.744778033636364

01:00:59.370 --> 01:01:02.262 lymph node size or the anatomical

NOTE Confidence: 0.744778033636364

01:01:02.262 --> 01:01:04.190 extension of the tumor,

NOTE Confidence: 0.744778033636364

01:01:04.190 --> 01:01:07.100 we probably can get a bunch

NOTE Confidence: 0.744778033636364

01:01:07.100 --> 01:01:09.970 of numbers that can help us.

NOTE Confidence: 0.744778033636364

01:01:09.970 --> 01:01:11.218 Bitter stage, the patient.

NOTE Confidence: 0.744778033636364

01:01:11.218 --> 01:01:13.990 This is based on the very baseline pity.

NOTE Confidence: 0.744778033636364

01:01:13.990 --> 01:01:18.580 This is how currently we proceed

NOTE Confidence: 0.744778033636364

01:01:18.580 --> 01:01:20.892 to stage our patients.

NOTE Confidence: 0.744778033636364

01:01:20.892 --> 01:01:24.597 So if we have a better way of staging

NOTE Confidence: 0.744778033636364

01:01:24.597 --> 01:01:27.971 them at the baseline in terms of

NOTE Confidence: 0.744778033636364

01:01:27.971 --> 01:01:30.850 the survival and prognostication.

NOTE Confidence: 0.744778033636364

01:01:30.850 --> 01:01:33.944 Then we will have better way of

NOTE Confidence: 0.744778033636364

01:01:33.944 --> 01:01:35.542 treatment planning and smarter

NOTE Confidence: 0.744778033636364

01:01:35.542 --> 01:01:37.544 way of treatment planning, so.

NOTE Confidence: 0.744778033636364

01:01:37.544 --> 01:01:41.562 I we envision that perhaps in New

NOTE Confidence: 0.744778033636364

01:01:41.562 --> 01:01:45.528 York near future in addition to.

NOTE Confidence: 0.744778033636364

01:01:45.530 --> 01:01:47.252 General you know like a staging

NOTE Confidence: 0.744778033636364

01:01:47.252 --> 01:01:49.089 numbers we may have like more

NOTE Confidence: 0.744778033636364

01:01:49.089 --> 01:01:50.349 sophisticated numbers that can

NOTE Confidence: 0.744778033636364

01:01:50.349 --> 01:01:52.288 tell us this is a low risk,

NOTE Confidence: 0.744778033636364

01:01:52.290 --> 01:01:55.042 this is a high risk patient in terms

NOTE Confidence: 0.744778033636364

01:01:55.042 --> 01:01:58.338 of the survival and then finally.

NOTE Confidence: 0.72370419625

01:02:00.430 --> 01:02:04.214 We did look to see if there are.

NOTE Confidence: 0.72370419625

01:02:04.220 --> 01:02:09.356 If Radiomics can help predict locoregional

NOTE Confidence: 0.72370419625

01:02:09.360 --> 01:02:12.960 progression after radiotherapy in

NOTE Confidence: 0.72370419625

01:02:12.960 --> 01:02:17.660 HPV associated oropharyngeal cancer.

NOTE Confidence: 0.72370419625

01:02:17.660 --> 01:02:20.716 And this is a very good follow up

NOTE Confidence: 0.72370419625

01:02:20.716 --> 01:02:22.679 to presentation by Doctor Mehra

NOTE Confidence: 0.72370419625

01:02:22.679 --> 01:02:29.290 and the E 3311 in the sense that

NOTE Confidence: 0.72370419625

01:02:29.290 --> 01:02:33.430 these patients are potential.

NOTE Confidence: 0.72370419625

01:02:33.430 --> 01:02:35.830 Candidates for intensity reduction

NOTE Confidence: 0.72370419625

01:02:35.830 --> 01:02:38.230 in terms of radiotherapy.

NOTE Confidence: 0.72370419625

01:02:38.230 --> 01:02:42.424 So if we know that who are more at

NOTE Confidence: 0.72370419625

01:02:42.424 --> 01:02:46.490 risk of post radiotherapy regional

NOTE Confidence: 0.72370419625

01:02:46.490 --> 01:02:50.198 progression and who is less likely

NOTE Confidence: 0.72370419625

01:02:50.198 --> 01:02:53.079 to have the original progression,

NOTE Confidence: 0.72370419625

01:02:53.079 --> 01:02:55.533 then you can perhaps use that

NOTE Confidence: 0.72370419625

01:02:55.533 --> 01:02:56.760 for treatment planning.

NOTE Confidence: 0.8605664325

01:02:59.200 --> 01:03:01.570 We use kind of similar methodology

NOTE Confidence: 0.8605664325

01:03:01.570 --> 01:03:04.819 that we use for survival prediction,

NOTE Confidence: 0.8605664325

01:03:04.820 --> 01:03:08.551 this time only focused on HPV positive

NOTE Confidence: 0.8605664325

01:03:08.551 --> 01:03:11.582 patients would receive radiotherapy and

NOTE Confidence: 0.8605664325

01:03:11.582 --> 01:03:17.000 as you can see here we could basically.

NOTE Confidence: 0.771835821666667

01:03:20.570 --> 01:03:22.814 Predict the overall survival

NOTE Confidence: 0.771835821666667

01:03:22.814 --> 01:03:26.180 progression for so and local regional

NOTE Confidence: 0.771835821666667

01:03:26.265 --> 01:03:30.218 recurrence Indian which is better?

NOTE Confidence: 0.771835821666667

01:03:30.218 --> 01:03:34.398 Accuracy compared to the agency.

NOTE Confidence: 0.771835821666667

01:03:34.400 --> 01:03:36.710 If we want to use again agency

NOTE Confidence: 0.771835821666667

01:03:36.710 --> 01:03:39.000 aging as a prognosticator,

NOTE Confidence: 0.771835821666667

01:03:39.000 --> 01:03:41.956 one thing that I should mention is

NOTE Confidence: 0.771835821666667

01:03:41.956 --> 01:03:44.354 that you may see that, you know,

NOTE Confidence: 0.771835821666667

01:03:44.354 --> 01:03:47.720 like over time we kind of lose the accuracy.

NOTE Confidence: 0.771835821666667

01:03:47.720 --> 01:03:50.680 It's simply because we had.

NOTE Confidence: 0.771835821666667

01:03:50.680 --> 01:03:53.320 Smaller number of patients who

NOTE Confidence: 0.771835821666667

01:03:53.320 --> 01:03:55.960 were followed beyond three years.

NOTE Confidence: 0.771835821666667

01:03:55.960 --> 01:03:58.516 So when you have less data

NOTE Confidence: 0.771835821666667

01:03:58.516 --> 01:04:00.220 point your your model,

NOTE Confidence: 0.771835821666667

01:04:00.220 --> 01:04:02.695 your machine learning model just

NOTE Confidence: 0.771835821666667

01:04:02.695 --> 01:04:05.420 would not have enough input to

NOTE Confidence: 0.771835821666667

01:04:05.420 --> 01:04:08.960 generate good prognostic model.

NOTE Confidence: 0.771835821666667

01:04:08.960 --> 01:04:14.224 So in general this is basically a.

NOTE Confidence: 0.881760064

01:04:16.960 --> 01:04:21.290 A very detailed information detailed

NOTE Confidence: 0.881760064

01:04:21.290 --> 01:04:24.340 of the local regional recurrence,

NOTE Confidence: 0.881760064

01:04:24.340 --> 01:04:25.846 local regional preparation

NOTE Confidence: 0.881760064

01:04:25.846 --> 01:04:28.858 and based on the AGC staging,

NOTE Confidence: 0.881760064

01:04:28.860 --> 01:04:30.884 different stages, oral stage,

NOTE Confidence: 0.881760064

01:04:30.884 --> 01:04:33.920 the age of the patient and

NOTE Confidence: 0.881760064

01:04:34.011 --> 01:04:36.087 how did they reconcile.

NOTE Confidence: 0.881760064

01:04:36.090 --> 01:04:39.744 So in general, Radiomics offers an

NOTE Confidence: 0.881760064

01:04:39.744 --> 01:04:43.250 automated way of image analysis.

NOTE Confidence: 0.881760064

01:04:43.250 --> 01:04:46.778 It will provide a numeric numbers

NOTE Confidence: 0.881760064

01:04:46.778 --> 01:04:49.130 and quantitative metrics for

NOTE Confidence: 0.881760064

01:04:49.232 --> 01:04:51.890 machine learning algorithms.

NOTE Confidence: 0.881760064

01:04:51.890 --> 01:04:55.490 And I tried to present some of the

NOTE Confidence: 0.881760064

01:04:55.490 --> 01:04:58.954 work that we have done here as how

NOTE Confidence: 0.881760064

01:04:58.954 --> 01:05:02.749 we can use this for differentiation,

NOTE Confidence: 0.881760064

01:05:02.750 --> 01:05:05.790 molecular subtyping of the tumors,

NOTE Confidence: 0.881760064

01:05:05.790 --> 01:05:10.115 prediction of the treatment response

NOTE Confidence: 0.881760064

01:05:10.115 --> 01:05:12.710 and survival prognostication.

NOTE Confidence: 0.729899593

01:05:15.030 --> 01:05:18.294 So yeah, let's hope that it

NOTE Confidence: 0.729899593

01:05:18.294 --> 01:05:20.780 was helpful for you. Thank

NOTE Confidence: 0.682908692

01:05:20.790 --> 01:05:23.200 you Doctor Pravesh, that was.

NOTE Confidence: 0.682908692

01:05:23.200 --> 01:05:27.169 Really exciting stuff.

NOTE Confidence: 0.682908692

01:05:27.170 --> 01:05:29.606 There are, there are some questions.

NOTE Confidence: 0.682908692

01:05:29.610 --> 01:05:31.584 Thank you everyone for staying on time.

NOTE Confidence: 0.682908692

01:05:31.590 --> 01:05:33.536 We're pretty much right on time where

NOTE Confidence: 0.682908692

01:05:33.536 --> 01:05:35.647 we want it to be which is great.

NOTE Confidence: 0.682908692

01:05:35.650 --> 01:05:37.875 There are some questions that

NOTE Confidence: 0.682908692

01:05:37.875 --> 01:05:40.890 people had for the first talk there

NOTE Confidence: 0.682908692

01:05:40.890 --> 01:05:44.471 was a question but are we doing

NOTE Confidence: 0.682908692

01:05:44.471 --> 01:05:46.526 deep intensification already?

NOTE Confidence: 0.682908692

01:05:46.530 --> 01:05:48.738 I'll answer that one is the

NOTE Confidence: 0.682908692

01:05:48.738 --> 01:05:50.210 short answer is yes.

NOTE Confidence: 0.682908692

01:05:50.210 --> 01:05:52.334 You know a lot of the as you could

NOTE Confidence: 0.682908692

01:05:52.334 --> 01:05:54.922 see there were I don't know maybe 5060

NOTE Confidence: 0.682908692

01:05:54.922 --> 01:05:57.754 academic centers I'm recruiting to the.

NOTE Confidence: 0.682908692

01:05:57.760 --> 01:06:01.336 He called 3311 trial and you know we

NOTE Confidence: 0.682908692

01:06:01.336 --> 01:06:04.713 were seeing results you know before

NOTE Confidence: 0.682908692

01:06:04.713 --> 01:06:07.693 publication and patients were asking

NOTE Confidence: 0.682908692

01:06:07.693 --> 01:06:10.383 and so off trial you know there

NOTE Confidence: 0.682908692

01:06:10.383 --> 01:06:11.838 was some discussions about this

NOTE Confidence: 0.682908692

01:06:11.838 --> 01:06:14.270 and now once the abstract came out

NOTE Confidence: 0.682908692

01:06:14.270 --> 01:06:15.706 did intensification is happening.

NOTE Confidence: 0.682908692

01:06:15.710 --> 01:06:18.398 I mean some might say tours alone

NOTE Confidence: 0.682908692

01:06:18.398 --> 01:06:20.519 is densification but also deep

NOTE Confidence: 0.682908692

01:06:20.519 --> 01:06:22.759 intensification of the dose of

NOTE Confidence: 0.682908692

01:06:22.759 --> 01:06:24.615 radiation is happening already

NOTE Confidence: 0.682908692

01:06:24.615 --> 01:06:26.805 at at major academic centers.

NOTE Confidence: 0.682908692

01:06:26.810 --> 01:06:28.710 But I think it has to be done in a mindful.

NOTE Confidence: 0.682908692

01:06:28.710 --> 01:06:31.462 Thoughtful way, multidisciplinary way,

NOTE Confidence: 0.682908692

01:06:31.462 --> 01:06:32.838 you know,

NOTE Confidence: 0.682908692

01:06:32.840 --> 01:06:36.466 with with all options presented to patients.

NOTE Confidence: 0.682908692

01:06:36.470 --> 01:06:37.298 Doctor Verma,

NOTE Confidence: 0.682908692

01:06:37.298 --> 01:06:39.368 there was a question about

NOTE Confidence: 0.682908692

01:06:39.370 --> 01:06:42.170 tonsils versus base of tongue.

NOTE Confidence: 0.682908692

01:06:42.170 --> 01:06:46.018 Is 1 easier to approach than the other?

NOTE Confidence: 0.682908692

01:06:46.020 --> 01:06:47.410 Does it impact your decision

NOTE Confidence: 0.682908692

01:06:47.410 --> 01:06:48.522 of what you know?

NOTE Confidence: 0.682908692

01:06:48.530 --> 01:06:50.072 How does that impact your decision

NOTE Confidence: 0.682908692

01:06:50.072 --> 01:06:52.204 to do tours if it's in the base

NOTE Confidence: 0.682908692

01:06:52.204 --> 01:06:53.514 of tongue versus the tonsil?

NOTE Confidence: 0.852135526

01:06:55.820 --> 01:06:57.440 Yeah, that's a good question.

NOTE Confidence: 0.852135526

01:06:57.440 --> 01:06:59.544 I think considerations might

NOTE Confidence: 0.852135526

01:06:59.544 --> 01:07:01.648 be different and particularly

NOTE Confidence: 0.852135526

01:07:01.648 --> 01:07:03.860 the anatomical considerations.

NOTE Confidence: 0.852135526

01:07:03.860 --> 01:07:05.120 If it's a tonsil tumor,

NOTE Confidence: 0.852135526

01:07:05.120 --> 01:07:07.500 you already know it's lateralized,

NOTE Confidence: 0.852135526

01:07:07.500 --> 01:07:08.708 a tongue based tumor.

NOTE Confidence: 0.852135526

01:07:08.708 --> 01:07:10.218 You still have to evaluate.

NOTE Confidence: 0.852135526

01:07:10.220 --> 01:07:13.400 If it's approaching midline for example,

NOTE Confidence: 0.852135526

01:07:13.400 --> 01:07:15.596 then you know we would probably

NOTE Confidence: 0.852135526

01:07:15.596 --> 01:07:17.610 not recommend doing a transoral

NOTE Confidence: 0.852135526

01:07:17.610 --> 01:07:20.472 resection also because we would have

NOTE Confidence: 0.852135526

01:07:20.472 --> 01:07:22.965 to consider management of both sides

NOTE Confidence: 0.852135526

01:07:22.965 --> 01:07:25.282 of the neck in terms of potential.

NOTE Confidence: 0.852135526

01:07:25.290 --> 01:07:28.220 Regional metastasis to lymph nodes.

NOTE Confidence: 0.852135526

01:07:28.220 --> 01:07:30.509 But you know I think if it's,

NOTE Confidence: 0.852135526

01:07:30.510 --> 01:07:32.094 it's not that we would choose

NOTE Confidence: 0.852135526

01:07:32.094 --> 01:07:33.870 one over the other necessarily.

NOTE Confidence: 0.852135526

01:07:33.870 --> 01:07:35.826 I think it's just different considerations,

NOTE Confidence: 0.852135526

01:07:35.830 --> 01:07:36.940 but that's a great question.

NOTE Confidence: 0.831908686

01:07:37.650 --> 01:07:38.874 And then there was a question

NOTE Confidence: 0.831908686

01:07:38.874 --> 01:07:40.369 which you kind of answered in that

NOTE Confidence: 0.831908686

01:07:40.369 --> 01:07:41.853 is when do you do bilateral neck

NOTE Confidence: 0.831908686

01:07:41.903 --> 01:07:43.409 dissections along with tours and how

NOTE Confidence: 0.831908686

01:07:43.409 --> 01:07:44.906 does that factor into your decision

NOTE Confidence: 0.831908686

01:07:44.906 --> 01:07:46.607 of whether or not to do tours?

NOTE Confidence: 0.827773608260869

01:07:47.730 --> 01:07:50.160 Yep. So yeah bilateral neck dissection

NOTE Confidence: 0.827773608260869

01:07:50.160 --> 01:07:52.578 would most would probably not be

NOTE Confidence: 0.827773608260869

01:07:52.578 --> 01:07:54.413 considered in a well lateralized

NOTE Confidence: 0.827773608260869

01:07:54.413 --> 01:07:56.778 tonsil tumor which inherently is that.

NOTE Confidence: 0.827773608260869

01:07:56.780 --> 01:07:59.013 But in a tongue based tumor that

NOTE Confidence: 0.827773608260869

01:07:59.013 --> 01:08:01.240 you're doing it towards resection on

NOTE Confidence: 0.827773608260869

01:08:01.240 --> 01:08:04.280 and there is approach even you know a

NOTE Confidence: 0.827773608260869

01:08:04.280 --> 01:08:06.440 couple millimeter or millimeter or so

NOTE Confidence: 0.827773608260869

01:08:06.512 --> 01:08:09.064 between you know close to midline we we

NOTE Confidence: 0.827773608260869

01:08:09.064 --> 01:08:11.205 have to consider you know management

NOTE Confidence: 0.827773608260869

01:08:11.205 --> 01:08:13.270 of both necks and this is actually

NOTE Confidence: 0.827773608260869

01:08:13.329 --> 01:08:14.881 where again the multidisciplinary

NOTE Confidence: 0.827773608260869

01:08:14.881 --> 01:08:16.821 approach really matters and before

NOTE Confidence: 0.827773608260869

01:08:16.821 --> 01:08:18.909 we consider or proceed with this.

NOTE Confidence: 0.827773608260869

01:08:18.910 --> 01:08:20.083 Kind of surgery,

NOTE Confidence: 0.827773608260869

01:08:20.083 --> 01:08:22.429 we have a radiation oncology and

NOTE Confidence: 0.827773608260869

01:08:22.429 --> 01:08:24.651 medical oncology colleagues see the

NOTE Confidence: 0.827773608260869

01:08:24.651 --> 01:08:27.285 patient and we could consider either

NOTE Confidence: 0.827773608260869

01:08:27.360 --> 01:08:29.916 not doing the transoral resection and

NOTE Confidence: 0.827773608260869

01:08:29.916 --> 01:08:32.242 doing chemo radiation or if there's

NOTE Confidence: 0.827773608260869

01:08:32.242 --> 01:08:34.108 some factor that you know really

NOTE Confidence: 0.827773608260869

01:08:34.108 --> 01:08:36.320 pushes us towards transoral surgery,

NOTE Confidence: 0.827773608260869

01:08:36.320 --> 01:08:38.396 we could consider bilateral neck dissections.

NOTE Confidence: 0.712619793

01:08:40.370 --> 01:08:43.072 Great. And then Doctor Paul Bashere was

NOTE Confidence: 0.712619793

01:08:43.072 --> 01:08:45.610 a question about, well, first of all,

NOTE Confidence: 0.712619793

01:08:45.610 --> 01:08:47.335 someone coming is very exciting

NOTE Confidence: 0.712619793

01:08:47.335 --> 01:08:50.164 how you can use radiomic data to

NOTE Confidence: 0.712619793

01:08:50.164 --> 01:08:53.049 help with prognostication and very

NOTE Confidence: 0.712619793

01:08:53.049 --> 01:08:57.938 interesting to hear your reviews about.

NOTE Confidence: 0.712619793

01:08:57.940 --> 01:09:00.708 You know one day potentially putting in it

NOTE Confidence: 0.712619793

01:09:00.708 --> 01:09:03.096 into something like a staging system even,

NOTE Confidence: 0.712619793

01:09:03.100 --> 01:09:04.212 which is really exciting.

NOTE Confidence: 0.712619793

01:09:04.212 --> 01:09:07.012 I mean right now we use pretty crude metrics

NOTE Confidence: 0.712619793

01:09:07.012 --> 01:09:09.511 on imaging like invasion into this muscle.

NOTE Confidence: 0.712619793

01:09:09.520 --> 01:09:11.050 Therefore it is this stage,

NOTE Confidence: 0.712619793

01:09:11.050 --> 01:09:13.505 but you're you're proposing in

NOTE Confidence: 0.712619793

01:09:13.505 --> 01:09:16.234 the future to use on almost,

NOTE Confidence: 0.712619793

01:09:16.234 --> 01:09:18.526 you know numeric data from RADIOMICS

NOTE Confidence: 0.712619793

01:09:18.526 --> 01:09:20.690 to help with pronunciation.

NOTE Confidence: 0.712619793

01:09:20.690 --> 01:09:22.657 Is that is that a true statement

NOTE Confidence: 0.8028179

01:09:23.670 --> 01:09:28.840 and I just want to add that, for example.

NOTE Confidence: 0.8028179

01:09:28.840 --> 01:09:35.193 Right now the Umm, we are working again.

NOTE Confidence: 0.8028179

01:09:35.193 --> 01:09:37.308 It's kind of pioneered by

NOTE Confidence: 0.8028179

01:09:37.308 --> 01:09:39.550 my colleague Dr Maria Mboya,

NOTE Confidence: 0.8028179

01:09:39.550 --> 01:09:41.446 who is working on brain tumors.

NOTE Confidence: 0.8028179

01:09:41.450 --> 01:09:46.110 We have already implemented the.

NOTE Confidence: 0.8028179

01:09:46.110 --> 01:09:48.550 The pipeline that extracted

NOTE Confidence: 0.8028179

01:09:48.550 --> 01:09:49.770 radiomics numbers.

NOTE Confidence: 0.8028179

01:09:49.770 --> 01:09:51.294 So technically speaking

NOTE Confidence: 0.8028179

01:09:51.294 --> 01:09:53.834 she has like an automated.

NOTE Confidence: 0.8028179

01:09:53.840 --> 01:09:56.367 She also had work on an automated

NOTE Confidence: 0.8028179

01:09:56.367 --> 01:09:58.732 segmentation of brain tumors, so.

NOTE Confidence: 0.8028179

01:09:58.732 --> 01:10:01.740 Umm, from the packs,

NOTE Confidence: 0.8028179

01:10:01.740 --> 01:10:03.777 like from the visage packs that, yeah,

NOTE Confidence: 0.8028179

01:10:03.777 --> 01:10:06.699 you can directly get the numbers,

NOTE Confidence: 0.8028179

01:10:06.700 --> 01:10:09.017 the radio mix number for brain tumors.

NOTE Confidence: 0.8028179

01:10:09.020 --> 01:10:12.476 So we can, you know, technically easily

NOTE Confidence: 0.8028179

01:10:12.476 --> 01:10:18.528 apply this to your or pet cities.

NOTE Confidence: 0.8028179

01:10:18.528 --> 01:10:25.288 And get those numbers and we talked about.

NOTE Confidence: 0.8028179

01:10:25.290 --> 01:10:26.775 We literally talked about the

NOTE Confidence: 0.8028179

01:10:26.775 --> 01:10:27.963 models that I developed.

NOTE Confidence: 0.8028179

01:10:27.970 --> 01:10:30.320 It's just that I use.

NOTE Confidence: 0.8028179

01:10:30.320 --> 01:10:32.336 Our coding for um,

NOTE Confidence: 0.8028179

01:10:32.336 --> 01:10:34.352 the machine learning algorithms

NOTE Confidence: 0.8028179

01:10:34.352 --> 01:10:37.430 and the the they were you know.

NOTE Confidence: 0.655242425

01:10:39.600 --> 01:10:43.728 The our practice system has a a Python

NOTE Confidence: 0.655242425

01:10:43.728 --> 01:10:46.224 on basically language compatibility.

NOTE Confidence: 0.655242425

01:10:46.224 --> 01:10:51.348 But yes, I mean literally here we

NOTE Confidence: 0.655242425

01:10:51.348 --> 01:10:55.260 are very close to you know, getting

NOTE Confidence: 0.655242425

01:10:55.260 --> 01:10:58.628 those numbers on on on our tax system.

NOTE Confidence: 0.793390114166667

01:10:59.300 --> 01:11:00.626 Great. That's wonderful.

NOTE Confidence: 0.793390114166667

01:11:00.626 --> 01:11:02.836 And then there's another question

NOTE Confidence: 0.793390114166667

01:11:02.836 --> 01:11:05.040 about how about using radiomics

NOTE Confidence: 0.793390114166667

01:11:05.040 --> 01:11:06.704 to predict extranodal extension

NOTE Confidence: 0.793390114166667

01:11:06.704 --> 01:11:09.127 in a lymph node in the neck,

NOTE Confidence: 0.793390114166667

01:11:09.130 --> 01:11:11.735 which could totally change whether

NOTE Confidence: 0.793390114166667

01:11:11.735 --> 01:11:15.336 or not we recommend surgery or not

NOTE Confidence: 0.793390114166667

01:11:15.336 --> 01:11:18.048 based on the current NCCN guideline,

NOTE Confidence: 0.793390114166667

01:11:18.050 --> 01:11:18.863 treatment recommendations and

NOTE Confidence: 0.793390114166667

01:11:18.863 --> 01:11:20.489 what are your thoughts on that?

NOTE Confidence: 0.70848

01:11:20.560 --> 01:11:26.112 Yeah, so actually. Benjamin Connor,

NOTE Confidence: 0.70848

01:11:26.112 --> 01:11:29.628 who is a radiation oncology resident,

NOTE Confidence: 0.70848

01:11:29.630 --> 01:11:32.158 he's now at the Dana Farber's.

NOTE Confidence: 0.70848

01:11:32.158 --> 01:11:33.898 He developed that they use

NOTE Confidence: 0.70848

01:11:33.898 --> 01:11:35.290 a deep learning model.

NOTE Confidence: 0.70848

01:11:35.290 --> 01:11:38.380 We actually even tried radomes which

NOTE Confidence: 0.70848

01:11:38.380 --> 01:11:41.420 was creating like a similar accuracy.

NOTE Confidence: 0.675268712

01:11:43.480 --> 01:11:45.940 And at the time, yeah,

NOTE Confidence: 0.675268712

01:11:45.940 --> 01:11:47.935 like he was about to leave Yale.

NOTE Confidence: 0.675268712

01:11:47.940 --> 01:11:50.520 We talked about bringing in his

NOTE Confidence: 0.675268712

01:11:50.520 --> 01:11:53.440 model to in our park system.

NOTE Confidence: 0.675268712

01:11:53.440 --> 01:11:54.313 It didn't work.

NOTE Confidence: 0.675268712

01:11:54.313 --> 01:11:56.059 And now he's at Dana Farber.

NOTE Confidence: 0.675268712

01:11:56.060 --> 01:11:58.008 They also have like

NOTE Confidence: 0.675268712

01:11:58.008 --> 01:12:00.443 similar pack system as us.

NOTE Confidence: 0.675268712

01:12:00.450 --> 01:12:02.280 I know that he's working on

NOTE Confidence: 0.675268712

01:12:02.280 --> 01:12:04.581 it and his model has like an

NOTE Confidence: 0.675268712

01:12:04.581 --> 01:12:06.814 accuracy close to 0 point like

NOTE Confidence: 0.675268712

01:12:06.814 --> 01:12:09.670 80% and it was even more accurate

NOTE Confidence: 0.675268712

01:12:09.763 --> 01:12:12.423 than radiologist for prediction

NOTE Confidence: 0.675268712

01:12:12.423 --> 01:12:15.083 of the extranodal extension.

NOTE Confidence: 0.675268712

01:12:15.090 --> 01:12:21.088 So I do believe that we are very

NOTE Confidence: 0.675268712

01:12:21.088 --> 01:12:23.404 close to really implementing all of

NOTE Confidence: 0.675268712

01:12:23.404 --> 01:12:25.500 these in our clinical day-to-day.

NOTE Confidence: 0.865022534285714

01:12:27.410 --> 01:12:28.906 And there's one more

NOTE Confidence: 0.865022534285714

01:12:28.906 --> 01:12:30.457 question for you, Professor.

NOTE Confidence: 0.865022534285714

01:12:30.457 --> 01:12:32.592 There are groups of patients

NOTE Confidence: 0.865022534285714

01:12:32.592 --> 01:12:34.818 for whom radiomics or machine

NOTE Confidence: 0.865022534285714

01:12:34.818 --> 01:12:36.610 learning models are not,

NOTE Confidence: 0.865022534285714

01:12:36.610 --> 01:12:38.005 are not as predictive that

NOTE Confidence: 0.865022534285714

01:12:38.005 --> 01:12:39.400 you just know up front.

NOTE Confidence: 0.896118867857143

01:12:40.100 --> 01:12:42.718 So we are our models are as

NOTE Confidence: 0.896118867857143

01:12:42.718 --> 01:12:45.669 good as the data that we have.

NOTE Confidence: 0.896118867857143

01:12:45.670 --> 01:12:47.511 So that's why I mean when I

NOTE Confidence: 0.896118867857143

01:12:47.511 --> 01:12:49.112 mentioned that for example we do

NOTE Confidence: 0.896118867857143

01:12:49.112 --> 01:12:50.869 not have if we don't have data

NOTE Confidence: 0.896118867857143

01:12:50.933 --> 01:12:52.679 for you know long term prediction

NOTE Confidence: 0.896118867857143

01:12:52.679 --> 01:12:54.601 or models are not working.

NOTE Confidence: 0.896118867857143

01:12:54.601 --> 01:12:59.858 So we barely have data on HPV.

NOTE Confidence: 0.896118867857143

01:12:59.860 --> 01:13:01.000 Negative patients.

NOTE Confidence: 0.896118867857143

01:13:01.000 --> 01:13:05.560 So our models are less accurate for HPV,

NOTE Confidence: 0.896118867857143

01:13:05.560 --> 01:13:08.030 negative or for angio cancer.

NOTE Confidence: 0.93468278

01:13:10.140 --> 01:13:13.682 It's. It's only works if we have

NOTE Confidence: 0.93468278

01:13:13.682 --> 01:13:18.320 enough data and yet for example.

NOTE Confidence: 0.93468278

01:13:18.320 --> 01:13:21.638 Since the introduction of PD1 inhibitor,

NOTE Confidence: 0.93468278

01:13:21.640 --> 01:13:25.140 the two the treatment response has changed.

NOTE Confidence: 0.93468278

01:13:25.140 --> 01:13:27.669 So now we have to train a new set

NOTE Confidence: 0.93468278

01:13:27.669 --> 01:13:30.298 of models for prediction of how,

NOTE Confidence: 0.93468278

01:13:30.300 --> 01:13:32.757 how this is gonna you know like

NOTE Confidence: 0.93468278

01:13:32.757 --> 01:13:35.211 how how would that affect the

NOTE Confidence: 0.93468278

01:13:35.211 --> 01:13:37.406 the survival of the patients.

NOTE Confidence: 0.93468278

01:13:37.410 --> 01:13:41.178 So the the all the models that we

NOTE Confidence: 0.93468278

01:13:41.178 --> 01:13:44.680 developed were based on information that

NOTE Confidence: 0.93468278

01:13:44.680 --> 01:13:48.936 came from somewhere from 2011 to 2.

NOTE Confidence: 0.93468278

01:13:48.940 --> 01:13:52.268 1016 so there is a lag between the

NOTE Confidence: 0.93468278

01:13:52.268 --> 01:13:55.541 models of your developing and the

NOTE Confidence: 0.93468278

01:13:55.541 --> 01:13:57.375 current cutting edge treatments.

NOTE Confidence: 0.93468278

01:13:57.375 --> 01:14:00.280 We we have to retrain the models

NOTE Confidence: 0.93468278

01:14:00.356 --> 01:14:02.846 based on the the most up-to-date

NOTE Confidence: 0.93468278

01:14:02.846 --> 01:14:04.506 treatments that we have.

NOTE Confidence: 0.78188524

01:14:07.560 --> 01:14:08.944 Very interesting, very interesting.

NOTE Confidence: 0.78188524

01:14:08.944 --> 01:14:09.956 All right. Well,

NOTE Confidence: 0.78188524

01:14:09.956 --> 01:14:12.639 I think that answers all the questions.

NOTE Confidence: 0.78188524

01:14:12.640 --> 01:14:15.160 I wanted to thank our speakers,

NOTE Confidence: 0.78188524

01:14:15.160 --> 01:14:17.038 doctor Avanti Verma,

NOTE Confidence: 0.78188524

01:14:17.038 --> 01:14:20.148 doctor Sam Kavesh for joining us and

NOTE Confidence: 0.78188524

01:14:20.148 --> 01:14:22.448 we want to thank all the participants

NOTE Confidence: 0.78188524

01:14:22.448 --> 01:14:25.528 who logged in today and the ones who

NOTE Confidence: 0.78188524

01:14:25.528 --> 01:14:28.354 will also see this on the website.

NOTE Confidence: 0.78188524

01:14:28.354 --> 01:14:31.222 This will be posted on the

NOTE Confidence: 0.78188524

01:14:31.222 --> 01:14:33.140 Twitter for Yale Cancer Center,

NOTE Confidence: 0.78188524

01:14:33.140 --> 01:14:36.239 will be on the Yale Cancer website and.

NOTE Confidence: 0.78188524

01:14:36.240 --> 01:14:37.550 Please reach out to if

NOTE Confidence: 0.78188524

01:14:37.550 --> 01:14:38.598 you have any questions.

NOTE Confidence: 0.78188524

01:14:38.600 --> 01:14:40.328 Thank you all very much for joining us.

NOTE Confidence: 0.9789504

01:14:41.450 --> 01:14:46.000 Thank you. Thank you.