

[MUSIC PLAYING]

PATRICIA

So this is going to be the beginning of the [INAUDIBLE] symposium. OK? So afterwards we have a number of

CHAPIN:

other speakers talking this morning. I'm just giving from the radiation therapist's perspective, and the things that we deal with, and how we set things up at Roswell.

I'm hoping to actually plow through the slides, because I would love to ask you guys if you have anything in particular that you do in your clinic [INAUDIBLE] setting patients up that you find is key and comfortable. I think that it would be a great forum to share.

If we don't get to do that while I'm speaking, then maybe there's time to have a panel discussion right before lunch. But if you have a great idea, something that works for you, please share it so we can all learn. Because we all know that when you work in one place and you do it one way, sometimes it's hard to think out of the box.

So sometimes you'd run [INAUDIBLE], which is what this is great for, a venue like this. And we can share our knowledge. And that helps us change it up a little bit.

So this is just a brief outline of what we're going to be talking about. We're going to kind of tap into those points on each one of those points. This slide [INAUDIBLE] put into the presentation.

And at first I looked at it and went, really? [INAUDIBLE]. But maybe those are the people who [INAUDIBLE] in the morning. OK? But to me, if this is new knowledge for you, then maybe we need to reconsider our profession.

But I left it in there. However, the bony anatomy of the pelvis, you'd think that most of us are pretty good on all of that. But in this symposium we're going to be talking a lot about the organs of the pelvis. But we can't forget that really how many times-- I've treated so many patients with metastasis in the pelvic area. And as a therapist, that can create some issues as far as setups.

How are we going to do that? It's kind of case by case. Do you need a cushion underneath that? Do you need to raise your legs a little higher? Do you need to raise your head a little higher?

So and that's for the pelvis. We treat that. And I don't think anybody's really been touching on that today. But it is still something that we all deal with, and, again, creates issues.

Do they need payments in order to get [INAUDIBLE] treatments? All things that need to be considered.

Now, how common is this cancer? OK. Four of the top 10 cancers are in the pelvis. So this is an area we want to treat very often.

In women the most common is endometrial. But what's interesting about this is if you look at the breast, the incidence of breast cancer in the cases diagnosed last year.

Look at colorectal right behind it at number two. OK? Again, so now you have colorectal. And then the GYN [INAUDIBLE]. There's a lot going on down there in the pelvis.

Local incidence in men. Last year new cases diagnosed. If you add up just what's going on in the pelvis, 2.7 million cases last year. That's huge.

But what to me was the most surprising here is if you look at colorectal cancer, but how close it is to prostate cancer, which [INAUDIBLE] cancer. [INAUDIBLE]

With the colorectal cancer, [INAUDIBLE]. That, to me, was [INAUDIBLE]. That was kind of an eye opener [INAUDIBLE].

SPEAKER: Cause that's loud. Yeah. I'll go turn that down.

PATRICIA Sarcomas can happen anywhere in the body. And they can be a challenge to set up for simulation and treatment.

CHAPIN: But they actually can happen in the pelvis. They treated glutes. They treated on thigh high.

Although, according to that first slide, the pelvis [INAUDIBLE]. But still, area.

OK. Kind of glad I'm not talking about [INAUDIBLE]. We'll be doing this a lot.

All right. All right. So your treatment sites. A lot of these treatment sites, the way you set patients up with basically the same year in basically three different setups for a pelvis, depending on what it is we're treating. So we're going to have a proving mask.

And going through each one. And then into a little bit more in each tab.

Organs at rest during pelvic RT is every one that you don't want to treat. There is a lot going in there in a relatively small space. So there's some just think, OK, because externally there isn't much I can do during the regular standard pelvis setup to immobilize what's going on inside. So [INAUDIBLE] is standing there professional therapy, and [INAUDIBLE] is still a team. Yeah. We kind of need to make sure all that good stuff is taken care of. And thankful that we have such great energy now.

So treatment sites and associated patient setups. So for these basics, these are our standard setup for us at Roswell. Supine, head first, hands on chest, usually involving a [INAUDIBLE]. Knee roll or some sort of leg immobilization. Triangulation points at a reproducible spot in the pelvis.

The only thing with this is I have to say, I wish we would use a knee roll less than we do when we're treating the pelvis. But I'm also going to be first to tell you that I'm not [INAUDIBLE] and a hard table to not bend my knees. OK. And my back.

But if it can be done, I feel that not using knee roll can help as far as reproducibility. Because you're not going to anywhere else too high or too low. It's going to Kind of change that pitch of the pelvis. You know how the goal kind of shrinks a little bit. Or it's [INAUDIBLE]. It doesn't match the CT? OK? Your knee falls out of place in most cases.

So let's see. From [INAUDIBLE] obviously for rectal if you can treat a patient prone, that's the way to do it. Prone. Head first. Belly Boyd. Again, triangulation points at reproducible spots. OK. On the pelvis.

We'll go into these a little bit deeper, and I'll show you the equipment we use and how we do it. And then for this trifecta here, OK, anal, vulva, and inguinal, we do basically the same thing, supine. But we do frog leg. And I'll show you how to do that as well. Or how we do that. I'm sure you know how to do it in your clinic.

All right. So prostate cancer. The first thing I see when I see that image on the upper corner of the screen is how many of you ever had to do bat ultrasounds? OK.

Did you ever feel bad? I know one person that was like, I loved doing it. Where'd she go? I hear her giggle.

OK. So for those of you who don't know, we used to have bat ultrasound. This was back when I started. So I've been doing this 16 years. So 16, 18 years ago, before KVs were so great and we were using fiducials, and having cone beam, and all of this.

In order to see what the position of the prostate, the rectum, and the bladder were you had to do an ultrasound. And it would kind of hook up to the table and the gantry. And then you would take this paddle down, put some ultrasound gel down right on the pelvis. And you would have to take this puddle and move it up and kind of hook it over the pelvic rim. OK? And if the person was larger, you had to kind of press harder on that full bladder.

And then you'd be a little perturbed at them if they happened to leak on the table. But that's how we had to position it, because then they could determine the table, how to move things like that. But that was kind of barbaric maybe a little bit. But at the time it was technology.

So thank god we've moved away from that. And now I'll go into the setup. So basically, for our prostate patients, we do use a back lock on the legs. Straight legs. No knee roll 99% of the time.

Again, if someone's got a lumbar problem, you kind of do that. And hopefully the back locks. It keeps its integrity for the whole 44 treatments.

See a place at reproducible location. On the images themselves, we normally place the CA just above the pubic bone, right at the bottom of the bowl.

For an intact prostate, of course we want an empty rectum and full bladder. But when I say empty, we don't do the bowel prep. So I'm foreseeing that question right there.

Well, we don't want the bowel expanded. We don't want it super full. If there's a little in there, that's OK. Cause if he's going to be consistent that way, which turns out being, then that's consistency.

If it's different by a large margin, we're going to get him off the table. Even if it's the same table, we'll get him off the table, have him void, and then have him start drinking water again.

Full bladder we love. Empty rectum, we love as empty as possible.

If there's a problem with it, there are a few cases we do do bowel prep. But that's case by case.

And then for treatment for an intact prostate, we do KV, matching daily to match the fiducials. We do use fiducials. We will comb beam every day for the first week to make sure there is consistency in the bladder and that the patient gets it. They get the routine.

How much water do they have to drink? It is such a challenge for so many men to drink water. And they feel like it's a curse. I'm like, oh, it's actually healthy for you.

I had one patient that he was like, I can't drink that much water. I'm like, just do it. And then after the first week he was like, you know, overall I feel a lot better. I'm like, because you've been walking around dehydrated your whole life.

So some of them enjoy it. And they keep it that way. And they keep it up. And he owns a restaurant. So I've gone in to eat at the restaurant. And first time I went in, I had them fill those big mayonnaise jars kind of thing. Like fill this up, and tell him to go drink it.

And so they did, cause his wife was a waitress. And she knew me. I'm like, fill this up. Tell him to go drink it. So now every time I go into the restaurant I get one on my table. Because you drink that. But he makes the best pancakes.

All right. So again, we reproduce once a week. Make sure their bladder's good. Once they get their routine down, that's OK. If you can tell if you have a huge [INAUDIBLE], or sometime the way the tattoo was actually lined up when you're lining them up. If their bladder's not full, you can tell because of the way they're lining up to tattoo. Or like I said, large [INAUDIBLE] might mean that there's too much in the rectum, and not enough in the bladder. So you just pay attention to that. And then for a prostate that we cone beam daily just to line up the soft tissues. There's no fiducials in there we can't see. So cone beam daily on that one.

These are just interesting because the fractionation schedule, our standard fractionation, which we are still using, what we're trending towards is the hypofractionation of the 28 fractions, which, if you think about it too, that could ease the financial burden to a patient.

I don't know about you, but here usually our patients are paying co-pays for their treatments. If they're paying a \$50 copay, you're saving them 16 treatments. Hm. Pretty good.

And then quality of life. I got to go here every day for 44 treatments. Or I got to go here every day for 28. Things to think about outside of the actual dose. If you're going to have the same benefit between the fractionation and the standard fractionation and we can help a patient out mentally, socially, or financially, I think ethically that's the way we should go.

Again, I said a lot of my opinions. Where we're going. So ultra hypofractionation seems really cool. Five fractions? That's awesome. OK?

And there are clinics and hospitals that are doing the study right now. And I think they're finding for low risk prostate that they're really between standard fractionation and the endless ultra hypofractionation.

I feel like that's a new word. Ultra hypofractionation. Next year it's going to be ultra hypofractionation 2.0 or something.

It seems really good. But this, to me, presents a problem of mobilization. You're giving that high a dose. I don't think that our standard setups for a pelvis, or the [INAUDIBLE] hold the toe ring, whatever, I don't think that's sufficient if you're giving that high of a dose.

So every SBRT that we do, we index. OK? Should we use some sort of surface guided on that? Does that take into account the motion that the prostate does between day to day, or even in the treatment itself? 1 to 2 CM. Huge country mile in radiation therapy. Right?

And it might be more than that. Anybody know that? During a treatment, how much can the prostate move? It's a lot.

So this presents a new scheme. It's great when we can do dose escalation, and that we can treat in less fractions. But we really have to think about the safety of it. Again, lots of organs at risk.

With prostate, we found a couple of unique treatment issues, especially with people who have a hip replacement, either single or even bilateral. How do you visualize your fiducials? OK.

One of the tools that we use is something called metal artifact reduction reconstruction. And I am going to put a little commercial in for Steve DeBore's talk later this afternoon. I believe he will touch on that. And he will talk about that. It's something in our CT system that obviously you can see the definition is much better with the MAR. So on your right is what has been reconstructed through the MAR. On your left is the CT with all that artifact in it.

And it obviously aids in the contour and planning. And here too on this slide, you can see that the fiducials are also a little bit clearer.

So here is a normal KB pair for a pelvis prostate. You can see the fiducials in there to line up to, both on the lateral and the AP. But here's the lateral on a hip replacement. OK? You can't see those fiducials worth anything. And as I just said before, you could have a large anterior, posterior shaft because of bladder filling, or rectum, or something like that.

You might say, well, why don't you go ahead and do a cone beam CT instead. But then what's the point of the fiducials? And then I don't think it's necessary to give that excess dose from the CT, the cone beam every day. Right?

So our wonderful do-symmetry department figured out a work around. All right. So now, because orthogonals are just 90 degrees apart we have an LAO reference with a gantry angle at 45, and an imaging arm at 315.

The reason I'm giving you both the gantry angle and the imaging arm is because radiation therapists talk about gantry angle. And many dosimetrists talk about imaging arms. OK? So we're on the same team. Let's keep it that way.

So we have the LAO reference. And then we have the RAO reference, with the gantry at 315 and the imaging arm at 45, which then obviously you can see those fiducials. You can line them up. You can make the proper shifts. And you know where you need to be. So that's been extremely helpful. And I've avoided a lot of issues.

We're going to go onto rectal cancer. What's my time? All right. We're good.

Cancers of the rectum. These are the side effects. Now, another commercial for an upcoming talk, the next one. Leanne Flaherty is going to come up and talk about the side effects that her patients experience, and how she helps them get through all the treatments. Some side effects are terrible. But she'll be here to discuss that.

But I'm bringing this up, because as a radiation therapist these are the things you're going to hear about from your patients in the room. These are not uncommon kind of things we expect. These are the late reactions. These are things we should know.

We don't always get to follow up with our patients. But these are things that are going to be challenges for them. So it's good to understand what they are going through.

In our clinic, we generally don't recommend, oh, you should do this. You should do that. We have such a large clinical staff. We send Leanne. And Leanne will advise them on the best way to take care of it. We will a little bit. But for the most part, if they're having an issue, a problem, or concern, we send it right on to the clinical team.

Prone position. Obviously have gravity work in your favor. This is the prone board that we use. I'll go into it a little bit more. Disadvantage of this prone board is obviously can the patient basically do a push up? Are they able to do that?

Sometimes there's challenges with each individual patient and they're not able to do it. But I'm going to say 95% of the patients we can get to do it. Surprisingly too. Like there was a 90-year-old woman. We thought, oh, my god? You're going to put her prone? She did it better than some 45-year-olds.

So on the prone position on this belly board. And on the belly board we use the board is indexed on the table. We have tight parameters for our tables, which at first it was ah! But now, so helpful.

There's a number scale on the side of this breast board. Right over here. I know you can't see it. OK. But there is a number scale, a ruler.

And the first thing we do, when you're simming the patient, normally we sit there, and we take the CA, and we put it right at the top of the gluteal fold.

OK? Not in the gluteal fold, because there are short radiation therapies out there that can't see up over the [INAUDIBLE]. OK? So a little superior to that would be perfect.

And then, of course, our lateral tattoos. And if you line that up, and you make note of where that is on that belly board, and set the patient up to that every day, your pelvic tilt is going to be very similar. OK? So if you're all willy nilly on that, you're going to get a different tilt. And it's just very hard to line up.

So I like this breast board for that reason. And obviously it reduces the dose to the bowels, which is a goal.

Some patients need to be treated supine. We still treat patients that have an ostomy on the prone board. If they can do it, as long as it's comfortable enough for them, we will wire that ostomy bag during sim. So obviously it's all taken into account.

Joe had put this in. Tumor extending out of the anus. Extreme discomfort. And I like to be supine. And they just had one patient that really was one of those you got to think outside the box on that.

And then again, are patients able to get up and down off of that belly board? They kind of have to get up on their knees on the table and then lower themselves down, and then be able to pull themselves back up. I mean, we'll help as much as we can. But can the patient actually physically do that?

Vulvar and anal cancers. Horrible side effects. And it doesn't really take long for them to start feeling them.

So vulvar cancers, obviously very sensitive to radiation. I like how Joe puts certain anatomical structures can self bolus. Well, the vulva, it does self bolus. that's what it is. So there's the whole anatomical structure, I feel, boluses itself, which then creates earlier side effects.

And some clinics, we do not. But some clinics build in a break for these patients, because that erythema and the acute side effects in that moist desquamation we expect in 100% of the patients. When you're simming this patient, you know you're going to kill it down there. All right? And we expect that 100% of the time.

So what we do at Roswell is basically it's a case by case basis. Because I've had patients power through that and be like, I'm a girl. I don't even know how you're even walking. And great. And then there are people that just can't do it. And they need that break. And as much as we want to give all that dose, you kind of got to balance it out, weigh it out. And again, the decision by the doctor and his team.

We've set them up. This is how we do it at Roswell, because we want a frog leg. We want to minimize any folds there. OK? We use a backwards wing board. OK? And we use an arm shuttle [INAUDIBLE]. I'll show you on the next slide.

OK. That's indexed on the table. We index everything we can possibly index. OK? And then triangulation points at the pelvic level. Again, a reproducible spot.

On the lower image, right here, this is our arm shuttle. This is indexed on our CT table. This is just a pillow with a sheet over it. It kind of looks a little bright here.

And, again, then we take the vac lock. And we lay it right on top of that arm shuttle.

You'll notice the posts are still in the arm shuttle. That is key. Because your patient's going to move up or down. And it's going to shift that back lock. You don't want it to do that. So we put the posts in. And then that stopped that. So it was great.

So then if you take that back lock, you form it up. You frog leg them out, form it out to their knees, make it nice form on the knees so you can get the shins and everything right on in there, you can tell if the patient needs to go higher or lower in order to set up on the treatment table.

There is a learning curve to putting a back lock around an arm shuttle, and then being able to take it off and then put it back on again 30 times. OK?

Cause what you want to do, you don't want to make it all nice and tight in there. But you want to form it better. We used to use a knee roll under the back lock. And the integrity of the back lock just kind of lost it after a while. It just didn't hold.

This is holding up very well. You'll find that it helps with that pelvic tilt, except when they're experiencing side effects and they're clenching, which you can't blame them. OK?

And you have to remind your patients. OK. Try and relax. Give them a second to do that before you set them up, go out there and image and all that. If you're not getting them to relax, you're creating a problem for you.

The panus. So many of us have that. I feel like as radiation therapists, your patients, they come in. They bring you donuts, candy, pizza, and sandwiches. They just appreciate you so much. They want to give you so much good.

So if you're 20 and just out of school and you don't have that yet.

Go panus.

[LAUGHS]

All right. But seriously, so we have this panus. And we always want to reduce the folds. But when you're treating the vulva and the anus, really you want to reduce the folds lower than where the panus hits the thigh. You're still going to get reactions in the thigh. But if kept the leg straight, shame on you.

No. If it's possible, you need to get those inguinals open. You want minimal folds there. And if you wanted to, and sometimes we do, you can use rolled gauze, something there. But you have to use that at sim as well. OK?

And then the problem that we find with that is that, using that rolled gauze, you have to replace it, just sanitary reasons. Cause if they do start breaking down, then that kind of gets a little gross there too.

And then if you're using the rolled gauze, it's going to lose its integrity. If you keep slamming it up in there all the time, it's going to flatten out. So then you got to keep making it again. And is it the same as it was when you used it in sim?

[SIGHS] So we don't do it often.

I do know, and you can check with your vendors that are out there, because maybe they have tools to help you with this. I do know there was a radiation therapist. Her name was Elizabeth Corzealous or something. And she developed a belt for very obese patients that uses Velcro. And you can line it up and all this. And if you're interested in something like that, Google it. It's K-Med Belt. And just put K Belt or K-Med Belt Radiation Therapy. And it should come right up.

She's got a great story, how she created this. A very nice person. And if it's something that you think you can use in your clinic, hm. Maybe. But why don't you check also and see if this is a problem for you that you'll want to solve, check with the exhibitors. Check with the vendors that you do use already. And maybe they have some sort of solution. OK.

If you are doing an inguinal and it's only one sided, only frog leg, one leg. OK? It's more comfortable for the patient. Less gantry clearance issues.

Oh. And when we do use-- I want to step back a second. You do use the vac lock on the arms shuttle. If you can slide that through your CT bore-- we have a large bore-- if you can slide that through your CT bore, normally you are not going to have collision issues unless you're given funky ships. OK?

Cause obviously collision issues are always a problem with that. Therapists at setup are going to have to make sure your table's zeroed out kind of at the center. You don't want to know what your limit is on each side. Cause it's tight. But you won't have issues with it if it's cleared your CT bore.

Wow. Wrong line. Almost there.

OK. And again, this is the inguinal. You'll see that we wired the scar and the crease, the one down on the leg. And we put a little BB mark on whatever drain site that that was going on there. But it is only one leg out.

So I have two interesting cases. It's the same kind of area that we did, because sometimes we're required to think outside of a box in order to help a patient.

And so what happened was that we had recurrent disease at the vaginal cuff wall, or the national cuff, and then one the anterior walls of the vagina. And the challenge was, how do you stabilize this so we can treat it and find fractions?

So Dr. Metzen came in and says, well, I want to use the cylinder applicator. And then the physicist was like, yeah. We could do that. And then I was like, wait. How do we produce this five times on the table? Are you going to bring her to CT and then move her over? I mean, what's going on here. So it was a team effort to try and figure out exactly how we can do this so it was reproducible.

So there you see the HDR cylinder applicator right up on there. And this is for the vaginal cuff treatment. This is where the disease site is. And obviously in the other view.

And then the left anterior vaginal wall. OK. So we set the patient up supine. However, we immobilized with a vac lock that we indexed on the table. And I'll show you. You can index your back lock. There's a tool out there you put on top of your indexing bar.

Place the CA at the symphysis. And we used the cylinder board. And we form fitted it right into the back lock, along with the legs.

All right. So on the upper corner, like I said, there's that piece that can index that. Again, cause we're SBOT and we want to index. OK? No willy-nilly when you're doing that kind of doses, or anytime really.

So it fits right over your indexing bar. They're like big disks. So this way when you put your back lock down there and you suck the air out, it's going to form right on there.

Does anyone else use them? A couple people. Do you find it helpful? Have you ever dropped it?

AUDIENCE: [INAUDIBLE]

PATRICIA CHAPIN: OK. We have that too. But I found that to be a little challenging in some aspects. This makes it so you can index it wherever you want. OK? So that's what the advantage is of this.

But as we all know, everything that we use, everything is a plastic screw. And when it breaks, you have to dig that screw out.

So that's the only thing with that. But otherwise, I like it. I love the concept. I love that. Obviously I don't have that many graces. So I've dropped it. And I broke it. And that's how I know.

But anyway, so you can index that to the table. You'll see the cylinder board is there. We place it on the table as well. Obviously we're going to put the patient on the table first. Then we're going to put the cylinder board on top of it.

The doctor is going to insert the cylinder applicator. OK? And then we're going to have the patient's feet in the vac lock. The board is in the vac lock. And somebody is going to suck all the air out of that vac lock. OK?

Then it forms the clipboard to the table. The feet where the heels are is in there. So the patient's indexed on that. It sounds crazy. But it worked out very well.

So up on the pelvis, you see those are the triangulation marks where the lasers are. And then you'll notice in the other picture on the side just above the knees, we had lasers going across there.

And we marked that on the bag, because that is where the lower part of the applicator stick was. So when the doctor goes into the treatment room to set the patient up every day, it's not a guess if that cylinder is in far enough or is it not, and that kind of thing. So that is just a step that helped everything.

And then once the patient is set up in the treatment room, they did KVs to verify that that applicator was in place so it would match the plan. And then they did a cone beam CT to line up the soft tissue. And it worked out well in both the vaginal cuff case and then the anterior well case.

[MUSIC PLAYING]