Offered by the smile or Liver cancer program and we want to go in the next three months, go through some of the aspects that are more novel in the treatment of carcinoma liver cancer, and we asked some of our faculty, like Doctor Billingslea, another Madoff and Doctor Stein too. Teach us the novelty in their respective fields as you know about the cell carcinoma is on the rise is becoming one of the most frequent and and
00:00:43.255 --> 00:00:46.096 little two models on our latitudes.

00:00:46.096 --> 00:00:49.250 And what is important to understand

00:00:49.250 --> 00:00:51.930 is that treatment of hepatocellular

00:00:52.010 --> 00:00:55.209 carcinoma is complex is a moving target.

00:00:55.210 --> 00:00:57.886 And then it takes a village.

00:00:57.890 --> 00:01:01.394 Here you see some of the our colleagues

00:01:01.394 --> 00:01:04.805 working with us to go through the

00:01:04.805 --> 00:01:07.250 different possible approaches to this

00:01:07.336 --> 00:01:10.504 patient an I have to tell you that

00:01:10.504 --> 00:01:13.108 this picture are in defect with.

00:01:13.108 --> 00:01:14.916 There are many other.

00:01:14.920 --> 00:01:17.620 Colleagues said they work with

00:01:17.620 --> 00:01:19.780 us with this patient,

00:01:19.780 --> 00:01:22.750 but today today we have the

00:01:22.750 --> 00:01:25.373 pleasure of having Doctor Kevin
Billingslea carrying as a great pedigree in terms of these studies, they went to Stanford and then John Hopkins enjoy in the surgery residency at the Oregon Health. And after a fellowship at NCI an MSA KCC, he joined the faculty at the University of Washington Ann and became Chief of Surgical Oncology. Focusing of effort to be Jerry surgery, an anchoring Carissa for almost 16 year, and then we were. Fortunate enough to be able to recruit him as a Chief medical officer of the Smiler Hospital Ann You Cancer Center. And he came at the beginning of the year,
and was instrumental in all our transformation that we went through because of the covid. And but in a way that made reminding of our patients, so that nobody will be left behind. That. In addition, if I have to have had a personal note, is a really pleasant colleague. It’s it’s. It’s just a joy working with them. And you always participate to our two more boards with the extremely helpful insight. And so. Without further
00:02:57.850 --> 00:03:00.030 ado, I'll, I'll, I'll leave
NOTE Confidence: 0.809668362140656
00:03:00.030 --> 00:03:02.200 the stage to Doctor Billingslea.
NOTE Confidence: 0.706543207168579
00:03:06.300 --> 00:03:06.880 Coming.
NOTE Confidence: 0.819882392883301
00:03:10.360 --> 00:03:15.729 Oreo, thank you very much for that
NOTE Confidence: 0.819882392883301
00:03:15.729 --> 00:03:18.030 really gracious introduction.
NOTE Confidence: 0.819882392883301
00:03:18.030 --> 00:03:20.526 Let me just make sure that.
NOTE Confidence: 0.819226145744324
00:03:22.550 --> 00:03:25.118 Everyone seeing my slides.
NOTE Confidence: 0.746532142162323
00:03:30.130 --> 00:03:35.840 Has that look under folks? Yep, OK.
NOTE Confidence: 0.746532142162323
00:03:35.840 --> 00:03:38.404 Well, you know, thank you again.
NOTE Confidence: 0.746532142162323
00:03:38.404 --> 00:03:41.110 It's been an absolute absolute pleasure
NOTE Confidence: 0.746532142162323
00:03:41.185 --> 00:03:44.235 being here at yell for the past year and I
NOTE Confidence: 0.746532142162323
00:03:44.315 --> 00:03:47.582 am delighted to be here in a leadership role,
NOTE Confidence: 0.746532142162323
00:03:47.590 --> 00:03:50.270 but I will say one of the highlights
NOTE Confidence: 0.746532142162323
00:03:50.270 --> 00:03:52.140 of my clinical life,
NOTE Confidence: 0.746532142162323
00:03:52.140 --> 00:03:54.408 which is very important to me,
NOTE Confidence: 0.746532142162323
00:03:54.410 --> 00:03:56.576 has been the opportunity to participate

5
in this liver tumor program.

You know, under Mario’s leadership and with the contribution of many other people, this Program really represents that what we are aiming to develop in all of our disease sites and disease centers, which is a collaborative, multidisciplinary team that meets regularly, plans treatment prospectively collects data and continuously examines what we're doing to improve and optimize treatment for patients and moving the field forward. So it’s it really is a pleasure and an honor. So I’m a surgical oncologist by background,
in clinical practice,

and is Martin shared I've spent.

The majority of my time in the past over.

Close to 20 years focusing on both

but primarily liver cancer in liver surgery,

management of this group of patients with a paddle

cellular carcinoma in some ways is

the most complicated set of patients

I'm involved with because not only is

the surgery technically complicated,

will touch on that a little bit,

but the decision-making about who to

operate window operate who transplants.

And who to treat with alternative?
You know, oblativa or arterial therapies is also extremely complicated, and we'll talk more as we go along. But it very much involves complex multidisciplinary decision making. Apparel Center carcinoma remains one of our most daunting global public health challenges in the cancer arena. If you look at this graphic, the incidence of the disease is going up. Only in North American, but basically around the world.
And like many diseases, there is a greater burden of disease in under represented minorities and vulnerable populations. Although you know the overall incidence is creeping up in almost across the board. You know this is to a large degree due to the underlying burden of viral hepatitis, principally hepatitis C. Here in North America and Europe. hepatitis B more in Asia. But really, the looming crisis on the horizon is the explosion of non-alcoholic fatty liver disease, or so-called knaflich from a
variety of sources and etiologies.

But Nah fled is on track to.

Be the largest and most significant indication for liver transplant in the coming years, and it is probably going to be the most prominent underlying contributor to a parasailer carcinoma, particularly as our antiviral therapies improve.

So my focus today is going to be on surgical therapy and you know.

Where do we stand in surgical treatment for HTC in 2021? Well,
I think there are many things that we can be proud of and be excited about and are causes for optimism.

Surgical treatment for HCC as well as other liver tumors have really developed in the past 20 years. In a number of ways we’ve seen a renaissance related to the introduction of minimally invasive techniques for liver surgery. I’m going to talk about both laparoscopic and robotic approaches in some detail. The way we action surgically come through the liver and divide, deliver surgically has changed.
We used to use a lot of crush plant. Now we almost do everything with energy sources and more refined techniques such as acusa or herby. Our understanding of the anesthesia component of this patient management is improved and we've minimized look blood loss through the use of low CVP. Anaesthesia taken together these developments as well as improved surgical training, expertise of lowered overall surgical mortality into the range of 1 to 3% after liver resection.
Experience centers.

Unfortunately, due to the nature of the disease, relatively few patients who present with HTC are surgical candidates, and this is due to the severity underlying liver disease of any variety of etiologies, such as viral hepatitis, as well as the extent of disease. Sometimes patients have smaller early stage disease, but it is not uncommon for us to see extensive and infiltrating disease with. Portal vein invasion and other sites of disease in the liberal...
00:09:17.662 --> 00:09:19.866 or extra padick disease.

00:09:19.870 --> 00:09:23.874 So this combination of things often limits.

00:09:23.880 --> 00:09:26.520 The surgical candidacy of a variety of many of the patients.

00:09:26.520 --> 00:09:29.540 of of many of the patients.

00:09:29.540 --> 00:09:31.808 So in my talk this evening, I'm going to really highlight a couple of a number of key areas of our current status.

00:09:31.810 --> 00:09:34.048 We're going to spend some time talking about the fact that this really is a dual challenge for surgeons, but also for every specialty who's involved in the care of this group of patients because we have to treat the underlying liver disease and the cancer.
were not just on cologist, we are.

Hepatology oncologist dealing with both disease entities.

You know, very few of our patients are nuts.

Erotics in the western world,

only about 5% of them.

In Asia, about 40% of patients with HCC or non cirrhotic,

so it’s a different kind of clinical picture in other parts of the world.

But for what we deal with many patients or cirrhotics.

We will spend a brief bit of time talking about reception versus transplant.

I’m not a transplant surgeon and I’m not.

I won’t claim a mantle of expertise in this,
but I think any discussion of surgery in this disease has to at least mention transplant. Given its great importance in the management of this group of patients. I’m going to spend a fair bit of time talking about the process of patient selection for reception because it is truly a complex art and science that requires the input of a lot of people and will discuss that some. Talk about these technical developments, primarily the role evolving role of minimally invasive techniques.
00:11:07.995 --> 00:11:08.789 patient optimization,
NOTE Confidence: 0.861259996891022
00:11:08.790 --> 00:11:11.499 and then I’m going to spend a bit of
NOTE Confidence: 0.861259996891022
00:11:11.499 --> 00:11:14.740 time talking about a few key special
NOTE Confidence: 0.861259996891022
00:11:14.740 --> 00:11:16.648 clinical populations who actually
NOTE Confidence: 0.861259996891022
00:11:16.730 --> 00:11:19.112 are good surgical candidates and we
NOTE Confidence: 0.861259996891022
00:11:19.112 --> 00:11:22.428 need to be keeping an eye out for.
NOTE Confidence: 0.861259996891022
00:11:22.428 --> 00:11:25.020 As we look at patients with
NOTE Confidence: 0.861259996891022
00:11:25.120 --> 00:11:27.228 liver disease in HCC,
NOTE Confidence: 0.861259996891022
00:11:27.230 --> 00:11:30.415 it is important to understand how we
NOTE Confidence: 0.861259996891022
00:11:30.415 --> 00:11:33.451 as clinicians think about the severity
NOTE Confidence: 0.861259996891022
00:11:33.451 --> 00:11:36.091 of their underlying liver disease
NOTE Confidence: 0.861259996891022
00:11:36.091 --> 00:11:39.511 because that is going to be one of the
NOTE Confidence: 0.861259996891022
00:11:39.511 --> 00:11:41.288 key drivers of our decision-making.
NOTE Confidence: 0.861259996891022
00:11:41.288 --> 00:11:42.086 You know,
NOTE Confidence: 0.861259996891022
00:11:42.086 --> 00:11:44.480 the classic clinical system is the
NOTE Confidence: 0.861259996891022
00:11:44.548 --> 00:11:46.556 so-called Child Pugh classification
00:11:46.556 --> 00:11:47.560 of cirrhosis.

00:11:47.560 --> 00:11:50.794 This was this is a very clinically driven system that relies on.

00:11:50.794 --> 00:11:55.028 3 lab tests, bilirubin,

00:11:55.028 --> 00:11:55.500 albumin,

00:11:55.500 --> 00:11:57.850 prothrombin time as well as

00:11:57.850 --> 00:12:01.726 The presence of in severity of ascites and Vatican several opathy

00:12:01.726 --> 00:12:03.901 the child Pugh system was originally developed to predict mortality

00:12:03.901 --> 00:12:06.625 the child Pugh system was originally developed to predict mortality

00:12:06.625 --> 00:12:08.656 for portosystemic shunt surgery,

00:12:08.656 --> 00:12:10.400 but it has evolved over years to predict mortality after other interventions,

00:12:10.400 --> 00:12:12:090 including liver resection, patients are
assigned one up to one to three points.

For each of these criteria.

Adding up to a scale in their
classified Childs AB or C.

In more recent years,
particularly relating the transplant arena,
we’ve adopted the MELD classification so
called model for in stage liver disease.
The MELD score is less subjective,
there’s no.
It relies on 3 lab values,
creatinine,
bilirubin and INR.
Anna calculation and is used and is
used predominantly as a risk predictor
in a mortality predictor for patients awaiting liver transplantation. Both of these indices provide somewhat different but very accurate guides for predicting complications and mortality for liver surgery in the setting of sarot SIS. So if you compare them again, as I indicated this, this is actually prediction outcomes based on these classifications after replacement of a tips device that transjugular prophetic portal systemic shunt for ascites, both for patients stratified for child Pugh score as well as meld above or less than 18.
And you can see that you know there these are different cut offs, but they’re both quite. Predictive of outcome. You actually compare them. At least this group did, and there you know they’re very similar. The area under the receiver operator Curve is essentially equivalent, so although one is more clinical, one is more strictly lab based. They’re both very useful and I find them somewhat overlapping ways to assess risk and underlying liver function. So let’s turn for a minute to liver transplant,
because this discussion would not be complete without mentioning the profound importance of evaluating patients for liver transplant candidacy. And having that in the background in preparing them in moving them towards transplant and effective way, if they are candidates.

Data from the literature is the so called Milan study that established the Milan criteria which was published in 1996. This really established transplant as the gold standard for patients with significant underlying liver disease.
related to cirrhosis and limited.

HCC, Milan criteria include patients who have one tumor that is.

Equal or lesser than 5 centimeters in diameter,

or three or fewer tumors,

all equal to or lesser than 3 centimeters.

Patients who fit within that criteria enjoy excellent post transplant survival, ranging around 70 to 75%.

So even though the focus of this topic is reception specifically, it is important to understand that transplant in many ways remains the optimal treatment for patients.
with limited HCC and cirrhosis.

For all these reasons, patients have an excellent survival.

Of course, there’s nothing like a transplant to treat their underlying liver failure and.

One of the shining lights here is that living donation does hold future promise for increasing organ availability.

Challenges of course. Our organ availability is limited.

Transplant post transplant care with person intensive fault and support.

And we do have. We have learned that extended criteria
are possible and may allow selective increase in eligibility for patients who downstage During the course of aggressive pre transplant therapies. Before we switch to the kind of evaluation of patients for reception, I think one of the things that is unique about HTC that is really important to understand, and I spend a lot of time talking to my residence about this, that these tumors love to invade the portal venous system and that. You can see that radiographically as expensive, bulky thrombus is probably in acute thrombus.
This is a more chronic thrombus and.
The thrombus maybe tumor itself, or a mixture to Marie plot.
It is in some ways the cynic Winona, this disease.
Acute thrombosis may cause abrupt liver decompensation more chronic thrombosis
like this patient often results in liver atrophy in the affected lobar segment with compens atory hypertrophy,
and you’re seeing that in the left liver in this patient who has a right portal vein thrombus.
This is clearly a marker of high risk disease.
00:18:01.650 --> 00:18:03.850 Often these patients you need
to look for lung lesions.

00:18:03.850 --> 00:18:06.050 That’s going to be the next sighted disease,
but in some ways we as surgeons can exploit this atrophy and hypertrophy for reception in selected candidates.

00:18:06.050 --> 00:18:09.570 but in some ways we as surgeons can
exploit this atrophy and hypertrophy

00:18:09.570 --> 00:18:14.745 exploit this atrophy and hypertrophy
for reception in selected candidates.

00:18:20.900 --> 00:18:25.200 So as we start to think about how do we
choose patience for potential reception?

00:18:25.315 --> 00:18:29.730 W e need to talk about the Barcelona Clinic liver Cancer staging system.

00:18:29.730 --> 00:18:32.593 We need to talk about the Barcelona
system.

00:18:32.593 --> 00:18:35.020 The BCLC, as we often call it, there are
a variety of other staging systems.

00:18:35.020 --> 00:18:39.116 The BCLC, as we often call it, there are
a variety of other staging systems.

00:18:39.116 --> 00:18:42.637 a variety of other staging systems.

00:18:42.640 --> 00:18:45.984 But I think most of us who do
this work on a weekly basis,

00:18:45.984 --> 00:18:48.858 this work on a weekly basis,

00:18:48.860 --> 00:18:51.080 relying on the Barcelona system,

00:18:51.080 --> 00:18:53.999 kind of as our principle go to
in the decision-making process.

It’s not perfect, but I think it’s clinically very useful,

so stage A patients or patients with early HCC, relatively small lesions,

or a few single lesions.

And these A1 patients are.

This is really the group we want to operate.

No portal hypertension.

Normal bilirubin, essentially no sarot sis.

As we go up and stage,

the patients tend to get some
degree of liver disease.

They may have portal hypertension

or may they maybe have mild.
Disease according to Child

Pugh classifications,

as we get into stage B2 mercies

or larger tumors,

but this stage B classification

includes a variety of severity

in the liver disease stage,

sees advanced cancer and state Steve.

This is, of course, stage disease.

So, Is HPB surgeons.

We are trying to extract as much

information as we can to make

safe decisions about reception.

And there is a real kind of diversity

of approaches between the Western

surgeons in in the Asians.
Surgeons in China and Japan often rely on in design, and green retention is a kind of a biologic measure of liver function. Signing in green clearance seems to be less useful in our Western patients, although centers use it, it seems to be more effective in this group of patients with hep B related disease. We in the western world tend to use a cluster of indices including serum bilirubin and the presence or absence of clinically
significant portal hypertension.

Well, what’s clinically significant?

Portal hypertension?

Well, we look at a number of things.

You look at the presence or absence of splenomegaly thrombocytopenia, and we can get an actual quantitative measure using wedge product vein pressure gradients, and I’ll talk about that more in a minute.

And in some cases we turned to actual histopathologic analysis using liver biopsy.

Um, you know this.

In designing green clearance is one of the reasons we don’t this.
with it in a western population,
there is a broad distribution of.
Severity scores with overlapping
in designing green clearance.
So it’s less useful clinically.
One of the things that we do use a
lot is simple CT or MRI assessment.
Patients like this with bulky big
clearcut verisys in a big spleen.
We know we’re unlikely to
be surgical candidates.
Another example of significant upper
abdominal variceal development.
So what are my favorite measures?
In another reason that we really rely
on a multidisciplinary assessment is

This is a procedure that the interventional radiologists are quite expert at.

It involves catheter placed through the vena cava, usually through transjugular approach, and the catheter is directed out.

And a reading is taken and it’s expressed as a gradient in reference to the SVC. Anything greater than 10 millimeters of Mercury represents what we would consider clinically significant portal hypertension.

The data for that is really from a classic paper from the Barcelona group.
Jordi Bruin colleagues that was published in many years ago now, but they looked at the outcome of patients after liver surgery. And compared their preoperative paddock vein pressure gradient patients who underwent, went to surgery with a paddock vein, pressure less than 10 generally did very well without any decompensation. There were a couple who were higher but most did. Did quite well with his lower group patients who decompensated almost all. Virtually all have these higher
preoperative FedEx thing wage pressures

so that measurement is a is really a critical piece of information. For us surgeons, as we think about taking these patients in the operating room. The other thing that can be done at the same time as phatic pain wedge is this transjugular liver biopsy. It's minimally invasive. A biopsy instrument can be guided into the liver parenchyma through it. A transjugular approach in a small tissue sample taken that can help us grade the degree of fibrosis or cirrhosis, which will also help with decisions.
So overall, as we think about our approach, Surgically are the treatment really is driven by stage? Know this early stage group of patients we consider both for liver transplant in reception. Portal pressures are key here. Patients have normal porting pressures. Early stage disease can be treated with reception. Increased pressures need to be evaluated for transplantation or ablation. So to pull it all together, the people that I'm looking for his potential candidates are patients without cirrhosis.
Inhuma major hepat Ectomy can be performed without morbidity and I will even operate on patients with significant with large tumors in this group without cirrhosis. These are folks who will tolerate a major headache ectomy patients with compensated cirrhosis are much more difficult, the decision-making is more difficult. These are this is a group you have to collect all this information. In the operative, planning is more difficult. They generally will not tolerate a major help detect me. You have to be looking at a segmented happy talk to me or an ablation.
I’m not going to spend a lot of time talking about ablation in this talk, but it’s another important tool in our armamentarium.

So. And our multidisciplinary formats.

We’re looking at all of these things, severity of liver disease through child Pugh, hypertension, Histology.

Then we assess the extent of disease, size of lesions number, vaster invasions, as well as all these other factors that we think about surgically comorbidities.

Do they have heart disease, lung disease, or kidney disease, as well as the size of the liver remnant?
So. As we pull these this information together, we wind up really getting what I would describe as this multi parameter assessment for respectability, and I won’t walk through this all, but you can see that really it’s a pretty small group who are really low risk. These are patients who have no portal hypertension in minor have to talk to me. It’s important to understand that in this low risk of group group of patients, liver resection is very safe. Liver related mortality less than 5%. As soon as you get up into intermediate risk, we’re looking at, you know, pushing a 30% risk of decompensation.
Close to 10% mortality.

High risk group, greater than a 30% risk of decompensation.

Significant risk of surgical mortality.

So all of this kind of accuracy.

Indecision making is really critical for safe patient outcomes.

So how do we do this?

Well, I probably should just use Mario slide with this surgical decision,

making it is more than just the surgeons.

It takes a team or in his words it takes a village.

You know,

and I cannot tell you over the years,
how many times I say HPB surgeon
have been rained in my surgical
enthusiasm by one of my colleagues
who points out some other pieces
of the patients history or biology
that would make surgery unsafe.
And, you know,
that’s where we all get together
in our liver tumor conference.
Hepatology IR pathology, medical oncology,
thinking about alternative treatments
are body image Ng colleagues or.
Very helpful in pointing out.
The extent of the disease,
potentially non or extra paddock
sites of disease.
Other things that will be dealt with.

Breakers and then.

All of the surgical.

Teens need to be involved.

Transplant surgeons and surgical oncologist both bring kind of interdependent overlapping expertise to the table and caring for this group of patients.

So I’m going to turn for minute shift gears and talk about surgical technique.

So these are the classic major hepatectomy operations.

You know, these are the classical operations that originally described.
his liver surgery was developed.

You know this is right now protect me left at protect me.

Extended right hip protect me or

left lateral segment Or’s left lateral section ectomy and you know these operations are really great for patients who are non cirrhotic, have larger tumors, but as you can tell many of them. Involve sacrifices of a major of volume of functioning liver and anyone any patient who has any degree of liver disease will not tolerate these things with the exception perhaps of the left lateral section ectomy.
So a key for liver surgeons is understanding hepatic segmental anatomy. This was originally described by the French anatomist Cloud Kanade. There are eight segments in the liver. The caudate, two and three on the left lateral segment for left medial 567 and eight on the right side, and it’s critical to understand that we can mix and match and tailor our operations very precisely based on this segmental anatomy. So as we think about segmental liver resection for small HCC
understanding those segments gives us a great ability to do again. Taylor or Target the extent of the operation to the size and location of the disease. This is a perfectly in the posterior sector which would be for section in segment six and seven posterior sector ectomy. These are segmental resection from the right side and the left side of liver segment through segment 2. Now, the other reason that understanding segmental anatomy is important is for. The technical element of Disease Control. These portal venous branches are a
key pathway for dissemination of tumor cells and can be contaminated by tumor cells. So when we're doing parenchymal sparing receptions, how we conduct that reception is in relation to the portal venous branch serving. That segment is critical. This approach is ideal with a complete resection of the involved. A portal vein this beta be reception would encompass the tumor, but not as much portal vein and would put the patient at a higher risk for local recurrence. So patient selection is important,
but technicalities are important as well.

Now let’s talk for a minute about the future liver remnant.

What we know from liver surgery is that the size of the remnant is a critical predictor of postoperative outcome.

Patients who have, in healthy patients who have a functional liver remnant of less than 20%, we have a very high incidence of postoperative complications and FL are of greater than 20%.

Generally patients do very well now. This is in healthy livers.

I would say that FLR is 40 to 50% in anyone with any underlying liver disease.
Um? Portal vein Embolization is a key technique that we use. David made off is a world expert in this. He is really built, his career among other things and and honing and refining this technique. So I’m not going to pretend to be the expert on this other than share that. As liver surgeons, this is our very best friend because this technique involves interruption this technique involves interruption of the portal venous flow to the affected side of the liver and allows hypertrophic growth which allows us to respect the contralateral side.
You know this is a classic example of a pre operative left lateral segment which would have been a 14% small remnant froze up to 21% after preoperative Puerto venous embolization. This is data in a from an MD Anderson paper that David was involved with. I suspect he'll show Shell share more details when he gives his see me in a month or so. the French are actually have done nice work with this in cirrhotics or. PVD for patients with HCC and this is a relatively small series from one of the groups in Paris that show that
although between these two groups, the volume after Pve was not that much greater, but the incidence of liver failure was significantly less and the stay in the ICU and hospital was less so. If you were going to do a major help protect me in a patient with any degree of underlying liver disease. A PV is a critical. Potential adjunct. The other thing that has come forward in recent years is the idea of radiation lobectomy. this is a technique that our IR
00:34:12.520 --> 00:34:15.810 team is extraordinarily adept at.
NOTE Confidence: 0.79510692730546
00:34:15.810 --> 00:34:18.290 It involves treating the tumor
NOTE Confidence: 0.79510692730546
00:34:18.290 --> 00:34:21.939 as well as the involved side of
NOTE Confidence: 0.79510692730546
00:34:21.939 --> 00:34:24.629 the liver with Y-90 microspheres.
NOTE Confidence: 0.79510692730546
00:34:24.630 --> 00:34:28.678 This is a pre operative set of images.
NOTE Confidence: 0.79510692730546
00:34:28.680 --> 00:34:31.160 Actually I'm sorry preoperative
NOTE Confidence: 0.79510692730546
00:34:31.160 --> 00:34:34.260 up pretreatments up here post
NOTE Confidence: 0.79510692730546
00:34:34.260 --> 00:34:37.244 treatment down here it shrinks the
NOTE Confidence: 0.79510692730546
00:34:37.244 --> 00:34:39.514 liver and treats the tumor.
NOTE Confidence: 0.79510692730546
00:34:39.520 --> 00:34:43.291 So that as the the affected side of liver
NOTE Confidence: 0.79510692730546
00:34:43.291 --> 00:34:46.018 atrophy's and the disease is treated,
NOTE Confidence: 0.79510692730546
00:34:46.020 --> 00:34:48.180 the contralateral side of the
NOTE Confidence: 0.79510692730546
00:34:48.180 --> 00:34:49.476 liver hyper hypertrophy’s,
NOTE Confidence: 0.79510692730546
00:34:49.480 --> 00:34:51.850 which eventually allows a reception
NOTE Confidence: 0.79510692730546
00:34:51.850 --> 00:34:55.648 of the affected side of the liver with
NOTE Confidence: 0.79510692730546
00:34:55.648 --> 00:34:58.330 this nice large left liver remnant.
No, the one of the things that’s really exciting about radiation lobectomy is that it allows the tumor to be treated with the radiation well, and if necessary, portal vein embolization can be added on top of it. I really like this technique in bulky tumors and in a patient where you may be concerned about occult metastatic disease. It gives us this window to watch them for awhile before committing to surgery.
So I will share that I think one of the greatest steps forward in the past 15 years or so is the Application of minimally invasive surgical techniques deliver surgery, and this has been a continuous evolution in the early 90s. Surgeons first Gabaldon small wedge. Resections of the first major hit Ectomy was reported in the mid 90s, and this was a pretty crude operation that relied a lot on surgical staplers and over the years, the our approach to laughter is improved. We’ve adapted many of the open techniques,
including Pringle maneuver techniques

So that.

We’ve developed standards of practice and increasingly sophisticated anterolateral receptions and subsegmental receptions, and even in some centres, laparoscopic live donor operations.

So this actually gives a pretty good picture of what’s happened over the years since the turn of the Millennium with a kind of a slow and this is data from some European centres but I think this is...
quite reflective of what’s gone on in large centers around the world. Kind of as a decrease, steady decrease in open liver surgery and minimally invasive procedures. Now I don’t think any HPB surgeon would say that open liver surgery should go away. There are too many complex situations that I think patients are best served with open surgery, but clearly this has been developed and embraced around the world.
00:37:37.240 --> 00:37:38.940 And over this time,

00:37:38.940 --> 00:37:41.065 many of the early operations

00:37:41.065 --> 00:37:42.620 were small wedges.

00:37:45.300 --> 00:37:48.100 Those of kind of drop down,

00:37:48.100 --> 00:37:50.803 protect knees and an resections in

00:37:50.803 --> 00:37:53.178 the posterior superior segments which

00:37:53.178 --> 00:37:55.897 are much more technically complicated

00:37:55.897 --> 00:38:02.060 So laparoscopic appendectomy 20 and 2021.

00:38:02.060 --> 00:38:05.896 I think we can say is safe.

00:38:05.900 --> 00:38:06.842 Um, you know,

00:38:06.842 --> 00:38:07.470 like everything,

00:38:07.470 --> 00:38:10.018 it has to be patient enough to

00:38:10.018 --> 00:38:11.110 be selected carefully.
I have not gone through all the data in this for the sake of time, but it’s Uncle logically appears to be equivalent to open operations again. Selected cases there are better fits in hospital stay and recovery cost benefit analysis suggests significant value for appropriately selected patients. There are limitations with non anatomical sections, parenchymal, scarring sections, bleeding control, and biliary reconstruction is can be difficult with the laparoscopic instrumentation. So what next?
Many of us are quite excited in doing robotic surgery of I think this is a rapidly developing technology. The Davinci System was introduced around 2000. Appear to Julia Naughty first did the first protect me with the robotic platform in 2003. This has expanded internationally. Now the major focus of robotic surgery really has been urology and gynecology and a liver surgery is relatively late in this, but many of us are embracing it and are excited about it.
feels that it brings real value.

The unique elements of the robotic platform are the 3D stereoscopic.

Vision and the end of risk functionality of the instrumentation provides a degree of dexterity and flexibility with surgical maneuvers inside the body that is just. At least for me, most of us very difficult to duplicate using straight stick laparoscopic instruments do precise suturing difficult locations. The dual console that you're seeing here is great for instruction and the economic.
The ergonomics tend to be more favorable. Let’s see, these are pictures I took in our own operating room a couple of weeks ago. This is actually a patient who have robotic left lateral segment resection. This is kind of the setup we’ve got for robotic arms. We still have one of the assist ports that allows us to pass additional instruments and sutures in the abdomen and this is kind of just as we’re closing all of the incisions. These are for small incisions across the abdomen and this is about a 3 centimeter.
00:40:37.716 -- 00:40:40.210 extraction port right below the umbilicus.
NOTE Confidence: 0.888548016548157
00:40:40.210 -- 00:40:43.108 Through which we removed the specimen.
NOTE Confidence: 0.888548016548157
00:40:43.110 -- 00:40:46.638 Patient went home in two days.
NOTE Confidence: 0.888548016548157
00:40:46.640 -- 00:40:49.202 So lots of discussion around the
NOTE Confidence: 0.888548016548157
00:40:49.202 -- 00:40:50.483 country robotic laparoscopic,
NOTE Confidence: 0.888548016548157
00:40:50.490 -- 00:40:53.058 you know, like everything in surgery,
NOTE Confidence: 0.888548016548157
00:40:53.060 -- 00:40:55.556 this is a point of surgeons
NOTE Confidence: 0.888548016548157
00:40:55.556 -- 00:40:58.200 love to debate back and forth.
NOTE Confidence: 0.888548016548157
00:40:58.200 -- 00:41:00.340 There are relatively few comparisons.
NOTE Confidence: 0.888548016548157
00:41:00.340 -- 00:41:02.680 This comparison study was done
NOTE Confidence: 0.888548016548157
00:41:02.680 -- 00:41:05.020 at the University of Pittsburgh
NOTE Confidence: 0.888548016548157
00:41:05.098 -- 00:41:06.758 a number of years ago,
NOTE Confidence: 0.888548016548157
00:41:06.760 -- 00:41:10.208 and I think what it shows is that.
NOTE Confidence: 0.888548016548157
00:41:10.210 -- 00:41:14.686 The robotic cases in this study
NOTE Confidence: 0.888548016548157
00:41:14.686 -- 00:41:16.924 were took longer.
NOTE Confidence: 0.888548016548157
00:41:16.930 -- 00:41:18.514 Application rates bloodloss
outcomes were essentially the same, but more cases were completed completely. Minimally invasive, Lee, using the robotic platform. Many of these laparoscopic cases required a utility incision or hand port so. I think there are merits to both approaches. Um, I have found in my own practice. As this author points out, the robotic approach may facilitate parenchymal sparing receptions, particularly in these upper posterior segments, posters appear segments that you can get to it to operate on with the robot,
which is hard.
Lapre Scopic Lee in this series.
Over half the cases the robotic series
work in those difficult segments.
The other area where I find the robotic
helpful is anatomically complicated
procedures that require a lot of careful
enteropathic dissection and control the
paddock veins and precise stapling.
This paper was a nice report of
outcomes in complex cases of left
lateral section ectomy where the
disease is approaching him from the
veins and they compared robotic left
lateral segment with left lateral
lateral segment.
Um, you know these?
This group does.
Note that the robotic cases were more expensive, but when the procedures got complicated, the robot really seemed to provide benefit with reduced blood loss and better length of stay.
So as you think about the cost of the value proposition, the way the cost of these procedures is allocated and understood is really critical. And if you know this is one of those situations where the robotic instrumentation is more expensive,
but if you can save anything on length of stay like this series did it more than pays for itself. So I’m going to switch gears and talk about a few key kind of subsets of patients that I think we really need to understand as we think about surgical candidates for HTC. One critical group is this group of patients with so called fibro lamellar parasailer carcinoma. This is a disease that has a bimodal age distribution, but it’s predominantly young adults, although there’s a smaller peak later in life.
In the 60s has a male predominant’s.

Most of these patients have non cirrhotic livers.

They often proves in his large bulky tumors and surgery is the primary treatment.

It’s easy to mistake these tumors for benign liver lesion, such as bulky FNH or adenoma.

They are malignant, they’re aggressive. They need to be respected, and they can have an excellent outcome with five year survival with reception.

but they need to be appropriately diagnose and manage.
00:44:34.590 --> 00:44:37.170 So this actually is great story.
NOTE Confidence: 0.844550490379334
00:44:37.170 --> 00:44:40.302 This was like a young man who fell off
NOTE Confidence: 0.844550490379334
00:44:40.302 --> 00:44:43.745 a ladder who came to see me after he
NOTE Confidence: 0.844550490379334
00:44:43.745 --> 00:44:46.830 was seen in the emergency Department
NOTE Confidence: 0.844550490379334
00:44:46.830 --> 00:44:49.640 with some bruises and sprains.
NOTE Confidence: 0.844550490379334
00:44:49.640 --> 00:44:52.598 And they had an abdominal CT
NOTE Confidence: 0.844550490379334
00:44:52.598 --> 00:44:55.050 that showed this lesion and.
NOTE Confidence: 0.844550490379334
00:44:55.050 --> 00:45:02.104 You know, had no underlying liver disease.
NOTE Confidence: 0.844550490379334
00:45:02.104 --> 00:45:05.554 And this lesion, which is best
NOTE Confidence: 0.844550490379334
00:45:05.554 --> 00:45:09.715 seen in the venous phase, he went,
NOTE Confidence: 0.844550490379334
00:45:09.715 --> 00:45:11.785 The other thing that was ominous
NOTE Confidence: 0.844550490379334
00:45:11.785 --> 00:45:14.478 about it is that the lower part
NOTE Confidence: 0.844550490379334
00:45:14.478 --> 00:45:16.848 lesion had this extra pet extension.
NOTE Confidence: 0.844550490379334
00:45:16.850 --> 00:45:20.940 So he went to the operating room and had a.
NOTE Confidence: 0.844550490379334
00:45:20.940 --> 00:45:23.919 Right have attacked me with a kind of a
liberal reception of his retroperitoneal tissues to clear that extra pack extension.

Big bulky specimen.

He’s a healthy guy.

He did great post operatively.

I followed him for about five years when I was in Portland and he did well.

Never had a recurrence and then I kind of glossed him to follow up, but I think this is a perfect example of. Many of these patients can do well or even be cured with surgery. If you look for the disease. The other group of patients is agents of what I call our elders,
HTC in the elderly.

I think it needs to be reviewed almost a different disease.

This lady was sent to me about a month ago.

Sweet Lady retired nurse.

Spent most of her career at Saint Raves.

She has a history of breast cancer and she was undergoing evaluation.

Had an MRI which showed the least.

and she was undergoing evaluation.

spent most of her career at Saint Raves.

She has a history of breast cancer.

It was biopsied and proved to be.

well differentiated HCC and she has undergone a robotic left lateral segment.
Resection has done great. So this was a group of patients that I noticed in my prior work. Euro would keep seeing these older folks from all over the Pacific Northwest showing up with his liver tumors without cirrhosis. Most of them were actually quite healthy, so I had one of our residents write this up with one of my partners. Doctor Mahlon are transplant group in Portland. And of our series, about 50 patients median.
age was 75 years old.

Only 13% of them had underlying liver disease.

And of that group, most of them had some alcoholic liver disease.

Most of them were not viral.

Hepatitis over 50% were treated with the major HEP A type to me, and they all enjoyed excellent five years survival.

I think the interesting thing is, this is a group that’s already selected themselves as being older without having a life limiting comorbidity.

They get a liver tumor in.
You know, I would contend they merit aggressive treatment.

So just to summarize, wrap up. You know surgery is the predominant topic, but I'm really need to underscore the fact that transplant remains a central treatment. It is the ideal treatment for cirrhotic patients with disease within the Milan criteria. Reception is an excellent treatment for patients with limited disease and well preserved liver function.

We talked a lot about multidisciplinary
00:48:27.570 --> 00:48:29.852 assessment and the importance of
NOTE Confidence: 0.845439612865448
00:48:29.852 --> 00:48:31.917 the absence of portal hypertension.
NOTE Confidence: 0.845439612865448
00:48:31.920 --> 00:48:33.906 We talked about Portal vein embolization,
NOTE Confidence: 0.845439612865448
00:48:33.910 --> 00:48:35.890 and radio ablation to augment
NOTE Confidence: 0.845439612865448
00:48:35.890 --> 00:48:37.078 the plan remnant.
NOTE Confidence: 0.845439612865448
00:48:37.080 --> 00:48:39.545 A discussion of minimally invasive
NOTE Confidence: 0.845439612865448
00:48:39.545 --> 00:48:42.010 surgical techniques and you know,
NOTE Confidence: 0.845439612865448
00:48:42.010 --> 00:48:44.943 I'll share that my bias has been
NOTE Confidence: 0.845439612865448
00:48:44.943 --> 00:48:48.046 moved to move my own practice
NOTE Confidence: 0.845439612865448
00:48:48.046 --> 00:48:50.386 towards the robotic platform.
NOTE Confidence: 0.845439612865448
00:48:50.390 --> 00:48:52.390 Although laparoscopic approaches or
NOTE Confidence: 0.845439612865448
00:48:52.390 --> 00:48:55.390 equally valid we talked about fibro
NOTE Confidence: 0.845439612865448
00:48:55.464 --> 00:48:57.789 lamellar disease and elderly HCC,
NOTE Confidence: 0.845439612865448
00:48:57.790 --> 00:49:00.926 so I’m going to wrap up there
NOTE Confidence: 0.845439612865448
00:49:00.926 --> 00:49:04.513 and say thank you to my partners
NOTE Confidence: 0.845439612865448
00:49:04.513 --> 00:49:07.178 in the liver tumor program.
And Mario, for his leadership and Renee for helping us put this on and ask if there any questions.

You thank you, Kevin.

This was a fantastic talk.

Just if if there are questions, please write them in the chat. I read them and. And coming will respond.

I just, I mean, well, I want to thank you Kevin, not only for this is cool shows in the master sophisticated and newer surgical technology,
but most of all, for your accent on how match that she’s Young’s how many decisions are into a surgical indication, how many eyes look at the same slide, the same data, and how much discussion. I would dare to say that this is as important as the scale of the surgeon. Well, what I will say is surgical technique and precision is very important. These are operations that really need. You need to be extremely meticulous, but the the patient selection of the decision-making is absolutely central, and that’s where I could not agree more.
You need a thoughtful team and you need all these valuation techniques, particularly really good image N\-g assessment of liver function clinical assessment by hepatologist wedge vein pressures. All of that makes a difference. And that's why Am centers such as ours are. We get good outcomes.

A few questions, I'm gonna read it so. How to treat it and? This is if I can answer that question for you.
We wish to know that we are heavily investigating. And if you want to add something on this, but then is that there’s another question here for satisfied can rate told Kevin in addition to radiation lobectomy.

Any thoughts on using ethereal embolization? On bridge to protect me for ATC in large, bulky tumors.

No such thanks for the question. You know I, I will say, I think it. It is. It’s probably a very reasonable approach. In these large bulky tumors.

I guess I will share that my experiences been more towards a Y-90 approach to radiation lobectomy approach.
And maybe that was the bias of the IR group that I worked with closely in Portland. I do think there's some merit to it, because with the search or why 90, you're not going to get an acute necrosis or ischemic effect in a large tumor. It's a cytotoxic tumor killing effect. I think the patients tolerate it pretty well and then. Then you get this benefit of liver atrophy as well, probably in a way that you don't get in the Saint to the same degree with with tastes you know.
And I'll share. I've operated on at least two or three patients, six or eight months after radio ablation and. At least in one patient I can remember, there's no viable tumor left, so. I'm not sure they all eventually need surgery, but it's kind of hard to know till you've done it. Well, a couple more of a very sophisticated questions here. One is from Stacy. What do you think about the use of systemic therapy? They specifically immune therapy as
00:53:45.710 --> 00:53:47.780 a neoadjuvant therapy or argument

00:53:51.010 --> 00:53:55.400 Well, you know, I think.

00:54:01.270 --> 00:54:04.198 We're all moving in every disease,

00:54:05.499 --> 00:54:09.190 and I think as we see the efficacy

00:54:09.190 --> 00:54:12.010 of treatment in HTC improving,

00:54:12.010 --> 00:54:14.926 we probably will get to that.

00:54:14.930 --> 00:54:18.686 I don't think we're there yet.

00:54:18.690 --> 00:54:21.458 Um? You know,

00:54:21.458 --> 00:54:24.850 so wrapping it just was not active enough.

00:54:24.850 --> 00:54:27.520 A tease. Oh Bev, maybe.

00:54:27.520 --> 00:54:28.828 And then I think,
you know we’ll probably get there with

the postoperative adamant as well.

I, I’ll be honest,

that you are probably more

acquainted with than I am.

Stacy is the PII in to understand

do have atrial here that Stacy

is the PI in to understand

the answer to this question.

So patient after surgery.

Weather immunotherapy can can

help preventing the recurrence.

Because this is the problem with this

cancer that recurs so Thomas Daddy.

Is ask is congratulating for your talk,
but interesting how many people with hepatitis C have been treated and there she knows is well compensated. They remain at risk. Do you favor surgery over ablation for smoke humor? You know, I think there are a couple of pieces in that. Question and my own. I think in this group of patients who are treated for hepatitis C at their risk. For developing, HTC does go down and I suspect that the hepatologist know those numbers much better than I do. What I can tell you is.
Having operated on many patients over the years have had a sustained virologic response to hep C treatment. They are much better surgical candidates or livers, or healthier. They tolerate surgery much more readily than either non-treated patients or patients who did not have some adequate response. I do think they remain at risk regarding ablation. You know I didn’t spend a lot of time talking about ablation, but I think it is a very useful modality, either by the interventional radiologists or in some cases by surgeons.
00:56:39.070 --> 00:56:40.696 in difficult locations.
00:56:40.696 --> 00:56:45.259 And I think for small tumors it’s a very.
00:56:45.260 --> 00:56:47.530 It’s a very reasonable approach,
00:56:47.530 --> 00:56:50.290 and I think there’s really abundant
00:56:50.290 --> 00:56:52.520 data that indicates that for,
00:56:52.520 --> 00:56:55.698 you know, for a 2 centimeter tumor,
00:56:55.700 --> 00:56:58.424 the outcome is going to be
00:56:58.424 --> 00:56:59.786 a essentially equivalent.
00:56:59.790 --> 00:57:03.360 So I I think it’s a very
00:57:03.360 --> 00:57:04.380 there’s no patience is safe Surgical
00:57:04.770 --> 00:57:07.114 candidate and they have minimal disease.
00:57:07.114 --> 00:57:09.460 there’s no patience is safe Surgical
00:57:09.460 --> 00:57:11.420 Name would like a reception.
00:57:11.420 --> 00:57:13.370 Sometimes there is satisfaction to
having the disease out of their body,

and I think it’s reasonable.

But then there’s the fact of

comorbidities too, so locks goes good,

go into the decision. We have three more questions to go,

Only the only issue with additional back to me is that we do not know

that kinetic growth rate of deliver.

There is literature on PBE, an sequential

days combined with PVA, hopefully.

We have this figure out the sample and

that’s more common than thank you bye.

And Sue Chan.

From our pathology Department
00:57:54.434 --> 00:57:57.360 has to do this action matching.
00:57:57.360 --> 00:57:59.436 What is the minimum distance in
00:58:01.247 --> 00:58:03.042 millimeters of tumor to resection
00:58:03.042 --> 00:58:04.840 margin you prefer to call
00:58:07.120 --> 00:58:14.030 Yeah. Yeah. There, I guess the way
00:58:14.030 --> 00:58:17.128 I would answer that question is
00:58:17.128 --> 00:58:20.377 that what I try to aim for is a.
00:58:20.380 --> 00:58:23.292 Is a centimeter margin.
00:58:23.292 --> 00:58:26.522 Often you know, depending on
00:58:26.522 --> 00:58:29.127 the location of the disease,
00:58:29.130 --> 00:58:32.256 in the proximity to other structures,
00:58:32.260 --> 00:58:34.204 that is not achievable.
00:58:34.204 --> 00:58:37.795 I think for most HCC and narrow
00:58:37.795 --> 00:58:41.197 margin of even a couple of
minutes millimeters is adequate. Certainly a positive margin is a marker
is associated with poor outcomes. But it is. I will say, it’s difficult to know in
Is it the margin that’s the driver, the outcome or the biology of the disease.
So I don’t think that answers but what I would say is like I,
I tried to get a centimeter of margin and finally we have
a question from John Kuntzman. Another of our surgical oncologist.
I generally consider a section to be
contraindicated in multifocal agency, even in non cirrhotic. Would you agree with that?
In general. Yes. Um? Although. John, you know as well as I do. There are no absolutes in surgical oncology.
You know, I think some of that depends on the size, the location, the health of the patient, their age, the technicalities of the operation, kind of all those other intangibles that would go into the decision. Domino’s rephrased it doesn’t give you quarter here, So what are
01:00:21.020 --> 01:00:21.820 your exceptions?

01:00:21.820 --> 01:00:24.620 Oh, you know I would say in

01:00:27.664 --> 01:00:30.219 that are resectable safely with.

01:00:30.220 --> 01:00:33.810 Even a right hepatectomy.

01:00:33.810 --> 01:00:35.952 You know, I would probably send the

01:00:35.952 --> 01:00:38.495 patient to Stacy and maybe have them have

01:00:38.495 --> 01:00:40.590 her treat them with systemic therapy.

01:00:40.590 --> 01:00:43.820 Kind of in an ad hoc way for you know,

01:00:43.820 --> 01:00:45.758 the question came up about neoadjuvant.

01:00:45.760 --> 01:00:48.014 Well, this is the case where yeah,

01:00:48.020 --> 01:00:51.250 I’d figure out a way to do some new agents.

01:00:51.250 --> 01:00:52.865 So you were watching the

01:00:52.865 --> 01:00:54.480 patient for a few months.

01:00:56.594 --> 01:00:59.006 lesions or bone lesions, and if there
01:00:59.006 --> 01:01:00.938 was no new disease or progression.

01:01:00.940 --> 01:01:02.473 Yeah, it operate.

01:01:02.473 --> 01:01:05.028 I bet you would too.

01:01:05.030 --> 01:01:06.060 Alright, well

01:01:06.060 --> 01:01:09.102 thank you very much Kevin for

01:01:09.102 --> 01:01:12.787 taking time out of your very busy

01:01:12.787 --> 01:01:15.883 day to give and deliver this.

01:01:15.890 --> 01:01:18.475 This lessons about novelty and

01:01:18.475 --> 01:01:21.060 what is establishing in surgery.

01:01:21.060 --> 01:01:24.056 Ann and thank you to the audience

01:01:24.056 --> 01:01:27.896 and thank you to Renee for another

01:01:27.896 --> 01:01:30.356 outstanding organization of this.

01:01:30.360 --> 01:01:35.040 We will meet again in a month to here.

01:01:35.040 --> 01:01:39.440 David Mouth, yes I thank you again everybody.

01:01:39.440 --> 01:01:43.296 Thank you alright have a good one.