The Yale Smilow Cancer Center CME event on head and neck cancer. We are really happy to have you all join us and we’re very happy to have these illustrious speakers. It’s an interesting topic that I think you find interesting. I mean, you’re logging in, you saw the program, so, you know, obviously you do. This is interesting because our speakers in talking about redefining resectability and head and neck cancer.
None of them are actually had an extra cancer surgeons, interestingly. But I think that’s just speaks to the importance of having a multidisciplinary team in some of our most challenging head neck cancer cases. So we have 4 speakers today and our first talk is by Doctor Mandell. He is a professor of neurosurgery, executive vice chair and the director of Yales. Spine oncology program. Spine tumor program. He’s going to be speaking to us about the surgical management of head and neck spine tumors.
We often look at these types of tumors. We look at their imaging and we kind of shriek and we wonder what to do as head next to it. And even some of the, you know, the, the advanced head next turn would do some of the craziest surgery. But when it starts involving the spine, we often start thinking about unresectable ability palliative. But we’re going to hear doctor Mandell’s perspective on this. Thank you, doctor Mendel. Thank you, guys. So thank you sell
for inviting me to give this talk.

I've asked to talk about the surgical management of head and explain tumors.

So Justin, I wanted to start with a couple of generic slides in a sense that spine tumors involving all cancer types and can be aggressive and debilitating causing significant amount of pain and rapid development of neurological problems.

 Especially when it comes to the neck cervical problems, patient can progress to paraparesis paralysis, typically it can affect arms, legs, bowel, bladder fraction, increase all kinds of problems.

And so the uniqueness of spine
On oncology, we're dealing with all types of cancers and a lot of these cancers ended up in the neck. Some of that wanted to start with these crazy slides at once I put together and that is an operative decision of the algorithm of how to manage a lot of these problems. As mentioned, you start seeing these lesions in the neck like what are you going to do and all of these things that you see here and maybe not a lot of science into what we do makes the decision making very difficult and not just that. There's actually...
a paper that published that the impact of weekend hospital admissions on the timing of intervention and outcome after surgery shows that if we get called for tumour cases on a Friday, Saturday or Sunday. Sometimes we don’t do the same thing if we get called on a Monday, Tuesday or Wednesday. So anyway, what’s the uniqueness about this patient population? You all know about this. I’m gonna go these streets very quickly. These are sick patients. There’s a long list of issues, including specifically to the spine,
unlikely fusion, poor bone quality, hardware failure, and then timing of surgery. When is the right time to do surgery? These are all things that are going to go very fast. But these patients are immunocompromised because of decreased white cells. There’s issues with infected vertebroplasty is now. Their nutritional status is not that great. They have problems with the fact that they are on steroids, which leads to all kind of, you know, side effects associated with that. A lot of these patients are coagulopathic.
And from our point of view, a lot of these cases require a plastic closure secondary to the fact that these patients may have already previously been radiated. They may need flaps, they may need the vascularized bone grafts. Sometimes these wounds are big issues for us in spine surgery. This is a patient who had a sarcoma involving the posterior neck muscles that’s been resected locally three or four or five times and ultimately. Uh, this cancer have invaded all the
00:04:22.242 -- 00:04:24.540 power musculature off the neck.
00:04:24.540 -- 00:04:26.238 The spine itself was not involved,
00:04:26.240 -- 00:04:28.298 but all the muscle itself were
00:04:28.298 -- 00:04:30.357 involved with the tumor and we
00:04:30.357 -- 00:04:31.585 ended up resecting it.
00:04:31.590 -- 00:04:34.060 And this is the kind of
00:04:34.115 -- 00:04:36.077 hardware that we ended
00:04:36.077 -- 00:04:37.385 up needing to put there because
00:04:37.445 -- 00:04:39.107 all the posterior musculature
00:04:39.110 -- 00:04:40.482 So clearly, you know,
00:04:40.482 -- 00:04:43.707 this is some of the stuff that we can do,
00:04:43.710 -- 00:04:45.733 but we need our colleagues to be
00:04:45.733 -- 00:04:47.722 able to close this and actually
00:04:47.722 -- 00:04:49.487 publish the paper with the.
Plastic colleagues,

Ian Valeria is right now the head of plastic at the MGH that it is a multidisciplinary approach for complex oncological spine coverage.

A lot of these cases require really a big consultation with our plastic colleagues. So when it comes to spine tumors, the two kinds that we’re talking about are the metastatic spine tumors and the primary bone tumors. They are very distinct different surgical plans. If it’s primary tumors then really we’re trying to cure the patient of cancer by removing the cancer or at least...
the long-term survival if it’s metastatic, the plan is palliation. Adjuvant therapy for primary is very limited for metastatic. There is some adjuvant therapy available and then when it comes to the surgical technique for primary bone tumors, we’re really trying to figure out a way not to get into the tumor itself so we minimize spillage. And potential recurrence. So we need to clean margins around it versus metastatic, which is really most of the time intralesional.
Even though this is not a neck case, I wanted to present it just for explaining this principle. This is a 51 year old who comes in with one week of progressive foot weakness and bound bladder dysfunction. And you can see right here that there is a lesion in the sacrum that’s filling up the sacral canal. The question is whether to take these guys to surgery because there’s bound bladder incontinence and foot weakness. This patient was take it for an emergent decompression of the nerve roots and you can see a few more cuts, but the intraoperative biopsy
00:06:27.000 --> 00:06:28.775 came back as cancer sarcoma,
00:06:28.780 --> 00:06:30.820 which is a primary bone.
00:06:30.820 --> 00:06:33.226 These primary bone tumors require unblocker
00:06:33.226 --> 00:06:36.300 section and not any traditional resection.
00:06:36.300 --> 00:06:38.160 Where you’re getting into the tumor,
00:06:38.160 --> 00:06:39.448 it’s over this, this.
00:06:39.448 --> 00:06:40.736 There’s no clean margins.
00:06:40.740 --> 00:06:42.660 This tumor is going to recur.
00:06:42.660 --> 00:06:44.320 The clearly the patient symptoms
00:06:44.320 --> 00:06:45.980 got better after the decompression.
00:06:45.980 --> 00:06:46.726 The bowel,
00:06:46.726 --> 00:06:48.218 bladder symptoms got better,
00:06:48.220 --> 00:06:50.080 the food weakness got better,
00:06:50.080 --> 00:06:52.551 but the patient ended up coming back
00:06:52.551 --> 00:06:54.937 complaining of some boldness and he says
00:06:54.937 --> 00:06:57.399 the school is sticking out of my back.
NOTE Confidence: 0.840470364423077
00:06:57.400 --> 00:06:58.640 Can you revise it?
NOTE Confidence: 0.840470364423077
00:06:58.640 --> 00:07:00.500 And this is how he presented.
NOTE Confidence: 0.840470364423077
00:07:00.500 --> 00:07:01.622 And you can see this little
NOTE Confidence: 0.840470364423077
00:07:01.622 --> 00:07:02.928 bump in the back of his back.
NOTE Confidence: 0.840470364423077
00:07:02.930 --> 00:07:05.042 There was a year after his surgery and
NOTE Confidence: 0.840470364423077
00:07:05.042 --> 00:07:06.837 that bumped you can see in the red.
NOTE Confidence: 0.840470364423077
00:07:06.840 --> 00:07:09.584 You know was not as cool poking up.
NOTE Confidence: 0.840470364423077
00:07:09.590 --> 00:07:13.094 This is a recurrence of tumor for an
NOTE Confidence: 0.840470364423077
00:07:13.094 --> 00:07:14.750 unfortunate intralesional resection.
NOTE Confidence: 0.840470364423077
00:07:14.750 --> 00:07:16.829 The transferring rendering
NOTE Confidence: 0.840470364423077
00:07:16.829 --> 00:07:18.908 having cancer forever.
NOTE Confidence: 0.840470364423077
00:07:18.910 --> 00:07:20.170 The only chance that he had
NOTE Confidence: 0.840470364423077
00:07:20.170 --> 00:07:21.430 was with his first surgery.
NOTE Confidence: 0.840470364423077
00:07:21.430 --> 00:07:24.419 He also had a broken rod that
NOTE Confidence: 0.840470364423077
00:07:24.419 --> 00:07:26.673 ultimately require removing this bump
unblocker section of this little mass, knowing that it’s not going to be curative, and then devising is construct and then doing a huge flap to be able to close this one in order to clean this up. So I call it Bo, the triple W, the wrong operation on the wrong patient by the wrong surgeon. Sometimes you gotta know what it is you you doing. And from our point of view is no surgeons sometimes, sometimes we put such a huge emphasis on the neurological aspect, they’ve bowel bladder incontinence or foot weakness.
But a lot of these cases you got to think about is an oncologist first. When it comes to knowing whether you're dealing with the primary tumor or made a study, you gotta know the biopsy, this always will allow you to establish whether you're dealing with the primary bone tumor versus versus metastatic disease. This is a patient with a codoma quote UN quote. It was read they didn't wanna do a biopsy, but this it turns out to be an ependymoma which was a completely different scenario. So how do you do these biopsies? You can see right here in the neck a
00:08:29.188 --> 00:08:30.959 very large cervical with suspicious
00:08:30.959 --> 00:08:33.588 of the cervical called DOMA and in
00:08:33.588 --> 00:08:35.784 the sacrum and other large suspicious
00:08:35.784 --> 00:08:36.882 of cervical chordoma.
00:08:36.890 --> 00:08:39.730 You do not want to do a biopsy to the mouth.
00:08:39.730 --> 00:08:41.746 The the biopsy person are going
00:08:41.746 --> 00:08:44.345 to look through the path of least
00:08:44.345 --> 00:08:45.925 resistance and the shortest.
00:08:45.930 --> 00:08:46.171 Path,
00:08:46.171 --> 00:08:48.340 they obviously would like to go to the mouth.
00:08:48.340 --> 00:08:49.318 It’s right there.
00:08:49.318 --> 00:08:51.274 And if you suspect that it’s
00:08:51.274 --> 00:08:52.959 a primary bone tumor,
00:08:52.960 --> 00:08:54.794 don’t go through the mouth because we
00:08:54.794 --> 00:08:56.820 can’t resect it in an unblocked fashion.
That track is going to be contaminated, so either go from the back. Uh, and stay very close to the midline. Here is what we do when we mark these incision, these biopsy tracks we can get around include the track with the specimen is a couple of examples on the sake of chordomas where the track site is included within the resection itself and then the track and the sacrum here came out in one piece. Stay away from having putting those needles very far away. Make sure that you’re either posterior or very close to the midline so
that you can reset the track. With the biopsy. So again these are the primary versus the metastatic disease. Always think when it comes to surgery whether this is an unblocker section for primary bone tumors when the tumor borders are not violated or whether you do intralesional resection. Metastatic lesions are typically intralesional resections. It’s a very prominent disease. It’s a major cause of death.
complication due to metastatic disease, and the skeletal system is the third most common site. The spine is the most common sight of skeletal Mets, and as many as 90% of cancer patient will have spinal metastases and up to 30 of those will have neck pain. So here’s a case that the Charles actually is very familiar with and I thought, well, this might as well presented. This is a 67 year old lady who has. How would cancer start having significant amount of neck pain and radicular pain?
X-rays that there is a pathologic fracture of the cervical spine. She's unable to move her neck well, she's already having radiculopathy, and this is clearly a metastatic disease related to thyroid cancer. Yeah, what are you gonna do about it? We obviously not going for a curative disease here, but pain is an indication for surgery and neurological issues many times is indication for surgery. You can see the MRI, there is code compression. The body is involved with...
tumor proven as thyroid cancer.

The spinal cord is compressed.

She's at risk of losing function and already have a lot of neck pain.

You can see on this on the axial view that the vertebral artery.

This is not gonna be a curative disease.

This patient has significant

This tumor poking behind the vertebral body above the vertebral artery is clearly engulfed by these tumor.

The CT scan shows pathologic fracture.

This patient has significant
mechanical neck pain.

Is this spine stable or unstable?

You can see right here that we have many ways of figuring out basis on all kind of you know tables of deciding whether this is a stable neck or whether there's a chance this can continue to break.

And then with thyroid cancer, these are highly vascular tumors and you can see right here on the angiogram that Charles did how vascularized this tumor is, which makes these surgeries somewhat risky to be able to go in and go after these.
00:11:58.750 --> 00:11:59.380 Christmas light,
NOTE Confidence: 0.823938815523809
00:11:59.380 --> 00:12:01.585 the appearance of of her what we
NOTE Confidence: 0.823938815523809
00:12:01.585 --> 00:12:04.083 call a puff of smoke where there is
NOTE Confidence: 0.823938815523809
00:12:04.083 --> 00:12:05.700 significant chance of bleeding as
NOTE Confidence: 0.823938815523809
00:12:05.700 --> 00:12:07.947 you’re going in there because this is
NOTE Confidence: 0.823938815523809
00:12:07.947 --> 00:12:10.220 going to be an intralesional resection.
NOTE Confidence: 0.823938815523809
00:12:10.220 --> 00:12:12.299 So what we do here is there
NOTE Confidence: 0.823938815523809
00:12:14.070 --> 00:12:16.107 We can help with the neck pain,
NOTE Confidence: 0.823938815523809
00:12:16.110 --> 00:12:17.868 we can decompress the spinal canal
NOTE Confidence: 0.823938815523809
00:12:17.868 --> 00:12:20.253 and this is the kind of construct that
NOTE Confidence: 0.823938815523809
00:12:20.253 --> 00:12:22.570 we do where we replace the vertebra.
NOTE Confidence: 0.823938815523809
00:12:22.570 --> 00:12:24.166 We have nice sets of retractors.
NOTE Confidence: 0.823938815523809
00:12:24.170 --> 00:12:26.645 Now it’s Milo that we just got last month.
NOTE Confidence: 0.823938815523809
00:12:26.650 --> 00:12:28.204 We can put these retractors to
NOTE Confidence: 0.823938815523809
00:12:28.204 --> 00:12:29.470 be able to help us.
This is intraoperative pictures. You can see these beautiful retractors that are table mount. You can see the plate. And this is what it looks like after the surgery. And you can see there's a nice cage that replace the broken vertebrae. There's a nice plate that's sitting across of it and that patient, you can see the CT scan with the reconstruction. There's complete replacement of these vertebral body.

This patient neck pain completely
resolved immediately after this surgery.

This patient doesn’t need to wear a collar for the rest of her life and the neck pain has completely resolved.

The fear of paralysis is gone.

And here is what the MRI looks like with the spinal cord now decompressed and then we follow it with a new program that we have here in our smile where we do stereotactic radiosurgery for the residual tumor around the vertebral artery to kill whatever tumors left behind.

We can mark exactly we go at the level above and the level below and Lily keel whatever microscopic cells that left behind.

And you know in this particular
00:13:27.696 --> 00:13:29.320 case there were three levels that radio surgery that was done.
00:13:29.320 --> 00:13:32.600 This is not conventional radiation.
00:13:32.600 --> 00:13:32.965 Patient.
00:13:32.965 --> 00:13:35.885 So the risk to the esophagus the the vocal cords is significantly less.
00:13:35.885 --> 00:13:38.329 This is a paper that we can do even up to three or more contiguous that your bodies is a paper from the James Cancer Hospital with all the radiation oncologist he just came out in the last few months and here is another case 55 year old and you can see right here there's a T1 pathologic fractures we may call you guys to help
us with access to get down to low.

A T1C7 sometimes T2 vertebrae where

we wanna do vertebra ectomy.

Unfortunately these tends to be

behind the sternum and if you guys

cannot get us to be able to do the

work then sometimes this is what it

take where we plan on going from.

You know,

through a typical NT approach to the neck.

But if it looks like we are unable

to get down to T1,

then sometimes we need our thoracic

surgeon to do, to split the sternal,

in essence to get down,

to be able to do the vertebra ectomy.
And this is the illustration of what it actually means. So for us to be able to put this, the screws, to put the plate, to do all the reconstruction, the break is a phlic vein can be sometimes in our vein, in our way, and and that’s why. Some of these illustrations show why sometimes we need you guys to help us with getting us the accesses, the accessibility to be able to do this work. And sometimes on these low thoracic, lower cervical region with short neck,
those veins can be in our way.

The manubrium you can see right here, sometimes it’s completely in the way and we have to split the manubrium in order to get the down there.

And this is what it looks like after the reconstruction. Sometimes we have fractures like this case particularly where there was an advantage.

Fracture from a thyroid met and in this case what I ended up doing is we did a cement injection through the back of the mouth.

You can see right here this has been published or with my ENT
colleagues you see on the left side.

You guys use this cloud retractors moving the tongue out of the way, moving the ugly out of the way and we can drive the needle right into the C2 vertebral body and injects cement right into the C2 vertebra to stabilize that broken vertebrae saving an exhibitor cervical fixation for something like that. And we ended up using both the stereotactic radiosurgery and stereotactic CT imaging guidance with fluoroscopy to get these cases going. So this was a technical note.
There are many percutaneous techniques that there is a common thing to do for fractures and now we start looking at actually doing it for cervical fractures, this is an intradural lesion and this is a severe intradural lesion. You can see the code is being squashed. This turned out to be a chloroma and this after you can see the Peskin was very active and we ended up without the biopsy radiating it in, the tumor melted away and this is kind of like the. Aspect of metastatic disease that we
00:16:36.090 --> 00:16:38.408 own on all of these fractures look and
00:16:38.408 --> 00:16:40.816 see whether we can help at least with
00:16:40.816 --> 00:16:43.035 the pain and decompress the spinal cord.
00:16:43.040 --> 00:16:44.846 Primary tumor is really the key when
00:16:44.846 --> 00:16:47.079 it comes to a lot of work with the Ant
00:16:47.080 --> 00:16:49.047 or ENT colleagues when it comes to
00:16:49.047 --> 00:16:51.237 really our goal is to cure the patient.
00:16:51.240 --> 00:16:52.997 These are the tumors we talking about.
00:16:53.000 --> 00:16:54.980 They could domas the condo sarcomas
00:16:54.980 --> 00:16:56.300 are the main ones.
00:16:56.300 --> 00:16:58.064 These require unblock resection
00:16:58.064 --> 00:17:00.710 unblocker section means that you we
00:17:00.778 --> 00:17:03.042 have to find a way where we don’t
00:17:03.042 --> 00:17:05.190 we remove the tumor in one piece.
00:17:05.190 --> 00:17:08.414 You don’t get into the tumor in order

33
00:17:08.414 --> 00:17:10.780 to not have clean margins around it.
NOTE Confidence: 0.870426595384615
00:17:10.780 --> 00:17:13.076 Here is a case of a cervical
NOTE Confidence: 0.870426595384615
00:17:13.076 --> 00:17:13.732 Congress sarcoma.
NOTE Confidence: 0.870426595384615
00:17:13.740 --> 00:17:15.356 You can see the tumor in the neck,
NOTE Confidence: 0.870426595384615
00:17:15.360 --> 00:17:17.556 it’s wrapped around the vertebral artery.
NOTE Confidence: 0.870426595384615
00:17:17.560 --> 00:17:19.480 And couple of cases here,
NOTE Confidence: 0.870426595384615
00:17:19.480 --> 00:17:21.440 you can see the tumor in blue.
NOTE Confidence: 0.870426595384615
00:17:21.440 --> 00:17:22.744 There’s one vertebral artery
NOTE Confidence: 0.870426595384615
00:17:22.744 --> 00:17:24.374 that’s completely in case with
NOTE Confidence: 0.870426595384615
00:17:24.374 --> 00:17:25.619 this Congress sarcoma.
NOTE Confidence: 0.870426595384615
00:17:25.620 --> 00:17:27.797 And here is the tumor right here.
NOTE Confidence: 0.870426595384615
00:17:27.800 --> 00:17:29.494 This is definitely something we can do,
NOTE Confidence: 0.870426595384615
00:17:29.500 --> 00:17:30.580 an unblocker section.
NOTE Confidence: 0.870426595384615
00:17:30.580 --> 00:17:33.494 And so the way we approach doing these
NOTE Confidence: 0.870426595384615
00:17:33.494 --> 00:17:35.769 is we start in the back actually.
NOTE Confidence: 0.870426595384615
00:17:35.770 --> 00:17:39.270 To stabilize things and separate the tumor
00:17:39.270 --> 00:17:42.873 away from the spinal cord, that’s the key.

00:17:42.873 --> 00:17:44.739 We put our hardware in there.

00:17:44.740 --> 00:17:46.954 We can see right here the spinal cord

00:17:46.954 --> 00:17:49.234 and the bottom and the tumor in the neck.

00:17:49.240 --> 00:17:51.840 We can expose it from the back end.

00:17:51.840 --> 00:17:53.648 We can put our huddle in the back.

00:17:53.650 --> 00:17:55.096 We have to like get some nerve roots and not only that,

00:17:55.096 --> 00:17:56.669 you can see the nerve roots right here.

00:17:56.670 --> 00:17:58.014 The C3C4 and C2 nerve roots

00:17:58.020 --> 00:18:00.588 are being ligated away.

00:18:00.588 --> 00:18:02.300 To be able to release these tumor.

00:18:02.300 --> 00:18:04.379 We can also.

00:18:04.380 --> 00:18:05.643 Sacrifice the vertebral artery.

00:18:05.643 --> 00:18:07.330 Get underneath the vertebral
artery and sacrifice the vertebral artery above and below.

In fact, we put a coil on the top and then ligated in the vertebral artery, so we have no issues with bleeding.

And once this is the tumor in the neck is separated from the spinal cord and instrumented we go from the front. This lady particular didn’t have a long neck, but with my ENT colleagues you can see right here we can dissect The Karate Kid. You know, the. They are all the venous structures to get down there. You can see that once everything is moved to the side,
we can cut through the front of the three vertebrae and actually removed.
You can see the three vertebrae with the pathologic fracture. All have been removed in one piece with clean margins. And once it’s out, you can see through the opening the dura, you can see in fact the posterior rod from the front. And then after it’s done, we can put a cage in with a plate and that’s what it looks like at the end where the reconstruction is complete. And the tumor has been removed.
This is a much more complicated case on another codoma.

You can see the extent of this codoma tumor.

Again, we start in the back.

The idea is separating it away and we start from the back.

We ligating the nerve roots.

You can see right here the 3234 and five actually has been sacrificed here.

You can see right here the Tibaldi has been skeletonized on the other side with the nerve roots above it.

We then typically put a silastic sheath so we can see the difference.

Between the spoiler code,
we put a long construct from the back.

This is what it looks like from the back.

We do between the front and the back and angiogram to make sure there's no spasms to the vessels.

And then with you guys, this is a trans mandibular approach, which you can go through the mandible, get to the back of the neck, mobilize the vessel, you can see the tumor.

And through a transmittable approach you can see the vertebral artery on one side. That's how it looks like when the tumor is out.

This is a very big tumor and you can see the vertebral artery on one side.
00:20:14.532 --> 00:20:17.012 see then we can sneak underneath a
NOTE Confidence: 0.932002701428571
00:20:17.012 --> 00:20:19.505 cage with the cage actually engaging
NOTE Confidence: 0.932002701428571
00:20:19.505 --> 00:20:22.754 the C1 and C1 arch and that top school
NOTE Confidence: 0.932002701428571
00:20:22.754 --> 00:20:25.125 is actually going to the NTSC one
NOTE Confidence: 0.932002701428571
00:20:25.125 --> 00:20:27.999 arch and into the tip of the odontoid.
NOTE Confidence: 0.932002701428571
00:20:28.000 --> 00:20:29.650 This is the visualization of what
NOTE Confidence: 0.932002701428571
00:20:29.650 --> 00:20:31.635 it looks like and you can see
NOTE Confidence: 0.932002701428571
00:20:31.635 --> 00:20:33.015 the nervous has been ligated,
NOTE Confidence: 0.932002701428571
00:20:33.020 --> 00:20:35.600 the tumor is out and that’s.
NOTE Confidence: 0.932002701428571
00:20:35.600 --> 00:20:37.030 The the way the construct,
NOTE Confidence: 0.932002701428571
00:20:37.030 --> 00:20:38.542 look at the end of this in order
NOTE Confidence: 0.932002701428571
00:20:38.542 --> 00:20:40.190 to try and do an alpaca section,
NOTE Confidence: 0.932002701428571
00:20:40.190 --> 00:20:41.902 and you can see on the top left
NOTE Confidence: 0.932002701428571
00:20:41.902 --> 00:20:43.281 hand picture how the screw and
NOTE Confidence: 0.932002701428571
00:20:43.281 --> 00:20:44.908 the top goes to the anterior arch
NOTE Confidence: 0.932002701428571
00:20:44.908 --> 00:20:46.525 and into the tip of the odontoid.
And that's what it looks like at the end. So yeah, these are complex cases. And again, I just wanted to get briefly to the extent of these cases. A lot of those may require vascularized bone. It can be used also in the neck. This is vascularized bone that we use for sacral lesions. We actually use the leg, the femur and the tibia to close, for example, a pelvic rings we have described these cases is an autologous bone graft.
vascularized bone graft.

This works amazing and you can see right here how you can see right here female with a vessel attached to it and a tibia with a vessel attached to it to be able to close this pelvic rings.

This is what it looks like at the end of the case. This was cases that have been described by my plastic colleagues about how they do this. This is a patient after the surgery, and this is some of those exit. Quotation of flaps, and this is obviously a big time surgeries when it comes to
00:21:45.628 --> 00:21:47.130 doing these unblocker sections.

00:21:47.130 --> 00:21:50.505 But the the principle is the same.

00:21:50.510 --> 00:21:54.648 We always have to figure out if we can put some sort of a vascularized bone

00:21:54.648 --> 00:21:57.172 graft to be able to get a nice fusion.

00:21:57.172 --> 00:21:59.510 At the end of these cases there

00:22:01.623 --> 00:22:04.459 Research Institute at Ohio State in our.

00:22:04.460 --> 00:22:06.595 There’s a lot of 3D printers,

00:22:06.600 --> 00:22:06.966 we did in the lumbar spine.

00:22:08.250 --> 00:22:10.356 Now we can do it in the neck,
we can reconstruct the cancer.

We know where it is and we can then start thinking about the type of reconstructions that we can go about doing and then do a specific 3D printers, those that have cycle, there is a 3D printer. These are personalized vertebral bodies that are fit right into the potential defect.

So in conclusions. Management should be individualized. It clearly is a multidisciplinary. This is one picture from the James Cancer. So you can see the magnitude of how many people are involved in these cases, you know between orthopedic
00:22:46.834 --> 00:22:48.580 neurosurgeon and on and on and on.

00:22:48.580 --> 00:22:51.040 There's just these are two
default type of surgery.

00:22:51.040 --> 00:22:54.520 So thank you very much.

00:22:56.560 --> 00:22:58.172 Thank you. Doctor Mendel,

00:22:58.172 --> 00:23:00.144 that’s just very, you know,

00:23:00.144 --> 00:23:02.084 just amazing stuff to see

00:23:02.084 --> 00:23:03.740 what you’re doing here.

00:23:03.740 --> 00:23:05.801 There are a bunch of questions in the chat.

00:23:05.801 --> 00:23:07.320 So if you know if you can

00:23:07.379 --> 00:23:08.975 stay on for a few questions,

00:23:08.980 --> 00:23:11.580 one individual asked about recordings,

00:23:11.580 --> 00:23:13.662 yes, that will be available e-mail

00:23:13.662 --> 00:23:15.819 to registered guests and available on

00:23:15.820 --> 00:23:17.680 yalecancercenter.org and the YouTube channel.
But 22 clinical questions here. One has to do with prevertebral fascia, so as head and neck cancer surgeons. I’m doing a lot with squamous cell carcinomas of the pharynx and the throat and the neck. The prevertebral fascia has. Essentially been a T4B disease, unresectable, don’t even bother. Don’t even try. But what are your thoughts on, you know, if that is the only site of some questionable sometimes we’re not even sure, is it involved? Is it not, you know, and it can really change the course of a patient’s treatment.
00:23:55.882 --> 00:23:57.748 on if it’s involved or not.

00:23:57.750 --> 00:24:00.823 So can you just comment on local

00:24:00.823 --> 00:24:03.698 tumors from the throat with

00:24:03.698 --> 00:24:05.146 prevertebral fascia involvement,

00:24:05.146 --> 00:24:06.220 whether that’s her?

00:24:06.220 --> 00:24:07.340 Acceptable or not and especially

00:24:07.340 --> 00:24:08.684 in those cases where we’re just

00:24:08.684 --> 00:24:09.944 not sure if it’s involved or not.

00:24:09.950 --> 00:24:10.958 Any thoughts on that?

00:24:11.030 --> 00:24:13.782 Yes. So I’m going to go to this

00:24:13.782 --> 00:24:15.698 particular slide on the case that

00:24:15.700 --> 00:24:17.332 Charles and I have done right

00:24:17.332 --> 00:24:19.370 here and you can see right here,

00:24:19.370 --> 00:24:22.529 this is the radio surgery picture of a tumor

00:24:22.529 --> 00:24:25.227 that’s involved the prevertebral fascia.
The radio surgery can map exactly where we are going to deliver that radiation unlike the typical Convention radiation that goes through everything if there is any suspicion of the. Private table fascia here is the sagittal and here is the axiom you can see that there is a dose of radiation that’s being given to the private civil fashion itself. So if there is a suspicion for it and on these cases with this you know whenever there’s a cervical met the suspicion that there is a primitive of fashionable it always is high we always will
00:24:59.078 --> 00:25:00.876 include it in the radio surgery field.

00:25:00.876 --> 00:25:02.724 We don’t necessarily you know we

00:25:02.724 --> 00:25:04.720 remove a lot of it in our approach

00:25:04.720 --> 00:25:06.429 to get down to the vertebral.

00:25:06.430 --> 00:25:08.670 Buddy, but even if we don’t remove it,

00:25:08.670 --> 00:25:10.175 we feel very comfortable that

00:25:10.175 --> 00:25:11.680 with radiosurgery we can control

00:25:11.734 --> 00:25:12.949 the disease at that site.

00:25:14.510 --> 00:25:15.890 Yeah, that that is great.

00:25:15.890 --> 00:25:17.890 And I know you and I have discussed

00:25:17.890 --> 00:25:19.669 some cases where there’s some direct

00:25:19.669 --> 00:25:21.499 invasion maybe or maybe not to

00:25:21.553 --> 00:25:23.348 the prevertebral fascia where we,

00:25:23.350 --> 00:25:24.370 you know, you say we’re well,

00:25:24.370 --> 00:25:25.644 you know what, you can get in

49
there and you can take down some
of the prevertebral fashion,
even drill down some of the
bone on block resection.
So different techniques that
these will file already a surgery
because we can remove the growth aspect,
the microscopic aspect will
follow with radiosurgery. Yeah,
absolutely. So that’s great.
And there’s another question
which you did touch.
On about vascularized bone graft,
specifically from the fibula for
cervical spine reconstruction,
either for osteoradionecrosis,
which is a problem that we often see as head and neck cancer and also just in general.

What is your experience with fibular bone grafts for cervical spines?

Amazing. So we want Fusion, bone growth, artificial, you know, Bond Bank does don’t work as well, my experience. Vascular, the bone growth is just absolutely amazing. So if there’s any way to get a vascular bone graft, I think that’s the way to go. So definitely it’s require some coordination, uh, when it comes to work to take
it from how big do you need it?
NOTE Confidence: 0.471775491
What’s the likelihood that you will survive those kind of things.
NOTE Confidence: 0.471775491
But I think whenever there's a opportunity to do it,
especially for our point of view,
a lot of these patients end up not fusing,
right, unlike the trauma and
devasive spine with bone growth over time.
And they implant becomes one
And they implant becomes one
with the surrounding in cancer
after chemotherapy and radiation,
it doesn’t happen.
So we completely relying on the hardware,
so these vascularized.
Don’t just give us the security of fusion, the bone growth around it, and heal.

Yeah, no, that’s great to hear. It’s a great question too, because we often think of the fibula mainly for mandible, but let’s not forget that our spine colleagues can use vascularized bone grafts as well, even for ORN and complications of head neck cancer treatment. So they, thank you very much, Doctor Mandell,
really appreciate that kind of pushing the envelope for, you know, in spinal surgery. And it's great to hear what is actually available if you have the right expertise at your institution. Thank you so much. Right. So our next speaker is another neurosurgeon executive. He's the vice chair of clinical affairs of neurosurgery at Yale, and he's a neurovascular surgeon Doctor Charles Matouk. The next two talks kind of go hand in hand, especially in my practice of head and neck surgeons to hear what is actually available if you have the right expertise at your institution.
00:27:46.850 --> 00:27:48.508 neck cancer surgeon, because again,

00:27:48.508 --> 00:27:51.082 the carotid artery, similar T4B disease.

00:27:51.082 --> 00:27:54.192 We think of it as the some, you know,

00:27:54.192 --> 00:27:56.160 often is thought of as an untouchable area,

00:27:56.160 --> 00:27:57.804 but there are cases.

00:27:57.804 --> 00:28:00.270 Doctor Matuk and Doctor Thomas and

00:28:00.344 --> 00:28:02.808 know that we we can take it down.

00:28:02.810 --> 00:28:03.770 We need to take it down.

00:28:03.770 --> 00:28:05.290 It is the best option.

00:28:05.290 --> 00:28:07.230 we need to know if we can safely

00:28:07.281 --> 00:28:08.674 take it down and then what to

00:28:08.674 --> 00:28:09.950 do after we’ve taken it down.

00:28:09.950 --> 00:28:12.400 And that’s why Doctor Matuk and Doctor

00:28:12.400 --> 00:28:13.886 Thomason are going to speak to us about that.

55
So doctor Matuk, if you could tell us about the carotid artery and doctor Matthew, stop sharing for a moment. Doctor Matute can pull up.

So Doctor Matuk is going to talk to us about carotid artery preoperative. Uh, assessment?

Thanks so much, Sarah. Thanks for having me, Judy. That’s impossible to follow. Thanks for watching.

Not accepted but very very impressive, very impressive slide that can work over the years.
I'm going to try to let me see if I can do this here. Can you guys see my screen? OK, just by chance we see this some slides or something on this side as well, but let me try to let me try to fix that up here. But even if not, we can, let me try to let me try to fix that up here. But even if not, we can, we can see it. Even better. Perfect. So what what I'm going to try to do today is to give you a an overview of how to think about the carotid artery and a preop assessment when you're looking to maximize an oncological...
00:29:23.932 --> 00:29:26.379 resection often or for recurrent but
NOTE Confidence: 0.7684915365
00:29:26.379 --> 00:29:28.539 you know sometimes a primary tumor.
NOTE Confidence: 0.7684915365
00:29:28.540 --> 00:29:31.096 And what I again I’m going to sort of
NOTE Confidence: 0.7684915365
00:29:31.096 --> 00:29:34.171 try to introduce you to some terms and
NOTE Confidence: 0.7684915365
00:29:34.171 --> 00:29:37.108 some specific anatomy so that when you’re
NOTE Confidence: 0.7684915365
00:29:37.108 --> 00:29:39.228 considering these types of options.
NOTE Confidence: 0.7684915365
00:29:39.230 --> 00:29:41.534 You can communicate I guess best
NOTE Confidence: 0.7684915365
00:29:41.534 --> 00:29:43.971 with us and hopefully that will
NOTE Confidence: 0.7684915365
00:29:43.971 --> 00:29:46.779 translate to better you know decision
NOTE Confidence: 0.7684915365
00:29:46.779 --> 00:29:49.394 making for for our patients.
NOTE Confidence: 0.7684915365
00:29:49.400 --> 00:30:01.115 So we’ll, we’ll start a little bit
NOTE Confidence: 0.7684915365
00:30:01.115 --> 00:30:03.455 with some new neurovascular anatomy,
NOTE Confidence: 0.7684915365
00:30:03.455 --> 00:30:06.146 which you guys don’t, you know,
NOTE Confidence: 0.7684915365
00:30:06.150 --> 00:30:09.378 necessarily always think about and then
NOTE Confidence: 0.7684915365
00:30:09.380 --> 00:30:11.115 talk about specifically balloon test
NOTE Confidence: 0.7684915365
00:30:11.115 --> 00:30:34.455 occlusion and some sort of Nuggets that
you can take home with you after this talk.

And then we'll just go quickly through one case and see how we use it here at Yale New Haven Hospital. So this is a 3D rendering of a CTA of the head and neck of one of our patients. And it's just to make sure that we're on the same page. And for trainees that, you know, we have two carotid arteries, one on the right, one on the left that go on, you know, go up the front of our necks. And we also have two paired vertebral arteries and here you can see...
00:30:39.423 --> 00:30:40.379 it on the lateral.
NOTE Confidence: 0.7684915365
00:30:40.380 --> 00:30:42.160 It’s usually a smaller vessel,
NOTE Confidence: 0.7684915365
00:30:42.160 --> 00:30:44.848 significantly smaller than
NOTE Confidence: 0.7684915365
00:30:44.850 --> 00:30:45.304 the vertebral artery.
NOTE Confidence: 0.7684915365
00:30:45.304 --> 00:30:46.524 And there’s two paired vertebral arteries
NOTE Confidence: 0.7684915365
00:30:46.524 --> 00:30:48.599 that go also up to the base of the
NOTE Confidence: 0.7684915365
00:30:48.599 --> 00:30:50.388 skull and go on to supply the brain.
NOTE Confidence: 0.7684915365
00:30:50.390 --> 00:30:52.010 And so you can think of,
NOTE Confidence: 0.7684915365
00:30:52.010 --> 00:30:55.321 you can think of the neurovascular anatomy
NOTE Confidence: 0.7684915365
00:30:55.321 --> 00:30:56.825 as being supplied by these four neck vessels,
NOTE Confidence: 0.7684915365
00:30:56.825 --> 00:30:59.173 right.
NOTE Confidence: 0.7684915365
00:30:59.173 --> 00:31:00.957 So the two carotid arteries in the front
NOTE Confidence: 0.7684915365
00:31:00.957 --> 00:31:02.925 of the tuber tibial arteries in the back,
NOTE Confidence: 0.7684915365
00:31:02.930 --> 00:31:04.436 you can think of it a
NOTE Confidence: 0.7684915365
00:31:04.436 --> 00:31:05.890 little bit like a stool.
NOTE Confidence: 0.7684915365
00:31:05.890 --> 00:31:08.620 And the the stool basically feeds a
circle of vessels in the center of the brain called the circle of Willis. And we're going to go specifically through. What you know what that means and why it's important to think about when we're entertaining decisions about carotid resection plus or minus reconstruction in the context of head and neck cancer surgery. So this is the same patient that we just saw in the earlier slide and I'm going to walk us through here you know what we call the circle of Willis. So we're the two red dots are both the internal carotid arteries.
which are the termination of these carotid arteries. Well, inside the hub, so those are both the left ICA and the right ICA. And what I’ve done here is that the I’ve tried to label the main bifurcation points of the terminal internal carotid artery, so it branches into two branches, you know, one is the anterior cerebral artery and this is called the A1 segment. And this goes towards the nose or the midline,
00:32:12.970 --> 00:32:15.400 and then laterally there’s the middle cerebral artery and this year’s term,

00:32:15.400 --> 00:32:17.870 the M1 segment.

00:32:20.720 --> 00:32:22.876 And that those are the two main sort of like bifurcation points of the ICA termination and that occurs on both the right and the left side obviously.

00:32:22.876 --> 00:32:24.671 So here again is the M1, here’s the A1.

00:32:24.671 --> 00:32:27.464 Here you can see the internal carotid heading down towards the skull base and then it sort of goes up and then branches into The two different vessels.
If we look at the back of the head, you can see here that the basilar artery forms from a fusion of both vertebral arteries. They’re closing up the right and left side of the head, so it’s a little bit different than the carotid arteries, which will sort of like go up on each side of the neck and then continue on the right and left side and the head before doing their bifurcations.
The vertebral arteries, which go up on both sides of the neck, fuse at the base of the skull and then go up as a common basilar artery before bifurcating again. And that has implications about how safe it is to take a vertebral artery and, and doctor Mandel mentioned that a few times in his talk versus a carotid artery in the workup. That's required for both. Has to do with this anatomical nuance that the vertebral arteries fuse into the basilar artery, a common channel,
before going on to supply the circle
NOTE Confidence: 0.883413316666666

of Willis. Where’s the carotids?
NOTE Confidence: 0.883413316666666

Do not they supply the circle
NOTE Confidence: 0.883413316666666

of Willis independently,
NOTE Confidence: 0.883413316666666

each one right and left independently?
NOTE Confidence: 0.883413316666666

As the basilar artery comes up,
NOTE Confidence: 0.883413316666666

it divides into these two branches,
NOTE Confidence: 0.883413316666666

which we call the posterior
NOTE Confidence: 0.883413316666666

cerebral arteries,
NOTE Confidence: 0.883413316666666

labeled the right P1 and left
NOTE Confidence: 0.883413316666666

P1 segments individually now.
NOTE Confidence: 0.883413316666666

There are communications that
NOTE Confidence: 0.883413316666666

can occur between the posterior
NOTE Confidence: 0.883413316666666

circulation supplied by the vertebral
NOTE Confidence: 0.883413316666666

artery and the anterior circulation
NOTE Confidence: 0.883413316666666

supplied by the carotid arteries,
and here's an example of these communicating vessels. Which will connect the right PCA, the P1 segment to the internal carotid artery. And here you can see that best on this side. There's a smaller vessel that we can see over here on this side. These are the natural communications between the anterior and posterior circulation. We also have a communicating artery that connects the right A1 on the left, a one that communicating artery which is often less than a millimeter in size.
Connect both hemispheres, so in a sense connects both carotid circulations. So now you essentially have this ring, which was the top of the stool that we talked about in the last example, and this represents a complete circle of Willis. And so in doing this, if you sacrifice 1 vessel and we're going to go through this in more detail, you can see that the other vessels have a route to get blood to the part of the brain that is now compromised in terms of its blood supply.
So sometimes we’re born without a complete circle of Willis, and in fact that’s the norm. The norm is that we don’t have symmetric large pcom arteries bilaterally and a large acom artery. And that’s when we can get into problems with therapeutic carotid artery sacrifice, because just by chance in the way we were born, sometimes we’re born with an incomplete circle of Willis, and that circle can be variably incomplete. So in some instances it might just be an asymmetry so that one
pecom is smaller than the other,

or an acom artery is smaller

Sometimes there’s complete aplasia

So there’s like non development,

they’re aplastic vessels.

So there’s like we don’t see a vessel,

there’s no vessel connecting,

for example, the ICA termination,

there’s like and and the and

there might be a missing A1 segment and

its entirety and you can’t know that.

Unless you sort of spent some time

with the CTA and T is this out?
So in this example, we’re going to say, well, let’s say we’re going to sacrifice the carotid artery in the neck over here. So that still means that if we sacrifice the carotid artery in the neck is that. The MCA and the ACA territories of the brain can still get blood by traveling up the Basler artery, the P1 segment across here, this pcom segment to the internal carotid artery, and then fill the A1 and the M1 segments.
and their corresponding territories.

Or you can get contralateral blood coming from the right eye CA across an acom artery to supply again the A1 segment on the left and the M1 segment.

Now let’s say that you’re born without a right A1 segment, so this is gone.

Or that the acom artery itself is gone, and you don’t have that just because you were born that way.

And that you were born without a pecom artery on this side.

Now you have what was referred to as an isolated circulation, so that if you take the internal
carotid artery on this side,

there can be no compensatory blood throw across from the right carotid artery to supply.

This left MCA territory.

Either from the front or from the back through pecan and that’s what we would call an isolated circulation.

So if you were doing, for example, a carotid endarterectomy on this patient and the patient was under a general anesthetic and you were using electrophysiological monitoring to look at the patient, you would put your cross clamp on.
the internal carotid artery and

your electrophysiology would just
go flat to zero and then you would
take the clamp off and then over a
few seconds it would come back up.
So these are patients that you know.
That need a shunt right during the procedure
because otherwise their brain is going
to be ischemic for a period of time.
Sufficiently, it just,
it just takes like about 10 minutes
so to create an infarct which
is an irreversible brain injury.
So that’s what we’re trying to avoid.
And and because we don’t have this
sort of information robustly or we
00:38:27.300 --> 00:38:29.470 want to challenge it and test it,
00:38:29.470 --> 00:38:32.256 that’s the purpose of the balloon test
00:38:32.256 --> 00:38:36.943 occlusion is that we’re essentially
00:38:36.943 --> 00:38:39.746 stressing the circle of Willis that
00:38:39.746 --> 00:38:42.250 or not the patient can tolerate it.
00:38:42.250 --> 00:38:44.474 State in terms of.
00:38:44.474 --> 00:38:45.468 They’re, they’re,
00:38:45.468 --> 00:38:47.220 they’re aschematic tolerance, right?
00:38:49.260 --> 00:38:53.340 Alright, so let’s continue.
00:38:53.340 --> 00:38:57.192 So this is how it works in practice so.
00:38:57.200 --> 00:38:58.864 We’ve been through like multiple
00:38:58.864 --> 00:39:00.228 modifications of this technique
00:39:00.228 --> 00:39:01.916 and every institution has a
00:39:01.916 --> 00:39:03.180 different version of this.
What we typically use is Umm we do 2 arterial punctures, 1 in the leg. We place the big sheep in the leg and we place a smaller sheep in the arm. Through the sheath and the leg. We can go up through the body and we can access the common carotid artery and we can inflate a balloon. And once we inflate that balloon, it’s typically done on the proximal internal carotid artery or in the OR in the, sorry, in the proximal internal carotid artery or the distal common carotid artery depending on whether or not there’s atheromatous disease or sometimes these
patients have radiation induced changes.

So we don’t want to disrupt that sort of pathology.

We inflate the balloon and we then examine the patient clinically.

So these patients are awake so we can ask them like things like,

do you know where you are, what year is it, what’s the date, what’s the day, spell world forward, spell world backwards?

Can you repeat this sentence, do serial sevens backwards to try to get a sense about whether or not these patients are going to have language deficits.
And very often during these exams, I'm trying to be conversational with the patient. Because one of the first things that goes is their ability to sort of like tell small jokes if we're joking around or to understand contacts, they start to get more confused. This sort of, you know, make it work as normal. So we're also testing their motor strength and their sensory and position sense of their joints. And we do this over a period of
00:40:39.070 --> 00:40:41.273 20 to 30 minutes and during this time when the balloon is inflated.

00:40:43.580 --> 00:40:45.540 We can also then go through this vessel here and we can inject the other blood vessels in the brain.

00:40:49.420 --> 00:40:51.730 And we can angiographically show that the a common pcom are actually supplying the brain and that the timing of filling even though there’s a balloon up in the carotid is relatively symmetric.

00:40:55.115 --> 00:40:58.030 And that the venous phase of the angiogram so that the the blood is also emptying symmetrically from both hemispheres, even with the 1 carotid occluded.
Then after all that’s done at Yale, we do a hypotensive challenge. So I’ll ask our anesthesiologist to lower the blood pressure by 20% for more than 5 minutes from his baseline systolic blood pressure. And during that period of time, we’re also testing the patient clinically as well. Early in my practice here, we also did a nuclear medicine test, which is very easy to administer, but I found it to be not very helpful in terms of additive information.
but essentially what it is,

is that you take a lipophilic nuclear medicine tracer,
you inject it transvenous sly.

So through an IV it then circulates and it’s pumped out as a bolus through the heart.

And when it gets when it goes through the brain because the brain has a lot of fat in it,

the nuclear medicine tracer gets stuck in the brain and you want to see symmetric uptake again on both sides of the brain to pass.

That particular task, there’s also modifications.
using perfusion imaging or transcranial Doppler, but I haven’t found those to be particularly useful either. And in meta analysis of this technique that are done for therapeutic carotid sacrifice, there’s no sort of like clear benefit to doing these sort of adjunctive measures, including hypotensive challenge. But at Yale, we do these three and we found it to be effective and we used this sort of setup. Just some sort of like facts that you can take home with you after this talk if you did a non selective permanent sacrifice, if the ICA for a head and neck
cancer or an A giant aneurysm or sometimes for direct carotid fistulas, things of that nature. We think that about 20 to 30% in the literature at 17 to 40% of patients will have an ischemic insult. What’s interesting is that they often occur right away, but sometimes they occur after three to four days with even like minimal physiological. You know, such as a Valsalva maneuver when going to the bathroom or. Really minimal disruption so if you
00:43:26.520 --> 00:43:30.310 use balloon test occlusion to inform,
NOTE Confidence: 0.787923675833333
00:43:30.310 --> 00:43:34.486 doing a safe carotid sacrifice or.
NOTE Confidence: 0.787923675833333
00:43:34.490 --> 00:43:36.420 Whether you realize that they’re,
NOTE Confidence: 0.787923675833333
00:43:36.420 --> 00:43:38.261 they’re not going to tolerate a carotid
NOTE Confidence: 0.787923675833333
00:43:38.261 --> 00:43:40.331 sacrifice and you have to do some kind
NOTE Confidence: 0.787923675833333
00:43:40.331 --> 00:43:41.930 of reconstruction of the carotid artery,
NOTE Confidence: 0.787923675833333
00:43:41.930 --> 00:43:43.866 whether that be endovascular
NOTE Confidence: 0.787923675833333
00:43:43.866 --> 00:43:46.286 or using open surgical bypass,
NOTE Confidence: 0.787923675833333
00:43:46.290 --> 00:43:48.649 then the complication rate really falls to,
NOTE Confidence: 0.787923675833333
00:43:48.650 --> 00:43:50.750 to, to less than 4%.
NOTE Confidence: 0.787923675833333
00:43:50.750 --> 00:43:53.018 Now 4% sounds like a small
NOTE Confidence: 0.787923675833333
00:43:53.018 --> 00:43:55.058 number and you know, compared to,
NOTE Confidence: 0.787923675833333
00:43:55.058 --> 00:43:57.182 I don’t know, UDI, you know,
NOTE Confidence: 0.787923675833333
00:43:57.182 --> 00:43:59.402 what are the complications that
NOTE Confidence: 0.787923675833333
00:43:59.402 --> 00:44:01.458 you quote for, for those big,
NOTE Confidence: 0.787923675833333
00:44:01.458 --> 00:44:02.219 you know, resections,
maybe you don’t even get to

That there’s going to have high complication rates, right, 4% is not nothing, and 4% is the rate of ischemic stroke for a patient who presents with
symptomatic high grade carotid stenosis,
right.
If you're any higher than 4% then.
You probably shouldn't be doing
the operation.
So even though 4% sounds good and this
is in the context of hopefully achieving
like a curative oncological resection,
it is still a significant complication
rate compared to many things that
we do because here we're really
talking about the rate of having a
stroke and strokes can be disabling.
Thankfully,
the rate of complications of the
balloon test occlusion itself are very low.
So it’s like less than 1%.

It’s like often quoted.

0.8% from this Umm,

you know,

sort of like well cited meta

analysis of the literature.

So I think that getting the

information is always helpful

if you’re considering a carotid

sacrifice that during a head and

neck surgery discussion and workout.

Just very quickly,

this is also a patient of Sara’s

that we recently have taken care of.

But you know, a woman in her
60s had had tongue cancer.

She had a partial glossectomy years ago and she now comes back with a neck mass and they do a fine needle aspirate of the neck mass and it comes back as squamous cell carcinoma.

It looks like the left common carotid artery is really encased by the tumor and so.

Can you safely resect and take down the carotid artery to achieve an oncological resection, understanding that there's other options, including, you know, radiation, chemotherapy, and other things?
If that’s the decision to do something, does it need to be augmented by something that Doctor Tomlinson is going to talk about, which is some kind of like endovascular or surgical bypass to augment the carotid sacrifice. So again, this is what it sort of looks like in real life.

With the balloon inflated, we generally inflate it for about 25 to 30 minutes and then we test the patient clinically.
00:46:38.662 --> 00:46:40.644 you can now see that injection of
NOTE Confidence: 0.857479084166667
00:46:40.644 --> 00:46:42.420 the right common carotid artery fills
NOTE Confidence: 0.857479084166667
00:46:42.420 --> 00:46:43.929 across this beautiful acom artery
NOTE Confidence: 0.857479084166667
00:46:43.929 --> 00:46:45.339 and you have beautiful symmetric
NOTE Confidence: 0.857479084166667
00:46:45.339 --> 00:46:47.234 filling of the left MCA territory.
NOTE Confidence: 0.857479084166667
00:46:47.234 --> 00:46:49.670 And here you also have very nice
NOTE Confidence: 0.857479084166667
00:46:49.742 --> 00:46:52.556 filling through a pcom artery of the
NOTE Confidence: 0.857479084166667
00:46:52.556 --> 00:46:54.967 internal product artery on the left side.
NOTE Confidence: 0.857479084166667
00:46:54.970 --> 00:46:58.290 And so this is a patient that passed
NOTE Confidence: 0.857479084166667
00:46:58.290 --> 00:47:01.863 on both clinical angiographic and
NOTE Confidence: 0.857479084166667
00:47:01.863 --> 00:47:04.506 hypotensive challenge grounds.
NOTE Confidence: 0.857479084166667
00:47:04.510 --> 00:47:07.918 So we would expect her rate of having.
NOTE Confidence: 0.857479084166667
00:47:07.920 --> 00:47:09.990 In a schema complication after
NOTE Confidence: 0.857479084166667
00:47:09.990 --> 00:47:12.060 therapeutic carotid sacrifice to be,
NOTE Confidence: 0.857479084166667
00:47:12.060 --> 00:47:14.060 you know, less than 4%.
NOTE Confidence: 0.857479084166667
00:47:14.060 --> 00:47:17.098 So that’s the that’s the sort of
00:47:17.100 --> 00:47:19.242 way to think about I think carotid
00:47:19.242 --> 00:47:20.853 sacrifice and how balloon test
00:47:20.853 --> 00:47:22.755 occlusion can sort of help
00:47:22.755 --> 00:47:24.806 you figure some of this stuff out.
00:47:27.360 --> 00:47:28.500 That’s great, Charles.
00:47:28.500 --> 00:47:30.020 Thank you so much.
00:47:30.020 --> 00:47:31.892 I think this is exactly the
00:47:31.892 --> 00:47:33.599 type of information that this
00:47:33.599 --> 00:47:35.864 audience was was looking for.
00:47:35.864 --> 00:47:39.511 And it’s very enlightening to hear Yale’s
00:47:39.511 --> 00:47:41.857 approach to this under your leadership,
00:47:41.860 --> 00:47:43.546 the, the, the the three
00:47:43.546 --> 00:47:45.220 techniques that that you look for.
00:47:45.220 --> 00:47:46.616 There are two questions.
00:47:46.616 --> 00:47:48.710 Number one is do you involve
00:47:48.783 --> 00:47:50.955 anesthesia in these cases at all?
NOTE Confidence: 0.83666209
00:47:50.960 --> 00:47:52.276 You do say patients are wide awake,
NOTE Confidence: 0.83666209
00:47:52.280 --> 00:47:54.344 but can you just describe some of the
NOTE Confidence: 0.83666209
00:47:54.344 --> 00:47:55.330 anesthesia requirements for these?
NOTE Confidence: 0.718566611428571
00:47:55.680 --> 00:47:57.444 Yeah, it’s important to have and and.
NOTE Confidence: 0.718566611428571
00:47:57.450 --> 00:48:01.040 Actually, my experience now
NOTE Confidence: 0.718566611428571
00:48:01.040 --> 00:48:03.399 having worked in a bunch of Umm,
NOTE Confidence: 0.718566611428571
00:48:03.399 --> 00:48:05.916 you know the the other hospitals in
NOTE Confidence: 0.718566611428571
00:48:05.916 --> 00:48:08.470 our health system outside of Yale New
NOTE Confidence: 0.718566611428571
00:48:08.470 --> 00:48:10.910 Haven Hospital that have angiography,
NOTE Confidence: 0.718566611428571
00:48:10.910 --> 00:48:13.130 you know the the other hospitals in
NOTE Confidence: 0.718566611428571
00:48:13.130 --> 00:48:15.602 our health system outside of Yale New
NOTE Confidence: 0.718566611428571
00:48:15.610 --> 00:48:18.165 You do need to involve anesthesia and
NOTE Confidence: 0.718566611428571
00:48:18.165 --> 00:48:20.909 you need an anesthesia team that’s
NOTE Confidence: 0.718566611428571
00:48:20.909 --> 00:48:24.041 accustomed to doing sort of awake
interventions and manipulating blood pressure in an awake patient and not, I think that very often my experience has been at Yale New Haven Hospital where I think we do potentially like more complex and like sicker patients that that the there’s definitely a bias. the there’s definitely a bias. Towards putting people to sleep under general anesthetic. And so often when I when I go to the more community hospitals, people are actually very well versed in how to do this stuff. But you do need to involve anesthesia.
and we often have the patients deeper at the beginning for the puncture so it’s not so painful and uncomfortable and then we lighten the sedation throughout you know the subsequent minutes so that we can get that an examination so. If you have a patient that you’re twilight state where they’re sort of agitated and not directable, that’s not going to be a productive balloon test occlusion. And we unfortunately we’ve had cases that we’ve had to abort. You can always do a balloon test occlusion under a general anesthetic,
and you can augment that with electrophysiology or you can decide that the angiographic criteria alone is sufficient that if you truly have something that looks like what’s up on the screen now. That that’s probably sufficient, but you know, it’s I think that the proofs in the pudding and the sense that if you have an awake patient you feel much better that they’ve tolerated this balloon test occlusion, but it’s not always possible. So yeah,
and asked me if I was needed especially with that drop in the blood pressure which is for us as surgeons another little safeguard because it can happen during these big surgery.

So that’s great.

Second question has to do with the risks of the test itself and what, it is different in a patient who’s been radiated already has carotid disease, versus unirradiated Genova carotid, what risk do you tell patients about this test itself? So I think it’s a great question.
The real answer and it for the surgeons of the artist it’s intuitive is that like not every carotid is the same, not every thyroid cancer is the same, right. There’s going to be nuances based on little technical detail. So if a person has like an impossible aortic arch that’s full of calcium and has like radiation changes to his common carotid artery that’s very friable, that might be a patient that you look at and say that the risk of doing the balloon test occlusion may not be warranted. You know that the complication rate sort of increases.
Significantly, but for an average patient, we can do this with a less than 1% risk of having a stroke. Just as a comment, if anyone does this in the, you know, it’s often like very nice to put this balloon in the internal carotid artery. Because after 30 minutes there might be clot in theory that can accumulate below the balloon. And so you can flush before deflating the balloon and sort of wash out any debris into the External carotid artery,
which isn’t an eloquent territory. So that adds I think a level of safety and we do, we use that approach as well when we’re looking at these patients. Just quick question, any differences between the TLR occlusion versus karate occlusion? That’s a great question. And and I I talked a little bit about like in terms of you know what the the internal carotid artery goes up on each side of the head and we’ll supply that circle of Willis stool top individually.
This is actually misleading because the vertebral artery fuses into the basilar artery as it comes along the skull. Place like near the brain stem and then divides again and so because of that taking a non dominant or codominant vertebral artery is much much better tolerated and probably does not require a test occlusion because of that anatomical configuration, right? Because of this fusion issue is that one vertebral artery will then supply the basilar artery which will then supply the circle of Willis through both. PC’s, and that’s a nice feature where we get into issues is,
and this happens occasionally when a tumor involves the dominant vertebral artery, this now becomes an issue and you can do a balloon test occlusion in that case. But often the deficits that we’re looking for are more complicated in terms of like brain stem ischemia and it can be very scary to see somebody become frankly. Turned it on the table. And so often if a dominant vertebral arteries involved, we’re talking about reconstructive strategies either with stenting or some sort of bypass.
00:53:28.870 --> 00:53:29.430 That’s great.
NOTE Confidence: 0.95220999
00:53:29.430 --> 00:53:31.021 Thank you so much, Charles.
NOTE Confidence: 0.95220999
00:53:31.021 --> 00:53:32.905 Really appreciate you talking
NOTE Confidence: 0.95220999
00:53:32.905 --> 00:53:35.850 to all of us here today.
NOTE Confidence: 0.95220999
00:53:35.850 --> 00:53:37.410 If you want to stop sharing
NOTE Confidence: 0.95220999
00:53:37.410 --> 00:53:38.450 and introduce Doctor Conison,
NOTE Confidence: 0.95220999
00:53:38.450 --> 00:53:40.880 which is kind of the second
NOTE Confidence: 0.95220999
00:53:40.880 --> 00:53:42.782 part of redefining resectability
NOTE Confidence: 0.95220999
00:53:42.782 --> 00:53:45.512 and head neck cancer, you know,
NOTE Confidence: 0.95220999
00:53:45.512 --> 00:53:47.138 the three of us have definitely
NOTE Confidence: 0.95220999
00:53:47.138 --> 00:53:48.860 worked on cases together where,
NOTE Confidence: 0.95220999
00:53:48.860 --> 00:53:49.670 you know, we got to know,
NOTE Confidence: 0.95220999
00:53:49.670 --> 00:53:50.690 can we take the crowd,
NOTE Confidence: 0.95220999
00:53:50.690 --> 00:53:52.090 what’s going to happen?
NOTE Confidence: 0.95220999
00:53:52.090 --> 00:53:53.490 And then Doctor Tonnison,
NOTE Confidence: 0.95220999
00:53:53.490 --> 00:53:55.810 who is a vascular surgeon here at Yale,
00:53:55.810 --> 00:53:57.910 is going to talk to us about,
00:53:57.910 --> 00:53:59.356 well, what what do you do?
00:54:00.550 --> 00:54:02.046 After we’ve taken the carotid
00:54:00.550 --> 00:54:02.046 artery and I think it’s very
00:54:02.046 --> 00:54:03.558 critical that we we work together
00:54:03.558 --> 00:54:04.948 in surgeries head neck surgeon
00:54:04.948 --> 00:54:06.120 with the vascular surgeon.
00:54:06.120 --> 00:54:07.910 So Doctor Thomason please share
00:54:07.910 --> 00:54:10.100 your screen and take it away.
00:54:07.910 --> 00:54:10.100 your screen and take it away.
00:54:11.140 --> 00:54:13.235 Well, thanks. These two proceeding
00:54:13.235 --> 00:54:16.517 talks just remind me of why I initially
00:54:16.517 --> 00:54:19.100 wanted to be a neurosurgeon and and
00:54:19.100 --> 00:54:21.778 anyway now I do something much more,
00:54:21.778 --> 00:54:23.710 more boring vascular surgery.
00:54:23.710 --> 00:54:25.309 So thank you both.
That was fantastic.

He's trying to share.

Ohh spoiler alert.

Trying to do the slideshow.

All right. All set.

Everyone can see and hear.

It looks great. Thank you.

So I'm going to dovetail on Charles's talk and go into complex carotid artery reconstruction,

particularly focusing on neck surgery,

of course, and I'll, I'll go through all that.

So I'm going to briefly define carotid artery reconstruction and the indications,
00:55:08.900 --> 00:55:11.840 review some of the existing data,
00:55:11.840 --> 00:55:13.700 and discuss some of the techniques
00:55:13.700 --> 00:55:15.470 as well as conduit choices.
00:55:20.690 --> 00:55:22.448 But to take a step back,
00:55:22.450 --> 00:55:25.216 these are some of our standard
00:55:26.600 --> 00:55:29.720 This is a much more common thing that
00:55:29.720 --> 00:55:33.449 that we deal with is vascular specialists
00:55:33.450 --> 00:55:36.390 to remove the plaque from a carotid
00:55:36.390 --> 00:55:37.990 artery for atherosclerotic disease.
00:55:37.990 --> 00:55:41.160 And this is what it looks like in a pictorial
00:55:41.237 --> 00:55:43.985 form and then in histological specimen.
00:55:43.990 --> 00:55:44.856 And similarly,
00:55:44.856 --> 00:55:47.887 there is a a different technique now,
00:55:47.890 --> 00:55:49.730 a very popular as well,
trans carotid artery.

Revascularization and this is a

used in order to insert a stent into

the artery and here’s the stenosis

and the internal carotid here and you

can actually see this little pocket.

So this is an ulcerated stenosis and

this artery is stented and as the

system that reverses the blood flow to

minimize the risk of plaque embolization.

So I show these only because familiar

familiarity of the with the carotid artery.

Really largely comes with experiences

with atherosclerotic disease,

which is, you know,
probably 100 times more common than what I’ll be discussing in the rest of the talk here.

So revascularization is usually dealing with atherosclerotic disease like I showed you in the carotid artery is generally left incite you. We don’t remove chunks or parts of the carotid artery other than the internal layers with an endarterectomy and with the carotid stent, we’re not removing anything, but the reconstruction refers to actually resecting full thickness of the artery wall that’s damaged in some
fashion or needs to be resected perhaps.
For oncological reasons, the indications are quite different.
Carotid revascularization procedures are designed to prevent stroke, and that’s pretty much it.
The indications for reconstruction are variable also, as I’ll show you in the next.
Reconstruction will involve a vein graft or a PTFE graft, and because of the complexity
00:57:37.423 --> 00:57:39.020 of the reconstructions,
00:57:39.020 --> 00:57:41.192 these are tend to be multidisciplinary teams and have a higher risk of cranial nerve injury.
00:57:50.370 --> 00:57:53.455 And so moving forward into carotid reconstruction,
00:57:53.455 --> 00:57:54.689 there are a variety of indications for this and really I was asked to talk about the last one because this of course coincides with what our Oncological next surgeons do,
00:57:54.690 --> 00:57:56.844 but I’d be remiss if I didn’t mention some of these other reasons because a lot of the information that we have about reconstruction for cancer is
extrapolated from similar techniques that we use for these other issues.
So for example. This is a patient who has had a carotid stent and you can kind of see the outline of the stent here. And this patient has a severe in stent stenosis and you know, this can be treated. Charles might opt to treat this with a balloon, a repeat of balloon angioplasty and get a good result. But what if it keeps coming back or they're, you know, for some reason the patient can’t have
a balloon angioplasty of this area.

OK well potentially you can actually resect. All of this and put in a vein graft or a bypass.

So that’s just an example of a recurrent disease, and here’s a patient of mine from several years ago.

This is a 70 year old man who had a prior carotid endarterectomy for a high grade stenosis and then a couple of years later developed a recurrent high grade stenosis. And this is actually quite rare because carotid endarterectomies tend to be quite durable in you know,
90 plus percent of patients, but unfortunately not in this gentleman. And he actually had some organized Rhombus on the inside of the carotid patch and just looked, it looked somewhat terrifying on the ultrasound. And so after you know pretty extensive discussion he was concerned about stroke recurrence and I was concerned about that and we opted to do a vein graft and so it’s a little video here it just it’s a little video here it just it basically just shows it pulsing but.
here’s the edges of the the patch
and this that I had to open up
and the vein graft goes up
from the proximal side here,
which is down towards the chest,
up towards the internal.
This is all internal carotid karada
up that the up at the top of the.
Top of the neck there.
And so another situation that we may
have to get into doing some sort of
carotid repair or reconstruction,
although not perhaps as
commonly is a carotid body tumor.
And so I, I like to mention these
because I'm interested in these and I, I think they're very fascinated. I think a lot of us are fascinated with carotid body tumors because they have such an exotic pathology and they look very interesting under a microscope and they're. You know, they're just very fascinating on little tumors. Fortunately, they're rarely malignant. And this is from actually one of my older one of my old partners, Jeb Hallett did this 50 year old. 50 year Mayo Clinic experience many years ago and it's really been a a landmark paper which categorized
these tumors nicely into the 
Shamblin state Shamblin stages here
and kind of showed a correlation
between these three levels of.
Disease and the degree of complications
that you can expect and as you
see in cross section here,
Shamblin 1 tumor kind of sits between
the internal and the external.
And then a Shamblin 2 starts to
impinge upon the vessels a little bit
impinge upon the vessels a little bit
and gets a little more dicey.
And then a three, you know,
it just basically is like, you know,
is like a little fruit sitting
inside the jello mold here.

I mean, it’s really encompassing the blood vessels and these are of course.

The most difficult to manage and tend to involve cranial nerves and and may have a higher end do and have a higher risk of treating nerve palsy.

But when it gets to carotid reconstructions, fortunately, most of these do not require a carotid reconstruction.

And the rate of carotid reconstruction has gone down over over time, as I’ll show you in the.
More recent, more recent series, but in this older series they had to do a lateral suture, meaning just a simple suture repair in about 9% of cases. And then some sort of little patch or even a graft and 25% of these patients. And so more recently, just a couple of months ago, this article from some of our colleagues in Mexico came out and this is the largest database of carotid body tumors that actually crosses 3 continents in 11 countries.
And so there’s a lot of information here.

I put up the balloon occlusion because I knew that the Charles will be talking about that.

And they actually found that balloon occlusion was only done, only performed in about 22% of patients and interestingly.

Only about 2% of those were positive and.

And you know what they what they did find though is that when the carotid artery is involved as it may, may likely be with more advanced tumors,
the risk goes up and I think that’s intuitive, right.

So if you have to resect a part of the carotid artery in addition to the tumor, there’s increased risk of blood loss and potentially. Stroke and cranial nerve problems. So the risk of stroke though ultimately was pretty low, but they did find that, you know, doing something else with the carotid, whether it’s a graft, or whether that’s an endarterectomy or something else. That of course does elevate your.
Risk of complications.

Fortunately, most of the cranial nerve palsies were just temporary.

And so I take a little sidebar here just to show about preoperative embolization.

We've looked at a few cases here at Yale. One of my partners doctor on Missouri.

We published this little article here.
It’s got some cute pictures, but what this shows is that here’s a carotid body tumor and this is the common carotid artery here, and then the internal carotid artery and the external with all of the branches, the ascending pharyngeal and etcetera etcetera. And using these little micro coils of platinum based coils to embolize all of these little branches potentially reduces your blood loss in the operating room and can decrease the vascularity. They have not yet been able to show...
an association between that and decreased risk of cranial nerve injury, however. Intuitively you would think that would be the case, but I guess further larger studies will show that. And this is just an example. Of a Shamblin 2 tumor. So fortunately, this did not require a carotid body reconstruction. You can see in cross section here the internal carotid artery and some of the little branch up here and the big, the big tumor right here.
And then here you can see if you look closely, here’s the tumor, there’s a little loop around the carotid artery here, and then we’re coming across one of the little branches and this little guy here. This little coil, this little metal thing, you actually when you come across some of these little branches, the little coils just, you know, come out and and, you know, there they are and they don’t really cause much inflammation, which is not really, really nice. And then here is the external carotid.
01:06:18.235 --> 01:06:20.064 artery and here’s the internal
NOTE Confidence: 0.926120883333333
01:06:20.064 --> 01:06:21.954 carotid artery and the common
NOTE Confidence: 0.926120883333333
01:06:21.954 --> 01:06:24.128 carotid artery with the yellow loop,
NOTE Confidence: 0.926120883333333
01:06:24.130 --> 01:06:26.510 the internal again with the red loop.
NOTE Confidence: 0.926120883333333
01:06:26.510 --> 01:06:28.262 And here’s the tumor which it’s
NOTE Confidence: 0.926120883333333
01:06:28.262 --> 01:06:29.626 almost been fully mobilized.
NOTE Confidence: 0.926120883333333
01:06:29.626 --> 01:06:31.566 It’s almost ready to come,
NOTE Confidence: 0.926120883333333
01:06:31.570 --> 01:06:34.055 come popping out for our
NOTE Confidence: 0.926120883333333
01:06:34.055 --> 01:06:35.049 friendly pathologist.
NOTE Confidence: 0.926120883333333
01:06:35.050 --> 01:06:36.898 Uh, but uh, in this case,
NOTE Confidence: 0.926120883333333
01:06:36.900 --> 01:06:39.052 and no sutures actually had
NOTE Confidence: 0.926120883333333
01:06:39.056 --> 01:06:41.052 this tumor could be mobilized
NOTE Confidence: 0.926120883333333
01:06:41.052 --> 01:06:43.062 and and no sutures actually had
NOTE Confidence: 0.926120883333333
01:06:43.070 --> 01:06:44.100 Artery itself.
NOTE Confidence: 0.869654188
01:06:46.760 --> 01:06:50.648 And so now moving into more of the
124
details of carotid artery reconstruction.
And this is a perhaps a nice little
figure that demonstrates this very simply.
You have to remove a chunk of the
carotid artery and you have to
replace it with some sort of graft,
whether that’s vein or a prosthetic graft.
And in this situation,
the external carotid artery is just
ligated and that is tolerated quite well in
this series of 41 patients over 17 years.
So again.
But this is not a common phenomenon,
and this was done at UCLA.
And this was published way back in 2008.
They demonstrated all of these different indications for carotid reconstruction.

You know, interestingly enough, again none were noted in this.

A particular article.

And then, we really have to think about the type of conduit we use. When I refer to conduit, I mean what are we replacing that part of the carotid artery with? Are we replacing it with a vein or a some sort of prosthetic graft? Those are pretty much the choices.

You can use saphenous vein.
You can use a deep vein from the leg, you can use a Dacron or a PTFE graft. Some people have actually used superficial femoral artery and then replaced the artery in the leg with a graft. OK, that’s you know, you can use that too and I think you know the. The decision making is important, but here’s an article from actually some former partners of mine up at Albany Medical Center, and they compare the types of conduits. With regards to patency, because really that’s really not determined in this particular.
location and they found very similar.
Survival of the bypass over time.
Again, most of these indications were not for cancer, though.
This was for occlusive disease, for trauma.
Infections.
All the infections, of course, got vein grafts.
Would not be appropriate to do a prosthetic in that situation.
And then carotid aneurysms notably.
They had a preponderance of prosthetic grafts in their series.
which you know,
clearly shows their favoritism for,
for that there were no differences in the outcomes. Either.

And so now we’re getting into the discussion of advanced neck cancers and what is the role for carotid sacrifice and reconstruction. And I always like to put up a little rowing thing because I used to row, so I not always, but anyway, there it is because it’s such a nice demonstration of teamwork. And I I apologize if I left somebody out here. I hope not, you know, but all of these specialists and caregivers are a part of the team.
that care for these patients with.

NOTE Confidence: 0.870226098181818

01:09:52.110 --> 01:09:53.658 Had neck cancer.

NOTE Confidence: 0.870226098181818

01:09:53.658 --> 01:09:56.182 So you know, I think one of the questions

NOTE Confidence: 0.870226098181818

01:09:56.182 --> 01:09:57.450 that I always ask is, you know,

NOTE Confidence: 0.870226098181818

01:09:57.450 --> 01:09:59.330 I can put the blood vessels back together,

NOTE Confidence: 0.870226098181818

01:09:59.330 --> 01:09:59.912 but you know,

NOTE Confidence: 0.870226098181818

01:09:59.912 --> 01:10:01.790 you guys help me out as this indicated.

NOTE Confidence: 0.870226098181818

01:10:01.790 --> 01:10:03.270 Is this the best treatment?

NOTE Confidence: 0.870226098181818

01:10:03.270 --> 01:10:04.578 Is radiation better?

NOTE Confidence: 0.870226098181818

01:10:04.578 --> 01:10:05.886 Is chemotherapy better?

NOTE Confidence: 0.870226098181818

01:10:05.890 --> 01:10:07.636 Is is this going to give

NOTE Confidence: 0.870226098181818

01:10:07.636 --> 01:10:09.190 the patient what they want?

NOTE Confidence: 0.870226098181818

01:10:09.190 --> 01:10:11.062 Is this going to give the patient a

NOTE Confidence: 0.870226098181818

01:10:11.062 --> 01:10:13.157 quality of life or are they going to have?

NOTE Confidence: 0.870226098181818

01:10:13.160 --> 01:10:15.208 You know a lot of morbidity from this

NOTE Confidence: 0.870226098181818

01:10:15.208 --> 01:10:17.327 and and what are the patients goals.
So I think having that sort of discussion particularly with the otolaryngologist and the medical oncologist, particularly when it gets into these complex tumors, is really essential so that we can present to the patient what we think are the pros and cons and expectations for recovery as well as the potential morbidity that the patient may not anticipate.
01:10:51.244 --> 01:10:53.047 the indications for carotid sacrifice
NOTE Confidence: 0.857703049545455
01:10:53.047 --> 01:10:54.882 and reconstruction are that these
NOTE Confidence: 0.857703049545455
01:10:54.882 --> 01:10:57.140 are advanced head and neck cancers,
NOTE Confidence: 0.857703049545455
01:10:57.140 --> 01:10:59.498 particularly a squamous cell cancers and
NOTE Confidence: 0.857703049545455
01:10:59.498 --> 01:11:02.360 a few others in case or or at least a
NOTE Confidence: 0.857703049545455
01:11:02.360 --> 01:11:05.156 **** and can involve the carotid artery.
NOTE Confidence: 0.857703049545455
01:11:05.160 --> 01:11:08.202 And you know, oncologists and surgical
NOTE Confidence: 0.857703049545455
01:11:08.202 --> 01:11:11.128 oncologists need to get clean margins
NOTE Confidence: 0.857703049545455
01:11:11.128 --> 01:11:14.392 in order to be able to consider the.
NOTE Confidence: 0.857703049545455
01:11:14.400 --> 01:11:15.460 Resection successful,
NOTE Confidence: 0.857703049545455
01:11:15.460 --> 01:11:19.170 so peeling or shaving off the artery
NOTE Confidence: 0.857703049545455
01:11:19.170 --> 01:11:21.259 certainly I think is is done,
NOTE Confidence: 0.857703049545455
01:11:21.260 --> 01:11:23.878 but does have risk of leaving behind
NOTE Confidence: 0.857703049545455
01:11:23.878 --> 01:11:25.606 microscopic disease and I think
NOTE Confidence: 0.857703049545455
01:11:25.606 --> 01:11:27.496 in one series it was about 40%.
NOTE Confidence: 0.857703049545455
01:11:27.500 --> 01:11:29.859 Moreover, there is a risk of weakening
the wall of the artery which can lead to the much feared complication of carotid blowout syndrome. So, you know, and then people talk about ligation, but as doctor Matuk mentioned, I think that really has a high risk of a stroke, just plain old ligation and so. We think about doing a reconstruction and when we think about the patients long term survival with regards to the completeness of that resection. The largest series I could find was from 2015 fifty one patients with
carotid sacrifice and reconstruction

over 17 year period for swimming,

both primary and recurrent squamous cell cancers.

And a pretty good results I I

think only two strokes and 82%.

Two year disease free survival.

In this meta analysis,

the results are a little bit more sobering.

This meta analysis,

I believe it’s from gosh believe


and they reviewed, you know,

really a heterogeneous group.

So maybe not best for a meta analysis.

But anyway, it was a review,
and they looked at 24 studies published over several decades, so just a total of 357 patients. These included the squamous cell cancers, some salivary cancers and thyroid cancers. Low mortality, 3.6% and permanent stroke deficits were 3.6%. As well, a carotid blowout, 1.4% and carotid blowout. I guess for the audience here just that refers to a, you know, you know, basically where the carotid artery, the wall is so weak that it begins bleeding and patient, begins exsanguinating,
01:13:34.680 --> 01:13:38.310 which necessitates a urgent.
NOTE Confidence: 0.732518912333333
01:13:38.310 --> 01:13:41.590 A surgery, a covered stent can perhaps be
NOTE Confidence: 0.732518912333333
01:13:41.590 --> 01:13:45.426 used in that situation and in a in a pinch.
NOTE Confidence: 0.732518912333333
01:13:45.430 --> 01:13:47.586 And then they really noted that only
NOTE Confidence: 0.732518912333333
01:13:47.586 --> 01:13:49.946 in seven studies was it even mentioned
NOTE Confidence: 0.732518912333333
01:13:49.946 --> 01:13:52.004 the use of balloon occlusion testing.
NOTE Confidence: 0.732518912333333
01:13:52.010 --> 01:13:54.566 So that was really inconsistently used.
NOTE Confidence: 0.732518912333333
01:13:54.570 --> 01:13:55.350 And I really, you know,
NOTE Confidence: 0.732518912333333
01:13:55.350 --> 01:13:57.066 I really love the, the protocol
NOTE Confidence: 0.732518912333333
NOTE Confidence: 0.732518912333333
01:13:58.500 --> 01:13:59.296 That’s just,
NOTE Confidence: 0.732518912333333
01:13:59.296 --> 01:14:01.684 I think it it sounds very
NOTE Confidence: 0.732518912333333
01:14:01.684 --> 01:14:03.689 comprehensive and and and elegant.
NOTE Confidence: 0.732518912333333
01:14:03.690 --> 01:14:06.510 The but the one year survival,
NOTE Confidence: 0.732518912333333
01:14:06.510 --> 01:14:07.880 you know, is pretty sobering
NOTE Confidence: 0.8755535075
01:14:10.550 --> 01:14:13.295 52.4%. It was a little better in the more
And so my old partner told me that his old mentor told him that an open blood vessel is better than a closed blood vessel. So like I carry around all these little, you know, words of wisdom from over the years and then repeat them as as need be. So this is one of the the things that stuck with me and I think, you know, that’s of course not always true, but I think in this situation it probably is true. And so we think about reconstructing the carotid arteries.
a ton of downside to doing it.
You have to have good exposure,
proximal and distal control.
I wouldn’t be a vascular surgeon if I
didn’t mention proximal and distal control,
which refers to having clamps or
control of your blood vessels so that
they you don’t lose control of them,
so that you’re able to control and
manipulate both the inflow and the outflow.
Coexisting atherosclerotic disease inside
the carotid artery can be problematic.
You certainly wouldn’t want to
place a clamp on a part of the
blood vessel where it is diseased.
And severe atherosclerotic disease
01:15:22.934 --> 01:15:25.040 would probably need to be managed
01:15:25.096 --> 01:15:27.106 a little bit differently than just
01:15:27.106 --> 01:15:28.790 a straightforward resection of the
01:15:28.790 --> 01:15:30.778 healthy part of the blood vessel that’s,
01:15:30.780 --> 01:15:32.748 you know, involved with the tumor,
01:15:32.750 --> 01:15:34.190 the conduits of choice.
01:15:34.190 --> 01:15:36.554 I mentioned saphenous vein, femoral vein.
01:15:36.554 --> 01:15:40.930 I I like to use a Dacron or PTFE.
01:15:40.930 --> 01:15:43.408 This is a carotid. Clavian bypass here.
01:15:43.410 --> 01:15:46.138 We use Dacron or PTFE frequently in this
01:15:46.138 --> 01:15:49.516 sort of situation and it holds up quite well.
01:15:49.520 --> 01:15:51.816 There’s a lot of evidence that shows at
01:15:51.816 --> 01:15:54.100 least for carotid subclavian bypasses,
01:15:54.100 --> 01:15:55.696 if I can extrapolate a little bit,
01:15:55.700 --> 01:15:55.969 again,
which I think I have to given the rarity of these conditions. But we do some carotid subclavian bypasses quite frequently for things like thoracic aneurysms and dissections. And these bypasses have a very good longevity, probably because they’re short and wide. If there’s going to be, or if you can possibly anticipate oropharyngeal contamination, you would want to use a vein graft and not a prosthetic. Of course, shunting is really complex.
I value the information from the balloon occlusion test, but there are additional considerations. Umm, it’s also showing that, surgeons who routinely shunt during carotid and daughterectomy have a lower risk of shunting. And perhaps somebody who shunts selectively during a carotid endarterectomy. So there’s some issues with kind of, you know, practice. I’m a routine shunter,
but I think for something like replacing a segment of the common carotid artery, sometimes it can be more cumbersome to insert the shunt. You're going to use it for one anastomosis, you're going to take it out about halfway through. The other one, it kind of adds a lot of time and complexity that you may or may not need to do. So the decision for shunting is really something to consider. Heparin is, you know,
another staple of vascular surgery. And I think once you're manipulating those blood vessels and touching them, particularly if they, if they're healthy blood vessels, they can go into spasm in a healthy person or a younger person if they're not atherosclerotic and they can form thrombus and they're prothrombotic. So you know I like to give a little bit of Hepburn once you're kind of, you know, messing around with the blood vessels. And and these other things are, you know pretty standard I think,
01:17:49.580 --> 01:17:51.512 you know doing a muscle flap coverage
NOTE Confidence: 0.774228663071429
01:17:51.512 --> 01:17:53.397 if there's going to be not much
NOTE Confidence: 0.774228663071429
01:17:53.397 --> 01:17:54.897 tissue coverage over this area can
NOTE Confidence: 0.774228663071429
01:17:54.957 --> 01:17:56.749 really be a valuable asset as well.
NOTE Confidence: 0.774228663071429
01:17:56.750 --> 01:17:58.316 Certainly adds time to the case.
NOTE Confidence: 0.90472867
01:18:01.250 --> 01:18:03.350 So this is all about getting good
NOTE Confidence: 0.90472867
01:18:03.350 --> 01:18:05.109 exposure of the blood vessel.
NOTE Confidence: 0.90472867
01:18:05.110 --> 01:18:06.465 This is the left carotid
NOTE Confidence: 0.90472867
01:18:06.465 --> 01:18:07.762 artery here, of course.
NOTE Confidence: 0.90472867
01:18:07.762 --> 01:18:10.018 But what this demonstrates is that,
NOTE Confidence: 0.90472867
01:18:10.020 --> 01:18:11.244 you know, if you can’t get
NOTE Confidence: 0.90472867
01:18:11.244 --> 01:18:12.410 proximal on the blood vessel,
NOTE Confidence: 0.90472867
01:18:12.410 --> 01:18:14.713 you can’t get below where you need
NOTE Confidence: 0.90472867
01:18:14.713 --> 01:18:17.350 to get to get proximal control.
NOTE Confidence: 0.90472867
01:18:17.350 --> 01:18:20.142 You may need to have a sternotomy and
NOTE Confidence: 0.90472867
01:18:20.142 --> 01:18:22.542 call in our thoracic friends to help
us out because the sternotomy right down the middle actually provides nice exposure of the carotid all the way down to the aortic arch, which is shown here. This is A and this is extrapolated from a trauma textbook. But you know, the same principles and exposure apply to all of these things. Distal exposure, you know, that’s something I would rely upon, my skull based. Surgeons to help out with.

So I think this is my last slide.
This is a case with Doctor Mera, a gentleman who had a recurrent squamous cell carcinoma with tumor budding and we resected the carotid artery. Doctor Merrick resected all the other stuff and got clear margins, which is great. He did have some dysphasia that resolved. Fortunately, after about a month, he was able to get to his daughter’s wedding and live long enough to do that.
And he did, and he and he lived another 14 months after this. And so I think it just, you know, goes back to what is the patient wanted and what is their experience going to be and how humbling it is to do these big operations and and realizing that. That we can’t always cure everybody. Thank you, Doctor Thomas. Thank you. That was a really great talk and really I think discuss a lot, but a lot of the complexities involved in making about these cases,
which is really probably you know the technical aspects what we're discussing. But the decision making is also perhaps even more challenging once you've done some of these two questions and in fact I think you may have actually answered these, but so I'm going to go through them quickly. One of them was about the choice of graft material when. Even if there's or if it's a composite resection, so the oral cavity or France is involved with a carotid artery sacrifice and correct me if I'm wrong, but I think you said you prefer
to use vein grafts in that case as opposed to synthetic materials, is that correct? I definitely.

So if there's going to be oral pharyngeal contamination or you anticipate that, then harvesting staff and Spain from the leg would be a good choice. On the other hand, sometimes that vein is a little bit too small. It's, you know, it could be 3/4. Millimeters, and if you’re going to replace the common carotid artery or something a little bit larger, or the veins too small,
it may be better.

To use femoral vein,

you can use the deep femoral vein

and they’re you know some side

effects of that but but usually

we can we can work around that.

So that’s another alternative.

You could also use superficial

femoral artery provided that arteries

is healthy but I would not use

a prosthetic in that situation.

And the second question had to do with

flap coverage afterwards which you also

a prosthetic in that situation.

And the second question had to do with

flap coverage afterwards which you also

did discuss but I’ll just reiterate.

So oftentimes when we are as

head next surgeons at the point
where we’re talking about.

Saccharin, carotid artery.

It’s not just a carotid artery.

It’s, you know, basically, you know,
sometimes the skin of the neck.

And so there can be a very large soft

Graft in there, some type of graft,
even a venous graft in there.

And so I would say, yeah,

And so I would say, yeah,

we would would routinely use flop

coverage in those cases of the

pectoralis muscle flap is a great option,

which is a a flap first described
here at Yale as well in 1979 or 1980.
So it’s it’s a great.
Yeah, I think it’s,
it’s very important all work together.
Thank you very much,
Doctor Thompson for that.
I think it was a great follow up to
Doctor Matouk’s talk as well and just
emphasizes the multidisciplinary
team required for this. All right.
Well, great.
So our next talk is Doctor Bhatia.
So if you want to,
if you have stopped sharing,
so Doctor Bhatia and hers get hers going.
But redefining respectability
and head neck cancer again is the topic of today's discussion. And an important part of that is induction. Therapy so I'm going to stop sharing and have Doctor Bhatia pull up her slides. Doctor Bhatia is an esteemed medical oncologist who works at Edna Cancer here and associate professor at Yale School of Medicine. Thank you. Carol. Am I hurt? OK. Everything's good. We see our slides and we can hear you. Good evening, everyone. Thank you for the opportunity.
Today I’ll be reviewing the role of induction, systemic therapy and head neck cancers. It’s a very broad and evolving topic. So you know, keeping the time in mind, I’m going to breathe through some of the slides here. So you know, as I’ve been discussed extensively today, definitive local treatment with surgery obviously forms a key part of curative intent treatment and head, neck cancers, but sometimes can be associated with morbidity, loss of function, especially when disease is in the vicinity.
NOTE Confidence: 0.8803823625
01:23:35.896 --> 01:23:37.918 of critical structures like the tongue,
NOTE Confidence: 0.8803823625
01:23:37.920 --> 01:23:38.732 the larynx,
NOTE Confidence: 0.8803823625
NOTE Confidence: 0.8803823625
01:23:39.950 --> 01:23:42.044 And the integration of chemo into
NOTE Confidence: 0.8803823625
01:23:42.044 --> 01:23:44.399 the treatment plan has allowed to
NOTE Confidence: 0.8803823625
01:23:44.399 --> 01:23:46.191 formulate organ sparing surgery
NOTE Confidence: 0.8803823625
01:23:46.191 --> 01:23:47.983 or even radiation treatments.
NOTE Confidence: 0.8803823625
01:23:47.990 --> 01:23:49.640 So chemo is incorporated one of
NOTE Confidence: 0.8803823625
01:23:49.640 --> 01:23:51.050 three ways in treating head,
NOTE Confidence: 0.8803823625
01:23:51.050 --> 01:23:53.525 neck cancers either as induction
NOTE Confidence: 0.8803823625
01:23:53.525 --> 01:23:54.515 or neoadjuvant,
NOTE Confidence: 0.8803823625
01:23:54.520 --> 01:23:56.608 which is given prior to definitive
NOTE Confidence: 0.8803823625
01:23:56.608 --> 01:23:58.550 surgery or radiation or concurrently
NOTE Confidence: 0.8803823625
01:23:58.550 --> 01:24:00.980 with radiation as upfront treatment
NOTE Confidence: 0.8803823625
01:24:00.980 --> 01:24:02.924 or adjacently following surgery,
usually in combination with radiation.

Today’s talk will focus on the clinical utility of induction systemic therapy.

So the first trial probably that showed the utility of sequential chemo followed by radiation as a surgical alternative.

Curative treatment treat creatively treating larynx cancers was the VA larix trial and patients who patients got 2 cycles of Platinum 5A few induction.

Those that had at least a 50% response to two cycles went on to get a third cycle and then radiation and surgery was used as salvage for any residual disease.
for patients on the experimental arm. And there was no difference in overall survival between the surgical arm and the sequential induction chemo followed by radiation arm. But larynx preservation was able to be achieved in about 64% of patients versus obviously 0% in the salvage surgery arm. There were differences in the patterns of failure with less distant metastases with patients getting chemo, but more local regional failures in the chemo arm and similarly in Europe. E RTC ran a phase three trial in
patients with locally advanced hypopharynx cancer and which until then required surgical resection of the larynx and patients were randomized. Again to either induction Platinum 5 FU followed by radiation for complete responders versus surgery. Only complete responders got radiation. The endpoints were progression free and overall survival and survival with a functional larynx. Complete response was seen in over half the patients on the induction.
arm and survival larynx preservation

distant metastatic rate while

all improved on the chemo arm,

so making that a new standard of care.

In Europe as well?

Subsequently 2 phase three trials

Tax 323 which was conducted in Europe

Tax 324 which was conducted in

the US explored adding a third agent

as an induction regimen so attack

saying to platinum and five FU.

The primary endpoint for these trials

was progression free survival for

tax 323 and overall survival for tax

There were minor differences
in doses between the two trials.

Both progression free and overall survival were improved with the addition of taxane compared to Platinum 5 if you alone.

So this became the new standard of care induction regimen.

As far as possible there were more toxicities with the addition of 1/3 drug which is not surprising.

So more neutropenia is more febrile. Neutropenia as or hospital admissions for some patients.

So this is a difficult regimen in general for patients who are frail or elderly and tax 324 like...
I mentioned similar trial but on in the United States adding a taxane to platinum and five a few again improvement in overall and progression free survival but at a cost of more toxicities. So these this regimen the three drug taxane Platinum 5 FU is in general pretty unsuitable for frail and elderly patients we have to carefully. Like what kind of patient can tolerate this treatment?

Umm. See? I’m sorry. Saturday. So now that we knew that TPF the
taxane Platinum 5 if you the three drug combination was a better induction regimen than Platinum 5 FU. The GORTEX trial was a European trial that sought to compare the two regimens for their larynx preserving ability in patients with larynx and hypopharynx cancers. So if you remember the VA larynx trial compared just use platinum five if he was induction. This trial used taxane Platinum 5 FU 220 patients were randomized. With larynx and hypopharynx cancers where surgery would require our total laryngectomy and responders to induction,
chemo went on to get 70 degree of radiation with or without concurrent chemotherapy. Non responders went on to get salvage surgery followed by radiation plus or minus chemo. Although Cytopenias were again seen more frequently in the three drug arm, in the taxane Platinum 5 FU more patients were able to have objective responses and achieve larynx preservation. So this became a preferred Measurement for induction even for these patients and although I won’t be showing the data or discussing those slides here,
but we do use induction chemo at our institution as an approach for chemo selection for T4 larynx patients to help improve, to help improve patient selection for those that would respond to radiation and ultimately recover laryngeal function. This practice comes from the University of Michigan experience, which was able to improve the larynx preservation rate from 40 to 50%. With chemo radiation up front versus chemo selection followed by chemoradiation then it went up closer to 60%. Although the role of induction was established for organ preservation,
what really remained unclear at this point was how it improved survival when compared to chemo radiation alone.

And the Spanish trial attempted to answer this question by randomizing patients to one of three treatment arms. So they either got chemo radiation alone or the two drug induction followed by chemo radiation or the three drug induction. There were no significant differences between progression free time to treatment failure or overall survival. Across the three arms, the plants have flattened.
doses were high and almost half the patients were unable to complete the treatment as was indicated in the protocol.

Subsequently, there were other trials. I’m probably going to skip all the data in it, but the D side trial, the paradigm trial, and the tremplin trial, all of them compared induction chemo followed by chemo radiation versus chemo radiation alone.

And although some of them were underpowered to detect a difference in the two arms because they didn’t meet the planned accrual, in general there was no difference in
survival between induction followed by chemo radiation versus chemo radiation alone. So although it’s a great strategy for organ preservation, it doesn’t really add meaning to patients where your outcomes are pretty high and no critical organ is at risk with chemo radiation up front.

Subsequently, there was a meta analysis of TPLF in India as used as induction from 5 trials, which included about 1700 patients and although TPF decreased the hazard for depth progression free and distant disease.
You know, in terms of how it compared to Chemoradiation alone, similar patterns of findings. The absolute survival benefit was very comparable to what was reported with concurrent chemoradiation, and May in fact lead to even inferior local regional control compared to CHEMORADIATION.

There were also concerns about patients being actually able to start and complete definitive radiation following induction in the meta analysis with the TPF's, only 73% of patients were able to initiate subsequent.
So about 1/4 of patients cannot and only half of them were able to get the plan concurrent chemotherapy. Again highlighting just the need for careful patient selection in terms of who might be able to tolerate a long course of induction followed by concurrent chemoradiation. So given the significant tolerability concerns that we see with TPF, ECOG studied and alternative induction regimen of Carbo Taxol cetuximab which is a weekly treatment just six weeks and done and followed by the same regimen. Concurrent with radiation, but at lower doses of the chemo drugs.
And although it hasn’t been compared head-to-head with TPF, which still remains the gold standard, the three-year overall and event free survival were very similar with this regimen compared to TPF and contrasting to the TPF data, 90% of patients were actually able to complete subsequent chemo radiation, making it a very attractive option for elderly and frail patients. So we tend to use this regimen actually quite a bit and have had quite a bit of success. As an alternative to TPF.
And finally, I'm just going to run through some of the other indications where we do induction chemotherapy with head neck cancers. The nasopharynx cancer is definitely where we offer induction or adjuvant chemotherapy in addition to concurrent chemoradiation. That data comes from this meta analysis, which actually showed an improvement in survival for both concurrent chemo radiation and concurrent followed by adjuvant chemo radiation with adjuvant chemo. And that data comes from this meta analysis, which actually showed an improvement in survival for both concurrent chemo radiation and concurrent followed by adjuvant chemo. When compared to concurrent alone and in addition to this meta analysis,
there have been multiple randomized trials comparing different induction regimens, whether it be TPDF or gemcitabine, cisplatin. All of these trials come from EBV positive patients. And in general, there's an improvement in recurrence free survival, failure, free survival, overall survival with the addition of chemotherapy. So as a community, we all just strongly believe that radiation as a survival benefit.
and nasopharynx cancers and this is the current standard of care in HPV disease induction. Platinum, taxane and cetuximab were used as a means to subsequently deescalate radiation doses to 54 Gray instead of 70 Gray for responders and their primary endpoint for this trial was two year progression free survival. 70% of patients achieved primary site complete response and two year PFS and OS were 96% each for patients who had not high risk. So less than T4, less than bilateral neck disease,
less than 10 pack your smoking history,
and significantly fewer patients
had dysphagia to solids or impaired
nutrition at 12 months post treatment.
So this is as a de escalation strategy
worthy of further investigation and is being
moved through the ECOG community right now.
Induction chemo also is fairly well
established and locally advanced
paranasal sinus cancer, especially
those that involve close to the orbit.
And there’s retrospective
data from about 123 patients,
most of which had T4 disease at MD Anderson.
These patients had a 63% response rate,
01:34:30.000 --> 01:34:33.030 81% orbit preservation rate and very encouraging overall survival for the cohort.

01:34:33.030 --> 01:34:35.828 Likewise for sinonasal undifferentiated cancers, which is another very aggressive type of sinonasal cancers we have.

01:34:35.830 --> 01:34:37.618 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:37.618 --> 01:34:38.810 which is another very aggressive type of sinonasal cancers we have.

01:34:38.810 --> 01:34:40.290 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:40.290 --> 01:34:42.070 type of sinonasal cancers we have.

01:34:42.070 --> 01:34:44.260 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:44.260 --> 01:34:46.670 a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:46.670 --> 01:34:48.246 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:48.246 --> 01:34:50.258 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:50.258 --> 01:34:51.814 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:51.814 --> 01:34:53.758 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:53.760 --> 01:34:55.356 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:55.360 --> 01:34:57.664 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.

01:34:57.664 --> 01:35:01.738 Retrospective data that showed almost a 70% response rate to induction platinum etoposide with responders doing better with subsequent chemo.
afterwards versus radiation.

And lastly, immunotherapy has been looked at recently as an induction regimen in patients with high risk oral cavity HPV negative tumors. This was a small prospectively. Treated cohort from Dana Farber, 36 patients who got a single dose of Pembroke prior to surgery. The treatment was safe. You know there were no surgical delays, post-op radiation or chemo radiation were done as a standard of care based on pathology and adjuvant.
Pembroke was also used in high risk patients with positive margins or extranodal extension and grade 3 or 4 adverse events or delay of surgery did not occur like I said and the one year relapse rate for this high risk cohort was actually really good. It was only about 16% versus what we expect to see, which is about 30 to 40% in high risk patients. They also classified pathologic tumor response by grade and PTR 2 which was actually the highest degree of pathologic tumor response over 50%, which was seen in almost 1/4 of the
patients on this trial with just that single dose of immunotherapy, preop. And another quarter of almost 1/4 of patients had a minor pathologic response, so 25 to 50%, which is also not insignificant. And then another group, the radiation. Group at Dana Farber also looked at an EVO versus ibinabo as induction for again high risk oral cavity tumors. Although some patients did have adverse events with the Nivo and IPI plus nivo, there were no surgical delays again. In addition,
there wasn't evidence of response in both arms. Major responses over 90% were seen in four of these 29 patients, three in the Nivo plus IPI arm and one in the NIEVO alone arm. Again together these data just suggests that there is clinical tolerability. And possibly effectiveness for neoadjuvant immunotherapy alone in a small proportion of patients which are carefully selected. Finally, just to summarize the indications for induction chemo and head and neck that we tend to use at spinal, we broadly categorize these as
fierly definitive for induction
and those were induction can be
considered at our institution.
We almost always consider induction for T4,
larynx and hypopharynx cancer patients
to select out those that would be most
appropriate for organ preservation
without with definitive radiation.
And we also recommended for nasopharynx,
paranasal sinus and sinonasal
undifferentiated cancers.
It is worth considering induction for
highly symptomatic patients where
rapid tumor shrinkage is desired.
So for instance,
for airway protection for bleeding,
we also consider it when we suspect early metastatic disease
to assess response prior to more definitive surgery or radiation.
And finally, immunotherapy as an induction is really for carefully selected patients.
Like I said, high risk PD, one positive and preferably within the context of a clinical trial since the data really is very early in terms of how.
Motions do with neoadjuvant immunotherapy and that’s all I have. Thank you for your attention and be happy to take any questions.
Thank you doctor Batcha.

That was a great, efficient overview of induction, chemotherapy and head and neck cancer.

There is one question.

When? You present this option to patients, it seems like almost like magic. Oh, you can give me some medicine, and the surgery that the surgeon just told me about could be less morbid or have a higher chance of getting it all out. But when you see these patients and to discuss induction, what do you tell them are some of the risks,
why? It’s not just why,
why we’re not just doing it in
everybody in every situation.
Well, how do you,
how do you counsel patients
about the use of this?
I’m pretty upfront about what the
odds of response, what the odds of
tumor progression are going to be.
So across the board we see
about 70 to 80% of patients in
general responding to inductions.
So the odds are high but it’s not 100%.
So that’s what I clarify right at the get go.
There is a 20 to 30% risk that the
disease might either not shrink or
Actually progress with induction and that may risk surgery in the future. So you know where surgery is an option now and we’re trying to shrink it to preserve organs. We may lose that window for surgery. Now we of course do try to minimize that risk. You know, we’re clinically following them closely. If I have any doubts about progression, I do get scans pretty frequently. So we do scans like almost every three to four weeks with induction if we have any doubts about a lack of response.
But that is something I counsel patients on pretty extensively. You know, they’re obviously for those that are standing to lose an eye now, hopefully that if it doesn’t shrink, they still stand to lose an eye. So a lot of them. Will actually agree to induction if they have that little chance of preserving the eye or preserving the larynx. But, you know, I’m pretty forthright about what I say, and I do tell them that, you know, some of them will tell me afterwards, oh, we’ve responded so nicely to an induction.
Do we even need the surgery?

So, you know, I'm clear about induction is as a means to get to surgery or get to radiation. It's not going to replace eventually needing that surgery anyway.

That's really great. Thank you for clarifying that you want to stop sharing and share my screen. So I think this that what you just presented, Dr Bhatti is just a great example of the need for multidisciplinary management need for these patients and discussion.
01:40:39.176 --> 01:40:40.670 you’ll take phone calls from me
NOTE Confidence: 0.82624432
01:40:40.721 --> 01:40:42.371 about patients that were considering
NOTE Confidence: 0.82624432
01:40:42.371 --> 01:40:44.380 induction and I think you’re right.
NOTE Confidence: 0.82624432
01:40:44.380 --> 01:40:46.054 As a surgeon, what we want to know is,
NOTE Confidence: 0.82624432
01:40:46.060 --> 01:40:47.028 well, if he doesn’t,
NOTE Confidence: 0.82624432
01:40:47.028 --> 01:40:49.439 if this patient he or she does not respond,
NOTE Confidence: 0.82624432
01:40:49.440 --> 01:40:50.676 if it progresses,
NOTE Confidence: 0.82624432
01:40:50.676 --> 01:40:52.736 what’s the worst case scenario?
NOTE Confidence: 0.82624432
01:40:52.740 --> 01:40:54.660 And as you pointed out if you know
NOTE Confidence: 0.82624432
01:40:54.660 --> 01:40:56.270 we’re already going to take their
NOTE Confidence: 0.82624432
01:40:56.270 --> 01:40:57.890 carotid artery and it progresses a
NOTE Confidence: 0.82624432
01:40:57.940 --> 01:40:59.710 little you know we’re already prepared
NOTE Confidence: 0.82624432
01:40:59.710 --> 01:41:01.745 for that over saving and I we’re
NOTE Confidence: 0.82624432
01:41:01.745 --> 01:41:04.177 going to take ways and we have some
NOTE Confidence: 0.82624432
01:41:04.177 --> 01:41:06.337 progression towards the the eye you
NOTE Confidence: 0.82624432
01:41:06.337 --> 01:41:08.867 know what do we lose by trying induction.
01:41:08.867 --> 01:41:10.312 I think those are the discussions
01:41:10.312 --> 01:41:12.435 that we have in our tumor boards and
01:41:12.435 --> 01:41:14.179 it’s not always so clear cut and as
01:41:14.179 --> 01:41:16.118 you point out I think the patients
01:41:16.118 --> 01:41:17.970 need to understand the risks involved.
01:41:17.970 --> 01:41:19.670 So thank you very much.
01:41:19.670 --> 01:41:21.924 I wanted to thank all of our
01:41:21.924 --> 01:41:23.920 presenters here on talking about.
01:41:23.920 --> 01:41:26.064 Redefining Resectability and head
01:41:26.064 --> 01:41:28.500 neck cancers, as you can see,
01:41:28.500 --> 01:41:31.128 we do need to work as a team with
01:41:31.128 --> 01:41:31.932 our neurosurgery colleagues,
01:41:31.940 --> 01:41:33.764 vascular surgery colleagues and
01:41:33.764 --> 01:41:35.588 of course the multidisciplinary
01:41:35.588 --> 01:41:37.319 head neck cancer team.
So thank you to all our presenters and I really appreciate that we are. Pretty much on time, not too far behind, so thank you all very much and thank you for the attendees for all joining. This will be posted at yalecancercenter.org and will be emailed to the many people who registered as well. Thank you so much. Thank you.