***Reconstructing Confidence: Breast Cancer Surgery Options***

**Speaker 1** 00:02

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**Dr. Bill Evans** 00:20

Welcome to the cancer assist podcast. I'm your host, Dr Bill Evans, professor emeritus at McMaster University here in Hamilton, Ontario, Canada. I mentioned our location because we're getting a lot of listeners or viewers on YouTube from around the globe. So we've seen an increased number from Germany and across the United States and Hong Kong. And of course, with podcasts, you can reach people everywhere, so wherever you're listening from, welcome to the show. The focus of today's podcast is on breast reconstruction and other reconstruction type surgeries that can be done for cancer patients. And I'm joined by an expert, Dr Christopher coronius, who's an associate professor at McMaster University. And before I say a little bit more about Chris, I just want to make a few comments about the cancer assist podcast, which is brought to you by the cancer Assistance Program here in Hamilton, cap is a charity that provides a variety of free supports to cancer patients who are receiving their care at the jurbinsky Cancer Center. These services include nutritional supports, incontinence supplies, wigs and other head coverings, mastectomy bras, and importantly, free rides to and from the cancer center for treatments or for appointments. One of the very special things about the CAP program, I don't know any other charity does is provide loans of equipment, things like wheelchairs, ambulators, rollators, commode chairs, other pieces of equipment that can help keep patients in their homes and and safe. And so this is really a special thing, and all this is made possible by generous donations from the public and from special events. And so if you feel charitable after you've listened to this podcast, you might want to consider making a donation to the cancer Assistance Program. I do want to do a shout out to the Hutton family. The Hutton Family Trust has been supporting the cancer assistance podcast from the beginning, so we're very appreciative of that. So now, let me introduce our guest for today, Christopher coronius, as I said, is Associate Professor at McMaster, working out of the jurvinsky Cancer Center and performing a variety of cancer reconstruction procedures at the hospital there. Gather, you also do trauma surgery as well at Hamilton general

**Speaker 2** 02:41

Correct, yeah, part of our roles as plastic reconstructive surgeons, apart from my, you know, my primary role at the cancer center is to cover major reconstructive surgery at the at the trauma hospitals, as well as the pediatric coverage at

**Dr. Bill Evans** 02:56

McMaster as well. So you did your training, your residency training here at McMaster, and then you did your microsurgery fellowship at that amazing cancer facility in Houston, Texas, the MD Anderson Cancer Center. And as well, you're kind of, I think, almost unique as a surgeon, having got a master's in health research methodology at McMaster, so you're obviously very invested in doing research as well as the actual surgery itself. So welcome. Welcome to the show. Thank you. Thank you for having me. That's great. So we want to talk about breast reconstruction in the first place, and it just strikes me that you hear about it a lot more, and I assume that the volumes of in terms of number of women who are seeking breast reconstruction, is increasing. The reasons for it, I would surmise would be obvious, that women want to look as feminine as they can, and after encountering a diagnosis of cancer the breast, not to end up with one breast off and being unbalanced, so to speak. So what do you what are you seeing now, and what is the motivation for the ladies coming to and how did they get referred to you? Yeah,

**Speaker 2** 04:15

great question. A lot of my referrals come from surgical oncologists, breast surgeons, general surgeons who perform mastectomies. A lot of patients we see are at the stage of a cancer diagnosis, so they haven't had any treatment upfront, and they're deciding on timing of their reconstruction. So that's one population. The second population of women we see are those that would be delayed reconstruction so that they're they've had a lumpectomy or breast conserving surgery and or a mastectomy, and they've gone through their adjutant therapies. They make. Maybe were, were not candidates for reconstruction up front because of severity of disease, or they they didn't pursue it at the time, and now they're referred to as delayed reconstruction, so it'll be separate from the timing of their cancer. So we, obviously, at a cancer hospital, we see a lot of immediate reconstruction, but we also perform delayed reconstruction for patients, both from our own center and from other centers.

**Dr. Bill Evans** 05:27

So the trend in surgery for breast cancer, seems to me, has been to sort of lesser surgeries, both because the understanding of the biology and the use of adjuvant therapies that are effective, but also because we have an effective screening program, and we find things at an early stage, so those individuals presumably don't need reconstruction, or rarely need reconstruction, then you're

**Speaker 2** 05:51

you're absolutely correct about the increased proportion of breast cancer that can be managed with breast conservation, so a lumpectomy, radiation, neoadjuvant, so upfront, chemotherapy, immunotherapy and smaller tumors, this population, though, is a tends to be a great candidate for what we call oncoplastic surgery. So if a tumor and resection is small and the breast is otherwise large to prevent some of the contour deformities that would otherwise occur with a lumpectomy and radiation, or to provide better balance and sort of greater patient satisfaction with esthetics, contour and appearance, we can perform procedures that are very similar to a breast reduction or a breast lift at the same time as as the lumpectomy takes place in same procedure, and the lumpectomy is incorporated into a pattern of tissue that is otherwise also removed during a breast reduction. Breast can be made smaller. Both sides can be made smaller. This is, this is a newer and sort of unique opportunity before radiation occurs to to change the the footprint, skin envelope and the volume of the breast.

**Dr. Bill Evans** 07:17

This is sounding very complicated like it strikes me that the Decision making involves quite a few players, and especially when you mentioned neoadjuvant chemotherapy, and for listeners, that's giving the chemotherapy before any surgery or radiation is given. So that's right up front to shrink a size of a cancer down with the drugs. So and then you have the role of the radiation oncologists, typically after surgery, but and then you've got to factor in the timing of the surgery to get a balance and as normal contours as you possibly can to

**Speaker 2** 07:57

right to both breasts. You're absolutely right. And there's research on this topic to say that the burden of decision making upfront for patients that are diagnosed with breast cancer can be significant. Patients are forced to make a number of decisions concomitantly, like at the same time, am I having a lumpectomy or a mastectomy. Am I having chemo? Am I having radiation? Am I doing surgery on one breast or both breasts? Do I have a genetic predisposition to this issue? Do I need genetic testing? How long does that take? Do I have children? Do I want children? Am I young enough that my fertility is looking to be preserved? Am I working? How am I paying my bills? How much time can I afford to take off work? What are my benefits? I don't even know what benefits I have. I don't know how long it takes for them to kick in, or how that works.

**Dr. Bill Evans** 08:51

A myriad of questions and challenges. And

**Speaker 2** 08:54

each each you know, the Cancer Center is an amazing place because of the diverse specialists that we have, but each one that you see is, is sort of handing you a different ball to juggle, proverbially, and now you're, you're trying to figure out each piece of it. There are. There are programs and assistants and people that help, help people make decisions on this, an initiative at the jervins gospels called the pink program. It's specifically targets younger women with with breast cancer, because a number of these decisions and and sort of supports that have to be outside of, say, the oncologists that that work within the hospital, there's, there's unique needs that that younger women have, and and more of these, these,

**Dr. Bill Evans** 09:40

balls to juggle, given the multiple disciplines involved in the medical side of decision making, is that done as a group like I know we have multidisciplinary case conferences? Is that where a lot of this discussion will take place in the breast

**Speaker 2** 09:54

group? Yeah, you're absolutely right. The multidisciplinary conferences are. Are where cases will be discussed and and where, sort of a suggested best course of care will occur for for borderline cases, but for a number of, sort of more routine cases, these, these discussions are happening sort of one on one, with the patient or among among the other providers to figure out the pieces of care that have to be put together

**Dr. Bill Evans** 10:24

are the requests for reconstruction more frequent amongst the younger women. And kind of the reason I ask that in part because I was shocked when I was working in Ottawa to have a woman actually say she just wanted the breast off, and it was like, be done with it, kind of thing. And she was an older woman, and I could sort of understand it, but I was a bit shocked when I heard that. And imagine the younger women want to look as normal as possible, because they're they're They're young, they're married, they have relationships. Yeah,

**Speaker 2** 10:59

it's that's an interesting one, because there's some data that would say that that younger women like anything. It may be a normal distribution, and the women in the middle are actually the ones that that seek and have the most breast reconstruction, whereas younger women, it is more of a popular option currently than it used to be, to be flat, to have two mastectomies, and this topic, you know, trends on social media, of being flat and having an esthetic type closure to it that you know, that's to say that there's still a role for esthetics and contour for women choosing this option, but that when you look at the younger ends of the spectrum and the older end of the spectrum, those women are actually more likely to choose no reconstruction than, say, the women in the middle still in Canada, the majority of women that have mastectomies do not pursue any form of reconstruction, there's a number of reasons for that. There's access issues, there's concerns about complications and surveillance and things like that. From the patient end, when you look at areas of the of North America, say, in the United States, where reconstruction is probably practiced as much as possible, the number is still probably about 50% in in many studies that will pursue reconstruction, in Canada, it'll it'll be lower in you know, in cities, it may approach 30% but otherwise, in different settings, it's likely 10 to 20% and

**Dr. Bill Evans** 12:37

some of those you say, is due to access. I imagine there are not a lot of people like you with the training that you have to do this kind of work in Canada at the present time. Would that be right?

**Speaker 2** 12:46

It's all relative. So I think it's, I think it's people with with the right training, and then it's working in hospitals where you can easily coordinate a surgical oncologist as well as a reconstructive surgeon. So you're right. There are fewer settings that put all the pieces together, but there are many settings that are not Regional Cancer Centers that accomplish this also very well, like locally, Oakville does a great job of performing a higher volume of breast reconstruction despite not being a regional cancer center that was mostly championed by like Dr Roger short when it first started, in terms of like, say, tissue like more complex reconstruction. And now one of my my co residents, Dr Lauren Willoughby, works there. She's very active on social media as well answering many questions that patients have, but they perform a very high volume of reconstructive procedures. And that's, that's just in this region. Now, you

**Dr. Bill Evans** 13:47

mentioned some patients would be concerned about, you know, complications. And are there certain characteristics of individuals that place them at higher risk for complications, like age or their weight

**Speaker 2** 14:01

or, yeah, that's, that's a great question too. This topic is, is always covered in in our guidelines, and it's always covered in in our discussions. So the the things that would make somebody at a higher risk of, say, of a complication with with any type of surgery, tends to be the same things like other comorbidities, whether they have like, something like, like heart or lung disease, whether they have a bleeding disorder. For some of the flap surgeries we do, things like smoking can can complicate or make people not a good candidate for some of the operations, the weight patients carry, depending on what type of surgery we're looking to do, can increase the risk of certain complications, and then obviously, parts of cancer therapy can increase risk of complications previous surgery, if you've had multiple previous attempts, or if this is recurrent disease, if you've had radiation in the past, these are. Factors that will increase the complication profile for someone, I

**Dr. Bill Evans** 15:04

was particularly thinking about the when you mentioned prior treatments that radiotherapy, which tends to scar the tissue, must make it much more difficult to undertake the appropriate reconstructive surgery. Now I don't know much about the types of reconstruction surgery. In my simple mind is implants. And then there's using the person's own tissue, sort of an autologous movement of of tissue, yeah. So 100%

**Speaker 2** 15:33

right? That's, that's simple, is the way I put it to people too, that there's, there's two main ways to reconstruct the breast. And the first is, like you said, basically an implant is used at the end of it to reconstruct the breast, and in the other in the other way, a patient's own tissue is used to both. And there are ways that that both are used. So in some cases, the patient's own tissue may be used to resurface where radiation was delivered, and then an implant is placed underneath to provide the volume of the breast. But in a true autologous reconstruction, the patient's own tissue is also used for the volume of the breast.

**Dr. Bill Evans** 16:13

And where does that come from? That volume of tissue, the

**Speaker 2** 16:16

gold standard of that, the one that is most commonly practiced in North America would be the lower abdomen. So the if you, if you picture all of the skin between the belly button and where a C section scar would be the fold above the pelvis, or, you know, that fan and steel type incision, or the fold that we all have, all of that tissue can be, can be used to reconstruct a breast if it, if it's both breasts, it's basically split. There are ways of using all of that tissue for one breast, if, if necessary. You know, those starts to get more complicated, but that's, that's the region. Other more common areas are the middle aspect of your thigh, between your legs is, is, is another area. But the further you get away from similar looking and appearing tissue, the more things change. Another area is the lower back. Obviously, the skin on the abdomen is different than say, your you know the lower back and flanks, but, but these are all options for people

**Dr. Bill Evans** 17:21

now. Does it have to be connected to its own blood supply? How does it stay viable?

**Speaker 2** 17:27

Yeah, good question. Like a lot of people come in and and ask if, if this is something like fat grafting that you see for esthetics, where a bunch of liposuction is done and the fat is just injected, that's not the way that an entire breast is reconstructed. So for, for when we move a piece of tissue around the body, it's not as simple as a skin graft, where a piece of tissue is shaved and then and then put in a new spot and sort of planted like it was grass, and expected to sort of live off of off of nutrients from from the wound, when we move a big piece of tissue requires inflow and outflow of blood, so you're absolutely right about that. So in the lower abdomen, we have to make an incision through the fascia, through the connective tissue, like through the corset that we all have that keeps our abdominal wall together and the outside world separated from the inside, an incision is made through that the blood the blood vessels are chased through our ab muscles. The modern way to do this is to not take pieces of the muscle the best we can with, with the the overlying tissue, and that blood vessel is then chased with the direction into the pelvis to get an adequate length and caliber so that it can be moved. And once we take that piece of tissue off the abdomen or wherever else it may come from, that artery and vein, the inflow and outflow of blood are then sewn to an artery and vein under we use a microscope and we we connect these arteries and veins together in the area where we want to place this tissue under a microscope, and then we expect this to live, and it does in the vast majority of cases. So, you know, failure rates across North America are, you know, one, one and a half percent,

**Dr. Bill Evans** 19:17

really that low? Yeah, I find that quite amazing that you can do me too,

**Speaker 2** 19:21

every, every time I do this, like every time you take an artery or a vein that's about two millimeters, three millimeters in size, and sew it to another one, and then take the clamps off, and it works. It's like, you, yeah, you just captured lightning again. Like, it's, it's, it's amazing, yeah, I

**Dr. Bill Evans** 19:39

think it's truly amazing. Yeah. So now, when you do an implant, you're taking a foreign body and inserting it and into a pocket that you create. And now sometimes, if this is delayed, you'd have to create the pocket as I understand it. Can you explain that? Correct?

**Speaker 2** 19:58

Yeah, you're absolutely right. You're getting it. The key concepts of it when, when surgery is done in an immediate manner, like after a mastectomy in the same operation, then the the borders and tissue of the breast are still present when it's done in a delayed way, such that you've gone through your mastectomy and the period of healing, the chest wall is more flat, and the the area or the pocket where this implant has to exist has to be created. For that, we use a tissue expander. So this is a temporary device. It's a lot like a breast implant. It has a port in it, so the port is magnetic. A tissue expander can be placed where a mastectomy was performed through the same incision. Things are closed every two weeks. You see someone like me in at the cancer center and in a clinic, and that port is found using a magnet. A needle is put in like any other, like any port, and this device is filled once the patient is happy with the size and volume of what's in place, a second operation needs to be performed to remove this expander and place an implant. This process takes about six to seven months. What's that long?

**Dr. Bill Evans** 21:19

I had some idea of how that worked, but that explanation is really helpful. I now understand, hopefully people listening also understand, I think this is a really interesting conversation. We're going to take a brief break here, and then we'll come back and and have further conversations with Dr kronius. We'd

**Speaker 1** 21:35

like to take a moment to thank our generous supporters, the Hatton Family Fund and Banco creative studio, who make the cancer assist podcast possible. The cancer Assistance Program is as busy as ever, providing essential support to patients and their families. We remain committed to providing free services for patients in our community, including transportation and equipment, loans, personal care and comfort items, parking and practical education. These services are made possible by the generosity of our donors, through one time gifts, monthly donations, third party fundraising, corporate sponsorships and volunteer opportunities. Visit cancerassist.ca to see how you can make a difference in the lives of cancer patients and their families.

**Dr. Bill Evans** 22:18

We're back with Dr Chris coronius, and we're talking about breast reconstruction right now, and we have some additional questions that have come in, particularly around nipple sparing, or sensation of the nipple and so on, and maybe some questions around how you make your incision to preserve as much sensation to the Breast as possible.

**Speaker 2** 22:41

Yeah, these are, these are new topics and exciting topics. The ability to preserve as much tissue during a mastectomy is totally attributed to the improvement in the techniques of our surgical oncology colleagues, the general surgeons, the breast surgeons, the surgical surgical oncologists, their ability to leave viable skin, a viable skin envelope, while safely performing a mastectomy. And what I'll say is that as time has gone on, I think that they have gotten much better at doing their end of the procedure than we have at reconstruction, but really providing and leaving a well profuse like well good blood supply skin that will survive an operation has permitted us to do a number of things. So in a subset of patients, where it is safe, from a cancer perspective, you can perform a mastectomy while preserving the nipple and the areola. And that is most commonly done and scar. And the scarring is most commonly performed in the breast fold, which is it's called the inframammary fold. It's the fold beneath the breast so a incision can be made there and then extended a bit to the to the side wall, and all of the breast tissue can be removed from there. And that that this scar tends to have the best esthetics, and our ability to to preserve the nipple, a lot goes into, you know, patient selection. Am I the right patient to have a nipple sparing operation? In general, the patient would be somebody that has not had previous surgery, has not had radiation, has not had any intervention, any procedure, otherwise that would decrease the blood supply to the nipple and the areola. And from a esthetic perspective would not be somebody that would otherwise benefit from, say, a breast lift or a breast reduction. You really have to be happy with the envelope of skin that you have to your breast, as well as its volume, because once the breast gland on the inside is removed, you. It is very difficult to change the shape of of the outside. Conversely, when we do breast reductions, it's easy to change the shape on the outside, because you base a lot of it with the gland on the inside. And and this is, this is all to say that that there's a lot of selection that goes into it, but these procedures are good, and they can decrease the the number of procedures that that women have and in general, just as it follows from breast conserving therapy with, you know, lumpectomies, the more of a patient's anatomy and and body is preserved, and the more more parts of them that they see still after surgery, generally, the happier they will be in the long makes sense, and this this tracks over many types of surgery. The fact that we that we can perform nipple sparing procedures in selected patients, both from their cancer as well as their anatomy, is is important for patients that can't have nipple sparing mastectomies, the scar patterns are also something that's important and something to ask about. In general, a mastectomy is a horizontal type incision at about the level of the nipple and the areola. If the nipple and areola are being removed, it involves an incision there for a mastectomy that's going to be closed. This is very often a horizontal one in forms of immediate reconstruction, we can convert this into something that looks more like a breast reduction or lift, where there's a round area in the middle, and if a piece of tissue is used then, then that's the window that you can see this piece of tissue, and then the rest of the press can can be tailored, similar to a reduction, where it's a It's an inverted T or an anchor type pattern beneath it. Still, for the majority of mastectomies and majority of reconstructions with implants, what you'll see is a either a horizontal or vertical scar that would incorporate the area of the of the nipple an areola where it used to be. Is

**Dr. Bill Evans** 26:58

there a Preferred kind of incision to preserve sensation on the breast,

**Speaker 2** 27:04

for nipple, for nipple sparing operations, the suggested one tends to be the inframammary fold and associated with the least number of complications, but the sensation to the nipple and areola and reconstructing this is also a new way to do things where either a nerve graft, so a piece of your own anatomy, again, is is is dissected and moved up to the breast, and a branch of of a nerve that runs the nipple and areola is then repaired to a branch in the chest Wall, either with a nerve graft from yourself, or using a nerve conduit. And these, these outcomes are, are new and exciting, and they're not perfect, but it does, it does improve the sensation that patients have in the long term. I

**Dr. Bill Evans** 27:55

find that quite amazing, because at one point I contemplated being a surgeon myself, and I thought it would stay the same, pretty much the way it was 40 years ago, but clearly it's evolved hugely. Let's just move to one topic that's not common but but maybe a worry to women who've heard about implants, and that is the development of malignancy as a result of having an implant, a particular type of malignancy called the lymphoma. I think it's pretty rare. You'd know the stats, I don't, but I mean, just tell us a little bit about that concern.

**Speaker 2** 28:29

Yeah, breast implant associated anaplastic large cell lymphoma is an emerging topic, and something that that that patients are are are acutely aware of it is associated with textured breast implants and more with macro textured breast implants. So that means more textured breast implants. So rougher Exactly. So when you see these implants, they look like almost have, like a sandpaper or like a sandy type finish to them. What is hypothesized is that the inflammation created by these textured implants causes a degeneration in the system to form a T cell lymphoma. And that's what the what anaplastic large cell lymphoma is. It's a T cell lymphoma. So it is not a solid breast cancer. It is a fluid based issue patients will typically have, you know, at 710, years following their their their reconstruction will have either a large fluid collection in that area or a new mass. And this, this issue is almost exclusively related to texture breast implants, or implant registries that exist in other countries have so far failed to demonstrate that that a smooth implant has caused this in isolation. So.

**Dr. Bill Evans** 30:00

It's a particular type of implant or presumably not being used anymore, yes,

**Speaker 2** 30:04

so that they, they do exist still on the market from some suppliers, but the the the ones say from Allergan, have been, have been recalled and pulled from the market. So it's still, it still exists as a mixed bag. And the risk of breast cancer in the population is one in eight, one in nine, depending on how you split it, the risk of of of this lymphoma in patients that have macro textured implants is likely but one in the order of one in 300 so maybe one in 350 depending on the papers that you read, some have estimated it as closer to one in 100 but as an order of magnitude, it is one in the hundreds. It's not one in the 1000s. It's not one in the 10 1000s, one in the 100 1000s. Like the original estimate was when I was when I was a resident, like anything, the more you look for something, and the more you know about it, the more you'll find it.

**Dr. Bill Evans** 31:02

But finding it must be a bit of a challenge, because finding something around the implant, you mentioned, a mass forming, or more fluid forming still must be diagnostically, a bit of a headache to figure it out. And then when you do

**Speaker 2** 31:17

determine that some lymphoma, presumably by a biopsy, I presume, the the implants removed, and then right approach to lymphoma, these patients are, are diagnosed with a with an aspiration of the fluid. It's then sent for, for for cell markers. It has a cytometry and cytology, and it's sent, it's sent for specific markers. And if found positive, the treatment is removal of not only the implant, but all of the surrounding capsule, so all of the surroundings of our tissue that is around the implants, such that this implant is removed in an on block sort of technique to remove all parts of the anatomy that was in contact with the implant, got it. It's a very as far as survivability of this goes, it's over 95% in the long term. So if a good news Correct, yeah, if it's identified and treated appropriately, it is treatable. That being said, it's not treatable for everyone. Health Canada will, it collects data on on this diagnosis, and the internet would would reflect that there, that there are three confirmed deaths from this issue in Canada. There's some disagreement about what's posted online that you know, other plastic surgeons I speak to say that are Canadian meetings know about. Say, say, one other patient, but sort of speaks to the need of a registry, which I've spoken about before, too.

**Dr. Bill Evans** 32:46

All right? I also came across in reading just this breast implant illness, but didn't really understand it. Maybe explain that too, and is it a rare thing as well?

**Speaker 2** 32:56

Right? So, so breast implant illness, there's, you know, there's a growing proportion of women reporting inflammatory symptoms with with breast implants. And collectively, this constellation of symptoms is termed breast implant illness, and this includes things like muscle pain and joint pain, the sort of brain fog or cognitive difficulty, fatigue, feelings of anxiety, and then inflammatory symptoms like skin rashes, dryness in the mouth, dryness of the eyes, and a number of other sort of symptoms that mirror autonomic dysfunction, heart palpitations, sweats, difficulty sleeping, which can also overlap with the symptoms of menopause, which makes this complicated. The the hypothesis, again, is that, is that, you know, breast implants that are that are long standing, have have some degree of breakdown of their of their wall, and it and and particles, and it stands to reason, that sort of the same process that in that involves a degeneration of the immune system to form a T cell lymphoma can form, can cause other issues. So we know the the LCL piece to be true, and we're trying to discover what this, this other diagnosis is and means, means to patients. I wrote a paper on the topic when I was a fellow at MD Anderson, where we analyzed the FDA database on on breast implants that had nearly 100,000 women, and it demonstrated an increase in autoimmune issues, inflammatory problems in women with with breast implants. Again, the treatment of this is is to remove them, is to remove the the implant. And then there's disagreement from professional societies and research as to what to do to manage the capsule, the tissue surrounding it, and in many cases, this is similarly also removed in a in a complete capsuleectomy, like similar to the ALCL type of management. It's different because it's not a cancer. In this case. Disease, but all of the tissues

**Dr. Bill Evans** 35:01

removed, those are very interesting and fortunately, relatively rare, I guess, occurrences of breast reconstruction. Let's just talk a little bit about other reconstructive surgeries, and maybe the one that would be most interesting for listeners, the name Terry Fox, has really gone around the world because of what he attempted to do in Canada and how much he succeeded at it. But his surgery wasn't reconstructive. But perhaps, if he were to be diagnosed today, he would have been managed differently and might have had preservation of his of his limb, right? How has that become possible?

**Speaker 2** 35:39

Great question. So it's, as with other forms of reconstructive surgery, the advances in other specialties have allowed us to perform greater degrees of reconstruction. You know, modern management of a soft tissue or bone sarcoma would be to have radiation and then, and then surgery and radiation can if, if it's responsive, can often shrink these, these masses, into something that's that's resectable and the limb is salvageable. Reconstructive techniques have also improved, where we can use tissue transfer, where, again, you dissect a piece of piece of the patient's body without causing a, you know, a secondary problem on an artery and vein. You move this piece of tissue, be it a piece of skin and fat, a muscle or even a bone, to reconstruct the defect that that exists, where, where the sarcoma was removed from. And in many cases, like your example, Terry Fox, if there's a bony resection and patient's fibula can be removed using the arterine vein. So that's the bone on the outside of your of your lower leg. And this, this can be removed, obviously, we leave the connections that the level of the ankle and the knee for joint stability, but then the middle part of it can be removed and used to reconstruct limbs and amazing again. Amazing every time we do it. Amazing that it really feels like you did something that in the back of your head shouldn't be possible. Feels amazing every time, and

**Dr. Bill Evans** 37:17

it's wonderful work, and it's wonderful for the individuals can benefit from it. So it's huge. And the microsurgery, which is part of your training, can you just talk a little bit about what that is, and it's obviously ties into what we were just speaking of now, but just so that the listeners can understand the terminology and how it's applied,

**Speaker 2** 37:38

yeah, microsurgery is, is a very broad field, so, but it all sort of relates back to doing surgery under a microscope. So microsurgery generally means that you're, you're you're sewing or connecting arteries and veins together to provide blood flow. There's lymphatic surgery, where lymphatics can be bypassed for issues of, say, lymphedema, where lymphatics can be reconstructed or bypassed into the venous system to treat lymphedema there's in hand and nerve surgery. Microsurgery is applied if you cut off one of your fingers, obviously, I hope you don't, but if a finger gets cut off, we can, we can attempt to reconnect it. If, if a whole hand gets cut off, we can attempt to reconnect it. Nerves can be reconstructed. Nerve grafts can be performed. Nerve transfers can be performed.

**Dr. Bill Evans** 38:30

So all

**Speaker 2** 38:32

that would fall under the rubric of my Yeah, anything that sort of where surgery takes place under magnification, be it with with loops that you wear on your glasses or or an operative microscope. These are, these are all sort of facets of microsurgery. And a microsurgery surgery competency is, is part of being a plastic and reconstructive surgeon. Now that that, I would say the the experience that from from a plastic surgery residency. Residents come out competent at performing some of these, these proportion, these operations, whereas, you know, decades ago, it wouldn't be the case. So you had to be a sub, specialized micro surgeon to do these. The higher volume ones like myself have have training, have fellowship training, from from hospitals, you know, be they in Canada, the United States or elsewhere in the world. And a lot of this comes from specialized hand and cancer centers.

**Dr. Bill Evans** 39:34

Is there a role for robots in any of this?

**Speaker 2** 39:37

Yeah, good question. There is one of my mentors at MD Anderson now works, works at Beaumont Health in in Michigan, Dr Jesse selber. He's, he's really championed robotic surgery for harvesting tissue, so like the lower abdominal tissue, say, for breast reconstruction to. Make less of a cut through your abdominal fascia. You can use the robot. In general, a robotic surgery will access parts of the body through a more minimally invasive type of incision than you otherwise need, and he's able to dissect out that artery and vein that we need for the overlying tissue through a much smaller hole in the fashion and a much smaller dissection of the muscle. And this is, this is the goal of reconstructive surgery, is to put something back together with patient's own tissue while creating as little of an issue or even an esthetic improvement, sometimes in the area you took it from and and his line was always that, you know, this all seems far off, and you're in people's heads, but he would argue the future is here, like the future is already here all around us. It's just not evenly distributed, like portions of what you see happen in your life and portions of what you see possible in surgery, for example. Or, you know, maybe this is going to be the way everybody does it in 100 years. And it's so it's here right now. It's just not everyone gets to

**Dr. Bill Evans** 41:06

do it. So my thinking, way back 40 years ago about surgery would always stay the same, was very, very flawed,

**Speaker 2** 41:13

yeah, but, but maybe, maybe it was, maybe part of it was, right, you know, like, because part, parts of the things we do today existed. It's just they didn't exist for everybody. It's, it's just not a broad, broad way of doing it. You may have seen things decades ago, that that we still do now, and that were, that were

**Dr. Bill Evans** 41:30

new, and now everyone doesn't. So in your your training, you did training with, I guess the folks at the, I was gonna say program and evidence based care, but that's not quite right, but with in terms of research methodology,

**Speaker 2** 41:44

oh yeah, my thesis supervisor is Dr Melissa Brower. She's now moved, oh yeah, has moved to the University of Ottawa, but she was my, she was my thesis supervisor. She was, she was in the program evidence based care there at the jurvensky Hospital and Cancer Center. And she was, my thesis was in guideline research. So it's, it's a topic that's, that's close to my heart and obviously close to hers. So, yeah, she was awesome help to me and in learning a different side of of what, of what we all do and how patients are cared for. Like the argument there is that, you know, I can do an operation on one person, the impact that that somebody like her can make, can save 1000s of lives like these, the decisions that come out of guidelines that sort of get everyone on the same page and direct the way care is provided, change, change the entire system, potentially.

**Dr. Bill Evans** 42:36

Now, I noticed you've published a lot. I know you speak at meetings. What? What are the areas of interest for you in research? Areas of

**Speaker 2** 42:43

interest for me, go back to patient safety. So breast implant safety has been probably the highest impact research that I do, and that I still do. I do a lot of systematic reviews and meta analyzes, so optimizing the research that's available and putting it into forms that are more consumable for people, guideline research, forms of agreement, for getting physicians on the same page and in delivering care and and then some of the more niche things that I speak about at meetings would be, you know, need for, say, a breast implant registry that would make it, would make it easier for somebody like me or somebody else to answer a question, if we had a bigger and better database with more granular research, I think that makes everyone's life better. And then obviously, as a niche topic, limb salvage is is important to me. A lot of people do breast reconstruction, not a lot of people practice in a place that that has all the surgeons and care necessary for sarcoma or lower extremity trauma reconstruction. I'm lucky enough to exist in one of those spots, so I think that that's an important topic. On my end too.

**Dr. Bill Evans** 43:55

Might say that Juravinski is lucky to have you part of that team. I

**Speaker 2** 43:59

appreciate that. Yeah, my the gervinsky Hospital. It's myself, and it's and it's Dr Ronan Abram. He was, he was in a mentor to me when I was going through training. And now I'm lucky enough to have him as a partner, and together, I think we're, we're able to help a lot of people and in a lot of special

**Dr. Bill Evans** 44:20

ways, and I'm totally convinced of that. I think it's just amazing what you're able to do for folks. So just as we wrap up, Chris, I wonder if you'd just maybe to our listeners, what message would you like to leave breast cancer patients with, particularly around reconstruction. So there's going to be women listening who had the recent diagnosis of breast cancer and and are kind of maybe in a bit of a dilemma what they should do, and what would you leave as good advice?

**Speaker 2** 44:52

Breast reconstruction is different for everybody. It is a quality of life operation. Yeah, and quality of life operations mean doing the right operation on the right person at the right time. So broadly speaking, the answer won't be the same for everybody, and that's okay. Don't feel pressured by, you know, friends, family, society, people in or out of the hospital to go through with one form or another reconstruction. There's a lot of options available. You should you should get opinions from from people, and you should make, make a decision in your own head and with people you love for for what you want to do. There's a lot of different things that you can do. There's a lot of different things you can do immediately. There's a lot of different things you can do in a delayed manner, and somebody like me can lay out all those, all those options for you and and will help you to make the right, the right decision for you. So

**Dr. Bill Evans** 45:49

it sounds like you need to find you or your clone, yeah, wherever they're located in the world, or allowing to like, I'm the boundaries. I'm a clone of Ronin. So, yeah, yeah. Well, you're a valuable asset within the healthcare system, and very much appreciated, I'm sure, by all the women who've you've already served and the ones you will in the future. It's been a pleasure having a conversation with you, and I hope it's been enjoyed by those listening, and that you've gained new information out of it that may be helpful to you in the future. Yeah.

**Speaker 2** 46:21

So thanks a lot for having me. If, if listeners are interested in seeing what we do. Like a lot of people don't want to see but some do. My Instagram account has cases on it. It's at Chris coronius, So, C, H, R, S, C O, R O N, E, O S, it's on Instagram. And people, people like, like, seeing what's possible. So there's educational things, there's there's sort of like less routine cases. We do, myself and Dr Aram are trying to get as much information out there as

**Dr. Bill Evans** 46:48

we can. Excellent. That's a good note to end on. So thank you again. Thanks a lot.

**Speaker 1** 46:56

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