

Transcript Details

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Reinventing Autologous Breast Reconstruction to Reduce Pain & Postsurgical Opioid Use

Narrator:

Welcome to Medical Breakthroughs from Penn Medicine, Advancing Medicine Through Precision Diagnostics and Novel Therapy.

Dr. Caudle:

For many women, coping with the effects of a mastectomy can be both physically and emotionally challenging, and while breast reconstruction is a well-established surgery that can help address concerns of aesthetics or sexuality following a mastectomy, a new and innovative method known as minimally invasive DIEP has the potential to impact the lives of millions of breast cancer patients.

This is Medical Breakthroughs from Penn Medicine on ReachMD. I am your host, Dr. Jennifer Caudle, and here to discuss this exciting development is Dr. Suhail Kanchwala, a plastic and reconstruction surgeon at Penn Medicine.

Dr. Kanchwala, thank you so much for joining us.

Dr. Kanchwala:

Thank you, Jennifer. I really appreciate the time.

Dr. Caudle:

Absolutely. So, to start us off, Dr. Kanchwala, could you explain how you developed minimally invasive DIEP and the methodology behind it?

Dr. Kanchwala:

Absolutely. I am a plastic and reconstructive surgeon, and I specialize in microsurgery. And microsurgery essentially is a field that allows us to move tissue from one part of the body to another part of the body.

Essentially, the concept behind the minimally invasive DIEP flap is to separate what is traditionally 1 long surgery into 2 much smaller procedures, the goal of which is to improve the patient's recovery from each individual procedure. The first step of the procedure involves the mastectomy, and at the time of mastectomy, we perform a procedure called a delay procedure on the abdomen. Essentially, what that is, is to make some small incisions that allow us to take one of the blood vessels, the perforating blood vessels that supply this tissue, and essentially promote it and allow it to enhance in size and vascularity. This is a technique that we're going to be publishing in the near future and we've done in over 130 patients now. After that incision is closed, the patient then waits a 2-week waiting period, and what's happening in that 2-week process is the blood vessel we selected is now able to dilate and expand its vascular territory. After 2 weeks, the patient then returns, and the mastectomy site is reopened, and the tissue is now transferred from the abdomen to the breast, and the reconstruction is now completed.

Importantly, at that second surgery, because the mastectomy has already been performed, the breast area is already fairly numb and insensate, as is the abdomen from the original delay procedure, so patients need very little anesthetic for that second procedure, and they wake up feeling very comfortable and often feeling no pain at all. This is what allows us to do the surgery using Tylenol and Motrin only. And so, effectively, we've staged the reconstruction, we've enhanced the blood flow to the flap, and in so doing also improved the donor site aesthetics as well as the aesthetics of the reconstruction. So the initial concept behind this 2-step method is to guarantee that all patients would be able to have what's called a single perforator DIEP flap, which is essentially allowing us to improve the perfusion through the abdomen. The concept is, instead of doing the surgery all at 1 setting, we are able to essentially manufacture the blood vessel that we want with the blood flow that we care about. And so in the second step, we can actually go in and actually remove the blood vessel using laparoscopic instruments and a camera, and doing so allows us to essentially eliminate the muscle injury and the

pain that's associated with the surgery.

Dr. Caudle:

That was such a really helpful and insightful description of the procedure. A couple of follow-up questions regarding that: First of all, what are the benefits of using an implant as an adjunct to the DIEP procedure?

Dr. Kanchwala:

So, one of the things that we have been essentially trying to do with this is not only to get a better outcome from the standpoint of pain and recovery and morbidity and also minimizing the risks of hernia and bulge, but we're also trying to get the best aesthetic result possible. And sometimes, even if a patient has some skin laxity on their lower abdomen, they may not have enough tissue on their lower abdomen to give us a size of reconstruction or a shape of the reconstruction that would be the most pleasing result or that would get them back to normal, and essentially, that's what we're trying to do. We're trying to get the patient to forget that they had had a mastectomy, and in order to do that, you have to have a result that looks as good as their natural native breast. And if a patient doesn't have enough abdominal tissue, what we can sometimes do is supplement the tissue with a small implant underneath. Now, for many patients who are undergoing this procedure, one of the reasons to undergo it is to avoid the use of an implant, but putting a small implant underneath a larger amount of tissue is really a different thing than an implant-based breast reconstruction. It is true that that implant underneath will have to be changed out and will probably not last more than about 15 or 20 years, but it also is true that the results of that look much closer in terms of aesthetics to what an autologous reconstruction would be, and it also allows us to take less tissue from the abdomen, which usually leaves the abdomen not only looking better but feeling better. In select patients, using an implant as an adjunct can be a really important thing to get a better aesthetic result, both on the breast and on the abdomen.

Dr. Caudle:

And my second follow-up question is: One of the key benefits of this method is that patients are never on opioids and don't go home with them. Can you talk a little bit more about that?

Dr. Kanchwala:

Yeah. Importantly, this is also something that has come to light in and around the same time that we were thinking about changing the way we do breast reconstruction. So, about a year and a half ago, some important studies came out of the University of Michigan and other centers that looked at the rate of opioid use in patients undergoing breast reconstruction, and some of the results were astounding. They hit me like a lightning bolt. Essentially, patients who are opioid-naïve, as in they have never had a narcotic before, they show up to see a surgeon like me for immediate breast reconstruction, have about a 5% incidence of needing to be on a narcotic pain medicine for up to 5 years after the surgery. Now, that is not something that I experienced in my practice, or at least I was aware of, and the reality of it is, patients don't come back to their surgeon for narcotics after a few months. There are lots of other places to get these medications, unfortunately, and I think there's been a real lack of realization that our patients, breast reconstruction patients, are particularly susceptible to this problem. This is a time in a patient's life that is not particularly pleasant. They are looking forward to things like chemotherapy and radiation. Worries about body image and what their partner will think of them after the surgery are paramount in their minds, and emotionally this is a very, very trying time, perhaps one of the most difficult times in a patient's life. And the thing about opioid pain medication that I have come to sort of understand is they not only treat the physical pain of the surgery, but in many patients they provide a sense of euphoria at a time when very few things are making a patient feel good, and that is what is so dangerous about these medications. So I think it behooves us as surgeons in any discipline, but particularly in my discipline, to really think carefully about why we're using the narcotics in the first place. And there's really 2 approaches to this, and we have adopted both. One is to try and minimize the use of narcotics through lots of more creative use of other pain medications, and we've done that successfully, but the other is to try and minimize the painfulness of the surgery, how invasive and morbid the surgery is, and that's really what this approach has been about. And I wasn't starting out thinking about it in this way, but one of the amazing benefits of the staging the reconstruction in this way is that both stages are much less surgery than they were before. Essentially, a mastectomy without reconstruction is not a very painful surgery, and so after the first step, patients are taking Tylenol and Motrin. They really are not in much discomfort at all. When they come back for their second stage of the reconstruction, the mastectomy has already been done, the breast skin is essentially numb from the mastectomy, the abdomen is also numb from the clipping of the other nerves in the abdomen, and so we're able to accomplish the second surgery also without using narcotics entirely, and that has been a game changer.

So, for many patients we've been able to do this without narcotics entirely. Not every patient has been able to avoid completely the use of narcotics, but over 70% of our patients over the last year and a half have really been able to avoid using narcotics entirely. So what that means is essentially Tylenol and Motrin as their only pain medication, and that for me was astounding, because in the previous 9 years in my practice, I've never had a single patient have this surgery done without using a narcotic pain medication. The Tylenol and Motrin plan, essentially, that even includes in surgery, and so it's been remarkable.—The patients wake up feeling like just before they went to sleep, and that means a much more rapid return to their normal function and essentially about a 2- to 3-week faster return to

their daily life.

Dr. Caudle:

That's excellent, and really interesting. As a fellow physician, I'm personally—as a family physician as well—I'm happy that you're sort of thinking about these issues of pain management, and your insights, I think, are very interesting and will be for our audience, so thank you for sharing that. For those of you who are just tuning in, this is Medical Breakthroughs from Penn Medicine on ReachMD. I am your host, Dr. Jennifer Caudle, and today I'm speaking with Dr. Suhail Kanchwala from Penn Medicine on the new minimally invasive breast reconstruction surgery program at Penn Medicine.

So now that we've covered the basics of the procedure, I'd like to focus on how it's impacted the program at Penn and your patients. You mentioned before that many patients had pain after surgery. So, from your observations, how does minimally invasive DIEP improve the post-op experience?

Dr. Kanchwala:

Probably the most telling thing for me has been in seeing patients after surgery. So, typically, now patients are going home in about 36 hours after their surgery, and that's a huge change from before when it was usually a 4- or 5-night hospital stay. The other thing is, in that first 36 hours, we're actually doing very little for the patient except for monitoring of the blood flow. The IV has been disconnected. There's not a catheter in their bladder. They're not getting IV fluids, not getting any IV pain medications, and really, their only criteria for being admitted to the hospital is just the observation and the monitoring of the flap; but otherwise, they are up walking, eating right away, and that is a full 2 or 3 days ahead of where they would be normally. But more than just their in-hospital experience has been their postoperative recovery. Part of that is encapsulated by when I see them back at 2 weeks. Many times I'll have a patient, if I'm running behind, sort of lying down on the table waiting for me, and then as I walk in, they'll often rise to a seated position to greet me, and that is not something that a patient would have been able to do typically with this surgery just a year and a half ago, and that's because the injury to the muscle makes it so that patients are not feeling particularly comfortable doing a sit-up, essentially, which is what they are doing in rising to greet me for many months after the surgery, so it's been a radical change. Patients immediately after surgery can lift whatever they want. There are no lifting restrictions. In the past it was a 6- to 8-week nothing more than about 10 pounds lifting restriction. So it's been a big change.

Dr. Caudle:

Does minimally invasive DIEP allow for a more aesthetic result at the donor site?

Dr. Kanchwala:

So the concept behind minimally invasive DIEP flap is primarily on the recovery and the pain and the morbidity, but what it does allow is for us to—because we're staging the reconstruction—allows us to plan the surgery much better than we could have planned before, and that's because in the past, if you're doing the surgery all in 1 step, you're reliant on the patient's anatomy in order to do the reconstruction. One of the most common problems with DIEP flap breast reconstruction done all at once, the traditional method, is that most often the patient's blood vessels, the big perforating blood vessels, arise right near the umbilicus, and for many patients, starting an incision above the umbilicus means that the donor site incision ends up being quite a bit higher than it would be if we were doing a cosmetic abdominoplasty. And that's actually a telltale sign of autologous breast reconstruction, is the scar on the abdomen tends to be higher than what you would want it to be if you were just doing an abdominoplasty. Why is that scar higher? Well, because in order to do that surgery, you need the tissue to live. That's the difference between a tummy tuck and a breast reconstruction, is the tissue has to live in the new location, so we typically are forced to take the best blood vessels.

Well, in the minimally invasive approach, since we are staging the reconstruction and doing a delay procedure, I'm able to use a perforator that on the day is not the best perforator and wouldn't supply this tissue, but because I'm able to allow it to grow and become dilated and expand its vascular territory, I can pick a lower blood vessel that allows me to have a lower-resulting scar, and that's been a huge change in this surgery, allowing us to plan the surgery better so that we can get a more aesthetic donor site result as well so that patients' scars on their abdomen are well-hidden and really look like they had a cosmetic procedure, not just the aesthetics of it but also the recovery of it. An abdominoplasty in the United States is an outpatient procedure the patients generally recover very well from, and I'm trying my best to make abdominal donor sites for breast reconstruction essentially the same thing.

Dr. Caudle:

Finally, before we wrap up, are there any additional takeaways that you'd like to leave our audience with?

Dr. Kanchwala:

I think that one of the biggest downsides of this approach is that a patient has to have 2 surgeries. The first is the mastectomy and the delay procedure and then a 2-week interval, and after that 2-week interval the final reconstruction, and one of the hurdles that I need to discuss with patients, and I often do, is that, yes, you're going to have 2 surgeries, but the recovery from each of those surgeries is going

to be much, much better than the initial surgery all at once, and that we're going to be able to do this in a way that really sets up for no major long-term impact from the surgery. And so that's been the biggest sort of discussion point between patients, but I think once patients understand the goals, they very easily sort of buy into the objective, and it's been a major, major shift in the way we think about breast reconstruction.

Dr. Caudle:

Well, I'd like to thank you, Dr. Kanchwala, for not only sharing this interesting breakthrough with us, but for the great work that you're doing to advance the medical field and improve the lives of your patients. Thank you so much for joining us today.

Dr. Kanchwala:

Thank you.

Dr. Caudle:

And I'm your host, Dr. Jennifer Caudle, and thank you for listening.

Dr. Caudle:

And, Dr. Kanchwala, are there any additional takeaways, and what can we look forward to in the future?

Dr. Kanchwala:

Well, we are trying to continually refine the technique and really optimize it from a patient perspective. One of the interesting things that we recently performed was the first robotic-assisted DIEP flap, the first bilateral robotic-assisted DIEP flap, and essentially what the surgical robot allows us to do beyond the capability of the laparoscopic instruments that we typically use is to really be very, very precise with the dissection and, again, further minimize the donor site morbidity. That is something that we're going to continue to explore as we develop a robotic, not only mastectomy but reconstruction program here at Penn, and that's been incredibly exciting to be a part of.

Narrator:

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