LAPAROSCOPIC NISSEN FUNDOPICATION PROCEDURE
NEBRASKA MEDICAL CENTER, OMAHA, NEBRASKA
Broadcast May 6, 2004

NARRATOR

Welcome to the live internet webcast of a Nissen fundoplication procedure from the Nebraska Medical Center in Omaha, Nebraska. The Nissen fundoplication procedure is designed to stop painful acid reflux disease.

DMITRY OLEYNIKOV, M.D.

Reflux happens when the esophagus or the swallowing tube has a valve that allows acid from the stomach, which is normally there, to go through it. When that happens, the acid irritates the esophagus and patients feel heartburn. The Nissen fundoplication takes a portion of the stomach and wraps it around that area to make sure that the valve itself is stronger and it’s unlikely to let acid come out, yet it’s pliable enough that the person can continue eating a regular diet.

NARRATOR

Candidates for the surgery include people who have reflux more than 4-5 times a week that is not eased by medication or have documented problems with their esophageal sphincter.

DMITRY OLEYNIKOV, M.D.

Nissen fundoplication is designed to prevent reflux of acid. It is normal to have acid in the stomach, so if the valve is properly connected, then there shouldn’t be any need for any types of medication, such as antacids, after the operation. In studies from a number of institutions, including ours, we have seen that well over 95% of the patients will not require any anti-acid pills after the procedure is completed.

NARRATOR

Dr. Dmitry Oleynikov, a surgeon at the Nebraska Medical Center, will perform the procedure. During the webcast, the viewer can send questions to the doctors via email by clicking the button on the player window.

CORRIGAN MCBRIDE, M.D.
Welcome to the first live surgical webcast from the Nebraska Medical Center. Today, Dr. Dmitry Oleynikov will be performing a laparoscopic Nissen fundoplication for gastroesophageal reflux disease. I’m Dr. McBride, the moderator. Dr. Oleynikov and his team have already begun the surgery and we will be joining them in progress. Please remember to send us your email questions so we can answer them. Dr. Oleynikov?

DMITRY OLEYNIKOV, M.D.

Hello, everyone. Thank you for joining us in our operating room here. First of all, let me introduce everybody who’s helping us today, our excellent operating room team. If we can look over to our right, we have Dr. Crossman, our anesthesia attending; and Dr. Juerns, our anesthesia resident. If you can see right to my immediate left are Drs. Brian Zabrowski and Dr. Syeed Shah, who are my fellows in laparoscopic surgery. Our scrub nurse today is Tina and our circulating nurse is Missy and that’s our team. Now, let me take you to the operation itself and tell you what we’ve done so far. We’re going to put on some green lights here in a second, as you can see, and once we get the inside view here, I want to show you.

This is the human stomach. The yellow here is a little bit of normal adipose tissue. If we look up toward the top of the patient, you can see the heart is beating. The esophagus comes in from the chest and into the abdomen and goes straight into the stomach. The connection between the esophagus and stomach is right here. It’s this connection that is weakened and therefore is allowing acid to reflux back. Part of the reason it’s weakened, as you can see here, there is a hernia, a hole in the diaphragmatic muscle, that we will repair shortly. This is the liver, for reference purposes, here. We’re going to now start making connections from the stomach to the spleen, which can be seen right back here, hiding away right there, in order that the stomach is free and we can wrap it around our esophagus in a Nissen fundoplication wrap.

We’re using here a new instrument called a Ligasure, made by Valley Lab. It allows us to do essentially bloodless surgery. It divides blood vessels and seals them and cuts it at the same time. You can see it right here. This blood vessel has been divided without any bleeding. As we’re going to come up a little bit higher in the stomach here, what I wanted to point out to you is that the stomach sits on a bed and that bed consists of the pancreas and blood vessels, seen right here. We’ve placed a sponge in here to help us with a little bit of testy oozing. What we can see here is the backside of the stomach. What we’re going to do here is dissect the backside of the stomach, allowing us a little bit better control of the stomach. We’ve already divided some of the short gastric vessels, before you joined us, allowing us to have better control.

Part of the surgery is to try to do as little dissection as you can and little damage to the tissue as you can so the patient has a quicker recovery. Minimally invasive surgery, which is what we’re doing today, allows this by using small instruments, kind of like chopsticks, inside the abdomen. These small instruments, as you can see here, allow us to both cut things, dissect, and complete the operation without blood loss.
CORRIGAN MCBRIDE, M.D.

Dr. Oleynikov, this might be a good time to take a step back and review why this patient is getting this operation.

DMITRY OLEYNIKOV, M.D.

As Dr. McBride pointed out, not everybody needs an anti-reflux procedure. Patients who have chronic reflux disease that is severe enough that medications alone will not control their symptoms, such as heartburn, benefit from anti-reflux surgery because it is a permanent way to reinforce the valve. Perhaps Dr. McBride can go over with you some of the symptoms of reflux disease so viewers at home can understand the causes and symptoms of gastroesophageal reflux disease.

CORRIGAN MCBRIDE, M.D.

Absolutely. As Dr. Oleynikov mentioned earlier, before we cut to the live surgery, it is normal to have acid in the stomach. What is abnormal is when the stomach backs up into the esophagus and causes problems relate to reflux. Some people feel the reflux of acid as heartburn and a burning in their chest. In other patients, the reflux is so severe that the acid backs all the way up into their mouth and they get a foul taste in their mouth. They may actually regurgitate stomach acid. As a result of the acid exposure to the esophagus over a long period of time, patients can have pain when they swallow. They can have belching. They can have bloating. They can have chest pain and abdominal pain and nausea. There are some patients that the acid refluxes all the way into their mouth and goes into their lungs, which can cause cough, asthma, pneumonia, hoarseness, shortness of breath, sore throat, bronchitis, and even pneumonia, in severe cases.

Like most diseases, this is a spectrum. Some patients have 1-2 symptoms; others have 5-6. The constellation of all these symptoms is called gastroesophageal reflux disease. There are medications that allow us to treat this, both over the counter and prescription. However, the medications have side effects, they are costly, and some insurance companies will not pay for them over the long term. Also, a large number of patients do not appreciate or want to take medication for the rest of their life. It’s in those cases we start thinking about a surgical intervention, such as Nissen fundoplication.

Not all patients would be best served by surgery. There is a preoperative process that all surgeons do to try to decide if more medical management is appropriate or if surgical management is appropriate. Dr. Oleynikov, can you review with us this patient’s particular symptoms in that long list that I read?

DMITRY OLEYNIKOV, M.D.

Yes. This particular young lady has had terrible symptoms of reflux for many years. She has developed a chronic cough as a result of that, not to mention chronic heartburn every single day and regurgitation. She has had some hoarseness. She has developed some lung.
troubles with asthma, making it quite uncomfortable for her to go on with her daily life. What we’re doing now is we’ve placed a little piece of rubber material around the esophagus in order to facilitate moving the esophagus back and forth. Our goal right now is to make sure that there’s adequate length of the esophagus inside the abdomen so that when we create the wrap, it’s around the actual junction of the esophagus and the stomach, not inside the chest or inside the hernia that we’re going to repair shortly.

We’re just applying some clips. What we’re going to do now is a little bit of dissection just inside the chest cavity itself, giving us more length in the abdominal cavity. This portion of the dissection is necessary because oftentimes a hiatal hernia is present during this operation and is present in the patient prior to surgery. We find that the hiatal hernia must be repaired or the actual operation is not as successful. For repair of the hiatal hernia, one must make sure that there’s adequate amounts of free esophagus. As you can see here, I’m using an electrocautery system to now dissect the esophagus, which is right here, away from some of the attachments inside the chest in order to give it adequate length.

Dr. Shah is pulling on this for me, so it’s easier for me to see what I’m doing. Tina has just handed me this suction irrigation device, which allows us to accomplish a lot of things simultaneously, both cutting, sucking, and irrigating. Hopefully you’ll see a little bit of that right now.

As you can see here, the lungs are very close. This is the demarcation of the lung, so we’re working in pretty tight quarters. As I showed you earlier, the stomach is right above us and right behind us is the aorta.

CORRIGAN MCBRIDE, M.D.

I believe you mean the heart is right above you.

DMITRY OLEYNIKOV, M.D.

Yes.

CORRIGAN MCBRIDE, M.D.

Dr. Oleynikov, we actually have our first email question and it relates exactly to the part of the body you’re working on. Do all hiatal hernias cause reflux and do they all need to be repaired?

DMITRY OLEYNIKOV, M.D.

We find that of patients who have hiatal hernias, about 50% of them will have reflux disease. We find that just about everybody with reflux disease has a hiatal hernia, so I would suspect that hiatal hernias certainly are a player in reflux disease. It’s possible to have a hiatal hernia and not have reflux disease, so we screen all patients with reflux
disease for hiatal hernias. We find that sometimes that means their reflux disease may be even worse than the average patient who does not have a hiatal hernia. I hope that answers that question.

CORRIGAN MCBRIDE, M.D.

It does. Earlier I mentioned the fact that most patients do need preoperative tests before surgery. I thought we could take an opportunity to talk about the tests that are usually recommended. First off, there’s essentially four tests that we consider in all patients that are going to undergo surgery for reflux. They include manometry of the esophagus, a 24-hour pH probe, endoscopy, and an upper GI series. The purpose of manometry is to make sure that the muscles of the esophagus are functioning properly and that the esophagus moves the way it should because there are certain esophageal diseases where you can actually make them worse if you do a Nissen fundoplication.

The second test, the 24-hour pH probe, puts a small catheter in the esophagus and measures the actual number of reflux episodes in a 24-hour period. 1-2 episodes in a 24-hour period is normal in all of us, but greater numbers, frequent numbers, or large periods of time when there is acid in the esophagus are all abnormal.

Also, endoscopy to actually physically look at the esophagus and the stomach, to see how it looks, to see if there are any long-term consequences of reflux, such as Barrett’s esophagus or strictures, should be done before every Nissen fundoplication.

Finally, an upper GI study in which the patient swallows barium can also look for motor problems of the esophagus; short esophagus, which would require modification of the surgery; hiatal hernias, as we’ve mentioned; and also acts as a road map for surgery so the exact anatomy is clear and to make sure no modifications need to happen to the surgical procedure.

If we go back to the laparoscopic view, Dr. Oleynikov is currently closing the hiatal hernia defect.

DMITRY OLEYNIKOV, M.D.

Thanks, Corri. That was a great review. Obviously the main first step is to identify that the patient, in fact, has reflux disease. Lots of us have occasional heartburn, especially if we go to the ball park and have a hot dog and come home, but if that reflux is daily, if that reflux is severe, then your doctor should see you and occasionally they’ll have to perform those tests to determine how severe your reflux is. What you can see me doing right now is actually sewing up the hernia. I have an instrument here called an Endostitch device, made by U.S. Surgical, and it allows us to stitch on the inside, as you can see. It’s fairly ingenious. It works a little bit like passing a needle on a sewing machine. What we do now is we’re going to tie this first knot up. We’re using a plain old silk suture, which is kind of an old fashioned suture that’s been available for many years. It’s not really reactive with the body and allows us to place permanent sutures. I’m sure you can
imagine that once the hernia is closed, we want it to stay closed. What we’re doing now is we’re closing that hernia, but we have to be careful not to close the hernia too tight. If we do, then the patient winds up having some difficulty with swallowing, so as a result, we will size the hernia over an esophageal bougie or tube that we place inside the esophagus that’s fairly round and large and plump, making sure that when the patient is awake and eating, they can easily eat solid foods several days after the operation. Again, you can see how this machine works. We pass the needle side to side right here, then what we’ll do is grab the suture right here and we’ll go on ahead and tie a little knot, tie an old fashioned square knot.

CORRIGAN MCBRIEDE, M.D.

Dr. Oleynikov, one of the things I mentioned as a complication of long-term reflux was Barrett’s esophagus. Our next question comes from Jim, who emailed in, is this procedure appropriate for a patient who has Barrett’s esophagus?

DMITRY OLEYNIKOV, M.D.

That’s an excellent question. It was always thought that if enough injury occurred to the esophagus from bile and acid reflux, the cells could change into what’s called a precancerous condition or a Barrett’s esophagus. That Barrett’s esophagus is actually a type of scarring of the cells. When we find patients who have Barrett’s esophagus, we always recommend that they get a full workup. It used to be thought that once you develop Barrett’s, you couldn’t get rid of it and you needed to have surveillance endoscopy. What we know now is that if we are able to relieve the patient of acid completely, either by intense medical management or anti-reflux surgery, the actual Barrett’s esophagus can be improved and in many cases can be completely reversed. This data was collected both here, at this institution, and at the University of Washington in Seattle and was recently published in the Annals of Surgery. We’re confident that in short segment Barrett’s esophagus, we can reverse or reduce it in up to 50% of patients, so we’re very aggressive when Barrett’s is present to make sure that we get rid of all forms of reflux when the patient’s got Barrett’s esophagus and that starts with medical management, obviously.

As you can see, I’m continuing to sew here and this probably will be my next to last stitch. We’ll see here in just a second. We’re going to size this up just to make sure it’s not too tight, not too loose, just right.

CORRIGAN MCBRIEDE, M.D.

We’d like to remind everyone to send in your email questions by clicking on the button on your player window. Are there other surgical options, besides the Nissen fundoplication, that are available for patients?

DMITRY OLEYNIKOV, M.D.
As far as surgery is concerned, and Nissen fundoplication is the gold standard operation. It’s been around the longest. It was first invented in the 1950s and in the current form you can see it here, the laparoscopic form, it has been available for about 12 years. There are other procedures that help with reflux that are endoscopic or surgical and endoscopic. Most of them, however, are still in the experimental phase. We have participated in a study using a device called a Stretta procedure and it works well for mild reflux and we’re studying it now for more severe forms of reflux. We are hopeful that in the future there may be treatments for the disease that require no surgical intervention whatsoever, but the research is still ongoing. As you can see now, this is just about the right amount, not too tight, not too loose. We have a little bit of area allowing us to easily close the defect without having too much trouble with having too wide an opening and having the stomach slip back up there, which is a complication of a hiatal hernia, as I’ve mentioned a little bit earlier. Alright, what we’re going to do next here is pull back the Bougie and work a little bit on actually determining what portion of the stomach we actually have to wrap. It’s important that the right portion of the stomach is wrapped because what we don’t want to do is wrap the bottom portion of the stomach around the top because it makes the stomach uneven. As a result, patients have difficulty swallowing afterwards, so what we want to do is wrap the uppermost portion of the stomach. We’re going to mark that. I’ll show you how we’re going to do that. We know that the very top of the stomach is the loosest portion of the stomach and, therefore, allows us the most amount of movement. This is the connection between the stomach and the esophagus, right here. What we’re going to do is we’re going to mark on the back wall an area that we think is going to be a good spot for us to bring all the way around and then what we’re going to do is bring that back part around, allowing us a more symmetrical Nissen fundoplication. Dr. McBride, perhaps you can show our viewers, while we do this, what that looks like in terms of bringing the stomach all the way around there.

CORRIGAN MCBRIDE, M.D.

Absolutely I can. As you mentioned, this surgery can be done laparoscopically, as you were doing it. It’s also been done and has historically been done as an open operation. I think it’s important to point out to the viewers that the technical aspects of this operation are the same whether it’s done open or laparoscopic. The advantages to the laparoscopic approach, however, are smaller incisions. Therefore, the patients recover faster. They spend less time in the hospital. They can return to work and their normal activities faster than the open operation, but as far as the long-term repair or elimination of their reflux, the operation really is the same, open or laparoscopic.

DMITRY OLEYNIKOV, M.D.

What we’re going to do now is look for that little stitch we just put in because what it will allow us to do is grab the appropriate portion of the stomach and bring it all the way around and create a symmetrical fundoplication wrap. It’s important to do this, I find, because often it’s difficult to know exactly what you’re grabbing because your view is a little bit limited as you’re grabbing from underneath the esophagus. We’re going to see
our actual mark and then we’ll know that we’ve wrapped equal portions of the posterior and anterior esophagus, creating what’s described as a symmetric fundoplication.

So here we go. We’ve grabbed it on one side now. We’re going to find it on the other side now and then what we’re going to do is size this, create the wrap that allows us mobility and freedom. We’ll do a shoeshine maneuver. Here it is. You can see that the stomach is about equidistant from where she’s going to adjust it just a little bit, so what we’re doing again is making sure that the wrap is symmetric, that we’re not leaving extra stomach around, that we’re making this just about the right way. Here it is. I think this would be just about the right way to do this because I think it allows us the maximum amount of freedom. If Dr. Shah can grab the wrap portion of the stomach, I’ll have a stitch for me, please.

We’re going to throw our first stitch. This is going to be kind of our beginning of the wrap, as you can see it here, around the portion of the esophagus that’s right at the area of the junction of the two. Again, we’re going to use our suturing device. It’s very handy, as you’ve seen a little bit earlier.

CORRIGAN MCBRIDE, M.D.

We have gotten a few email questions in. I’d like to encourage people to keep sending their email questions in, but I thought we could answer a few of them while you start to sew.

The next one says, Doctor, I’ve experienced acid reflux for about 10 years. I’m currently being treated with Prilosec and it seems to be working, but are there any long-term health risks with staying on Prilosec?

DMITRY OLEYNIKOV, M.D.

That’s a very good question. Prilosec has been around now for quite some time, close to 10 years. So far, we’ve seen no adverse effects. However, what we find is that patients with severe reflux disease will tend to have worsening of their reflux when they get older and oftentimes the doses of the medication that worked 2-3 years ago will quit working. Also what we find is occasionally patients will have relief of symptoms, but the acid will actually still enter the esophagus. What we do is encourage patients who are on chronic therapy to still see their physician occasionally and maybe even get an endoscopy, just to make sure that their esophagus is truly free of acid.

We’re going to ask our anesthesiologist to tack down the Bougie now so we can make sure the trap is not too tight and just the right amount. We’ll go down real slow.

Any other questions?

CORRIGAN MCBRIDE, M.D.
Yes. The next one: My wife’s symptoms are very similar to this patient’s. GERD, gastroesophageal reflux disease, is causing a cough and asthma and throwing up. How long is the recovery from surgery? How much pain does the patient have? Would a cough from asthma cause problems and what are the chances that surgery will reduce the asthma problems?

DMITRY OLEYNIKOV, M.D.

That’s a lot of questions. We’ll go one at a time. The operation is done laparoscopically. This patient is expected to go home within 23 hours. Usually recovery is about 2 weeks or so. In these situations, once the patient is fully recovered, what we recommend is that the patient just kind of take it easy for 2 weeks and then sort of avoid strenuous lifting for another couple of weeks, so all told, I’d say patients get back to just about normal in a month, but certainly to about 90% within 10 days to 2 weeks.

We’re going to remove the Penrose here because we no longer need it. We’re now going to be performing our wrap. Dr. McBride, would you mind repeating for me the second portion of the question?

CORRIGAN MCBRIDE, M.D.

Certainly. The second half of the question had to do with the cough from asthma and what are the statistics on whether a laparoscopic Nissen will reduce the asthma problems?

DMITRY OLEYNIKOV, M.D.

Well, adult onset asthma is certainly a very pesky problem. We’ve long thought that it may be due to something other than childhood asthma. Adult onset asthma can certainly be caused by reflux. That’s been studied and shown to be, but it’s not necessarily caused by reflux, so what I recommend for patients who have adult onset asthma and chronic cough is to see their physician and to be studied. If, in fact, like this patient, reflux is a significant problem for the patient, then certainly there’s evidence to show that the patients can benefit tremendously from anti-reflux surgery because it stops, of course, the acid from coming back.

Any other questions?

CORRIGAN MCBRIDE, M.D.

Several have come in that are all sort of addressing the same issue and that’s, are there any patients that cannot have this procedure? For example, Ken wrote in, my doctor says I’m too big for this procedure. Is there anything I can do to get down to a size that would help or are there are other options?

DMITRY OLEYNIKOV, M.D.
Well, certainly reflux is on the rise in the United States and part of the reason is because we’re all getting a little heavier. Part of the reason is we’re all eating foods that predispose us to reflux, such as coffee or foods that are high in fat, chocolate, wine, things of that nature, so if somebody is very, very large or obese, then an anti-reflux operation won’t be as helpful as if they were skinny. The reason is there’s high intra-abdominal pressure in patients who are heavy, so even though you can create a good valve, the intra-abdominal pressure in time will push through the valve itself, so the best treatment for somebody who is obese and refluxing is to lose weight. Now, as I’m sure everybody knows, there are surgical weight loss options and perhaps I’ll defer to Dr. McBride, who is our Director of Bariatric Surgery, to better illustrate for us what types of options are available to patients who are very, very heavy and have reflux as a result of their obesity.

CORRIGAN MCBRIDE, M.D.

Certainly. Obesity, as Dr. Oleynikov mentioned, is on the rise and there are multiple health problems that come from being obese. Gastroesophageal reflux is just one of them. But for patients who are more than approximately 100 pounds overweight and have health problems related to their obesity, there are surgical options. As we focus on the reflux disease, there are several operations that are currently available and all of them help with reflux from one degree to another. The most effective operation is the gastric bypass procedure, which can also be done open or laparoscopically, depending on the patient’s size, the patient’s build, as well as the surgeon’s experience in that area. With a gastric bypass, the cure rate or the relief rate from reflux disease is 90-95% over the long term. Now, there are other weight loss surgical options that may also help with reflux, not quite as good a statistic as 90-95%, but it is a better option than a Nissen fundoplication in very heavy patients because the Nissen, while it may work initially, because of all of the intra-abdominal pressure, there are long-term problems and recurrence of reflux as the patients gain weight or have ongoing problems.

DMITRY OLEYNIKOV, M.D.

We typically recommend that our patients get down to a weight where they’re no more than about 50 pounds above their ideal body weight. Ideal body weight, of course, can be found on various insurance life tables. To give somebody a basic understanding, a man who’s about 5’11”, ideal body weight is probably somewhere around 180 pounds or so. A woman who’s about 5’5”, ideal weight is about 150 pounds, give or take, so one would have to be fairly significantly overweight before some of the issues we’ve just discussed would be taken into consideration.

Let me catch you up on what we’ve done here so far. We’ve creates a wrap. As you can see, the wrap is right over the esophagus. It’s the stomach wrapping around the actual esophagus. There’s a tube on the inside of the esophagus, making this wrap not too big and not too short. The actual length of the wrap, as I’ve mentioned, is probably about 2 cm, as the instrument’s jaws are 3 cm, or somewhere around 0.5”. That’s about the right
amount -- we know this from our previous studies -- to allow food in but not allow acid to escape.

Now, the next step, this is something we do here and we strongly believe in, to affix the actual wrap to both the esophagus and to the diaphragmatic crux. This makes the wrap more stable with time and allows patients to have good long-term results.

CORRIGAN MCBRIDE, M.D.

There is one thing I’d like to clarify. Diane wrote in because she has noticed that the wrap seemed to be made out of a rubber material. The rubber material that Dr. Oleynikov was using was just for during the surgical procedure in order to allow him to mobilize the esophagus and move the anatomy around to complete other steps of the operation. However, as you can see, it has since been removed and the wrap that this patient will be left with is a wrap of her actual stomach.

DMITRY OLEYNIKOV, M.D.

Yes, that’s an important point. We do not use any plastic or anything like that in this operation. We allow the body to essentially do its own valve creation, as it were. We feel that’s certainly the best option in this situation. There are some new treatments for reflux disease that require the surgeon to use an endoscope and to put the actual plastic into the esophageal muscle. We find that probably is still a little bit too experimental for us to advocate just yet.

CORRIGAN MCBRIDE, M.D.

Several other patients have also written in asking about or commenting on the fact that they have GERD treated with over-the-counter medications and are wondering if they should be thinking about this operation.

DMITRY OLEYNIKOV, M.D.

Well, over the counter medications these days are getting more and more strong, so as a result, I would say that it depends on what sort of over-the-counter medications they’re on, how long they’ve had the symptoms, and how severe they are. For instance, if all they take is occasional Rolaids, probably they can continue to do those as needed and not be too worried. If, on the other hand, the over-the-counter medications are the new Prilosec type of medication that is fairly strong and that medication provides relief but when they stop the medication, after several days their reflux returns worse than ever, then I would suggest that those individuals probably need to see their physicians for further workup.

CORRIGAN MCBRIDE, M.D.

The next question, from Heidi, is is this procedure something my local small town surgeon can do or do I need to see an expert such as yourself?
DMITRY OLEYNIKOV, M.D.

That’s a great question. Many small town surgeons are indeed experts in this operation. What I would do is, instead, ask the local doctor, such as your family practitioner or the gastroenterologist, to see who they worked with in the past and who they refer to. Certainly surgeons in small communities can perform this operation effectively and can do it well. Obviously we have an interest and are a center that specializes in this, so I guess I would leave that question with it just depends on the physician involved.

CORRIGAN MCBRIDE, M.D.

We’ve also gotten a few more detailed questions about your surgical procedure. From California, what would your surgical treatment of choice be for the shortened esophagus and how do you manage the vagal nerves?

DMITRY OLEYNIKOV, M.D.

That’s a very important question. First of all, we always preserve the vagal nerves. The vagal nerves in this patient are right over here. It’s hard to see them now, but they’re right there. That’s the vagus nerve right here, between my two instruments, rolling around. There’s one in the backside as well and I haven’t shown that to you either. So we try to preserve the vagus and not cut them and be very careful with them because we believe that vagal nerves are very important to GI motility. When it comes to a shortened esophagus, that certainly is a problem that we face routinely. What we like to do is lengthen the esophagus by doing some of that esophageal dissection I just described, where we go inside the actual chest and divide some of the scar tissue that’s in the esophagus. This allows us to lengthen the esophagus and allows the patient to then have adequate esophageal length for this wrap. There are some patients who, because of chronic injury or some other conditions, will truly have a short esophagus. In those individuals, oftentimes an operation other than a Nissen fundoplication is indicated. In the worst cases, we have removed people’s esophagus. When precancerous conditions were involved or the esophagus itself was too short and too scarred to be adequate for swallowing for that patient, which is, of course, the end result. The patient wants to resume eating normally, like they were before the condition arose.

CORRIGAN MCBRIDE, M.D.

The next question: Is it necessary to make a 360° wrap?

DMITRY OLEYNIKOV, M.D.

We’ve always wondered whether a partial wrap, a 270° wrap, or a complete wrap, what you see here, a 360° wrap, is the best for the patient. We performed this study when I was at the University of Washington in Seattle, where under Dr. Pellegrini’s guidance we looked at patients who had partial wraps created, versus complete wraps. What we found
in that study is that the partial wrap does a good job, but the complete wrap does a better job. In patients who have difficulty swallowing, oftentimes we need to adjust our wrap so it’s more physiologic, but even in those patients, we can often, often wind up using a complete wrap, but a loose wrap. In my practice, I tend to like using only 360° wraps. We have data to suggest that’s got the best long-term results in terms of acid reduction for the patient.

CORRIGAN MCBRIDE, M.D.

I concur. The next question was can you perform gallbladder surgery at the same time as a Nissen?

DMITRY OLEYNIKOV, M.D.

That’s a very good question. You know, this has been studied and people have said yes, absolutely. Dr. Bride, what’s your practice in this area?

CORRIGAN MCBRIDE, M.D.

I think you can go both ways, so I think it’s important to have a clear understanding of what the patient’s symptoms are. About 40% of people who get their gallbladder out and have reflux, you’d simply take their gallbladder out and their reflux goes away, so if there’s any questions, I think you should consider staging the procedures, do the gallbladder first, and if they still have symptoms, consider further evaluation of their reflux. However, if it’s clear that they have two acute problems going on, some that are referable to the gallbladder and some that are referral to reflux, there’s no reason to not do them at the same time.

DMITRY OLEYNIKOV, M.D.

I would agree 100% with that. I too have had patients who have had symptoms of reflux, but really, on further testing, we found to have very mild reflux. They had their gallbladder removed and really did remarkably better. Their reflux probably was not their worst symptom and therefore they remained happy not to have any further surgery, but maybe still take an occasional anti-reflux medication.

As you can see here, we’re continuing to perform our wrap. What we’re doing is basically tying the wrap to both the esophagus below us and to the diaphragm above us. This allows us to really make sure that the wrap stays put. As I’m sure you know, when people swallow and people breathe, the diaphragm moves around, so this is an area that gets a lot of beating and foot traffic.

If I can show you here what we’ve done, we’re actually getting pretty close to finishing up here. What we’ve done here is created a nice wrap around the esophagus. It’s a loose wrap. Even with a big stent inside the esophagus itself, there’s plenty of room. We’re actually going to ask our anesthesiologist now to pull back the stent to mid esophagus so
we can better judge how loose our wrap is because, as I mentioned earlier, we want to make sure our wrap is nice and loose so the patient is able to eat regular foods without having too much trouble. As you can see here, there’s plenty of room in there. Lots of room. Nice loose wrap. Not much tension on it at all. You can see it’s secured fairly tightly to the actual diaphragmatic crux here. We’ve sewn it to the diaphragm here, to our repair, and over on the sides here.

Now, another thing I want to point out here. Some viewers and patients have asked me in the past, if you wrap our stomach, do we have a smaller stomach now? Let me show you that we actually just use the very top of the stomach. The vast majority of the stomach itself, you can see right here, remains unaffected by the wrap. If we come up to the top here, we can see only a small portion of the stomach is used. This, by the way, is the preferable method. We don’t want to use a lot of the stomach to do the wrap, as it creates problems with gas, bloating, and discomfort for the patient. As you can see, the stomach is a large bag. I’m going to show you where it goes. It comes around here and as it comes around, it slips over to the right side of the body. We’re going to look over there for a second. This patient has already had her gallbladder removed, so I’m sorry that I can’t show you the gallbladder.

CORRIGAN MCBRIDE, M.D.

Based on the questions we’re getting, it seems like several of our viewers have actually already had this procedure. Let me give you a sampling of some of the questions we’ve gotten. For example, I had this procedure in November. I still experience a burning sensation in the roof of my mouth and throat. What options are there for those of us who have had surgery and continued to have pain?

DMITRY OLEYNIKOV, M.D.

Well, certainly having pain after the operation, especially if a long time has gone by, is indicative that there’s some sort of a problem that ought to be carefully looked at. The roof of the mouth is usually not an area where acid gets to. Even after an anti-reflux operation, where there is a little bit of acid that’s actually leaking through the valve, the roof of the mouth should not be an area that’s that painful and uncomfortable. I guess what I would recommend the patient does is go and see their regular doctor to see if there’s anything else going on. The most troublesome problem that patients face after anti-reflux surgery tends to be either difficulty with swallowing or difficulty with having some of the symptoms that have brought them to the actual operation in the right place, so their reflux isn’t all that better. Occasionally that’s a result of a wrap that wasn’t quite right and therefore is not geometrically correct. We hear a lot about wraps that become loose and slip, and that may happen with time, especially if there’s weight gain, so those patients ought to be seen by their regular physician and then referred on to either a gastroenterologist or to their surgeon.

CORRIGAN MCBRIDE, M.D.
Actually, why don’t I take this opportunity. We have a couple of artist’s renderings of problems that can happen with grafts over the long-term and lead to patients continuing to have symptoms or return of their reflux symptoms. If you have a Nissen fundoplication or other wrap and you have recurrence of the symptoms that made you get surgery, there are a couple of problems that can happen. For example, the entire wrap can slip from the abdomen into the chest, which can cause recurrence of symptoms. Also, the esophagus can slide up under the wrap so that gastroesophageal junction is above the diaphragm, even though the wrap stays below the diaphragm. Part of the stomach can slip above the diaphragm. That’s called a para-esophageal herniation or para-esophageal hernia. In the picture or cartoon, the wrap has also slid with the extra stomach. Finally, if the wrap was placed too low on the stomach and there’s a large amount of stomach above the wrap, you can continue to have problems or have recurrence of problems.

DMITRY OLEYNIKOV, M.D.

Exactly. If those conditions do occur and they can be diagnosed by endoscopy or by x-ray, then oftentimes a repeat operation performed laparoscopically can be done. We specialize in that here at the center and we perform a fair bit of reoperations for Nissens that are not working right and oftentimes we help the patient significantly, so yes, if the patient has had an operation and has had a poor result, there is help and it can be done most of the time laparoscopically.

CORRIGAN MCBRIDE, M.D.

Now, Rich did write in saying he had a Nissen 7.5 years ago. Is there any routine checkup he needs to have if he is not having any symptoms or problems?

DMITRY OLEYNIKOV, M.D.

Usually not. Usually the best indicator of how well the actual operation went and is going, that is, how the patient’s doing, is how the patient feels. If the patient feels well, if the patient has no complaints of reflux or swallowing, oftentimes nothing more has to be done.

What I’m doing here is just making a final check, making sure all the stitches are appropriate, there’s no bleeding or any abnormality, as we’re actually entering the end of our procedure here. As we kind of look around here and take final inventory...there’s the spleen, by the way, hiding back there...any other questions for us?

CORRIGAN MCBRIDE, M.D.

Well, I think we should probably amend the answer to Rich’s questions as far as follow-up. The only exception would be if you had Barrett’s esophagus before surgery. It’s important that surveillance of the Barrett’s esophagus continue, even after the wrap, to make sure that it does not progress on its way to being an esophageal cancer. Would you agree?
DMITRY OLEYNIKOV, M.D.

Yes, absolutely. Certainly if patients have Barrett’s esophagus, regardless of whether they have an anti-reflux procedure or not, they require routine follow-ups with their gastroenterologist and yes, I’m glad, Dr. McBride, that you pointed that out to us.

CORRIGAN MCBRIDE, M.D.

Several patients have also written in asking, I’ve heard after this type of surgery you can’t throw up. What happens if I need to throw up?

DMITRY OLEYNIKOV, M.D.

That’s another question that I get a lot from my patients. When we first started doing these operations, we found that a lot of patients, especially immediately after surgery, had difficulty either belching or vomiting. What we do now is create a fairly short, floppy wrap. Most of my patients are actually able to belch and able to vomit after the operation. Usually inability to vomit after a Nissen operation may indicate that the wrap may be a little tighter than it can be, although I have to say that some patients do have difficulty vomiting afterwards and what they do is have some dry heaves. Usually that’s not a terribly dangerous condition and it’s one that patients shouldn’t worry too much about, but what I tell my patients is, most of my patients are able to both belch and burp with time after their operation.

CORRIGAN MCBRIDE, M.D.

What’s the youngest age that you would recommend for this procedure?

DMITRY OLEYNIKOV, M.D.

Actually, the Nissen fundoplication, and I’m just doing a little cleaning, so please forgive me as I talk here, can be performed on even the youngest little kids. In fact, there is a treatment for little children who have heartburn. In little children, of course, heartburn manifests itself not as a symptom of heartburn but more of spitting up and swallowing contents of their stomach and giving them pneumonias and trouble such as that. Our pediatric colleagues perform many of these operations on little children for that very indication.

There’s a little pesky bleeder. We’re just going to get it so it doesn’t give us any trouble.

CORRIGAN MCBRIDE, M.D.

Let’s see, we have a few other questions. Marsha Ann wrote in asking how old this procedure is. Essentially, this procedure in its open form has been around for over 20 years. The laparoscopic version of the procedure has been around for about the last 10
years, but it’s certainly been increasing in frequency and as more and more people have gotten comfortable with the laparoscopic surgery.

The next question, from Charlene, says I have a hiatal hernia and occasional reflux and I am on Prevacid. I had a procedure done last year where my esophagus was stretched due to a stricture and I’m beginning to experience this tightness returning. Would the procedure you’re showing today fix the problem? Charlene, based on the description of what you had done, it sounds like your stricture was probably dilated. Having a Nissen fundoplication and decreasing the acid exposure would not fix any strictures, but if at the same time or after a dilatation, it may prevent future recurrence of the stricture by cutting back on your acid exposure. This is something you definitely should talk with your gastroenterologist about.

DMITRY OLEYNIKOV, M.D.

Yeah, I would agree with that, absolutely. I think certainly that requires a consultation with a physician because that’s a tricky issue and one that we would want to make sure was seen by a physician.

CORRIGAN MCBRIDE, M.D.

Getting a little off of the subject of gastroesophageal reflux disease, Gordon did write in and ask, if you do have cancer of the esophagus, how is it removed and what is used to replace the esophagus? Since you also perform esophageal surgery, Dr. Oleynikov, I thought you might have time to answer that.

DMITRY OLEYNIKOV, M.D.

Yes, that’s true, we do treat cancerous conditions of the esophagus. Once there’s cancer of the esophagus, the best treatment for that is removal of the actual esophagus itself. People ask me, Doc, how am I going to swallow again? The answer is this and I’ll actually demonstrate a few by asking Dr. Zabrowski here to give us a bigger view of the stomach. What we do is we take the stomach and we kind of make it into a tube, like so, and we disconnect it from everything and take the stomach tube all the way into the neck, where the esophagus ends, and sew it, so the new tube, the new swallowing tube now is the stomach. This procedure is called a trans-hiatal esophagectomy. We perform it laparoscopically here at the Medical Center and patients tend to do really well. The trick, of course, is to catch esophageal cancer early so that we can treat it because, if caught late, the survival rate is very poor.

Well, we’re actually just about done here. I just wanted to review for everybody, once again, what we did and how we did it and then perhaps what we can is show how few and how small our incisions are as we start putting Band-Aids on and finishing up here.

To review again, there was a hiatal hernia. We got it all fixed up here with some stitches. We create a nice loose, floppy Nissen fundoplication. As you can see, it’s nice and free.
The patient will be able to swallow right away. The extra valve that’s right here has been strengthened as a result of our Nissen fundoplication wrap and we’ve made sure that we didn’t use any abnormal portion of the stomach. If you look at the stomach from the big picture, as Dr. Zabrowski will show us, the stomach is really not reduced. It’s the same stomach, just the top of it is a little bit buttressed up there to help us along.

CORRIGAN MCBRIDE, M.D.

In fact, if we want to go to a still picture, I have a picture of what an endoscopy would look like after a wrap and you can see the black tube, which would be the scope coming down the esophagus, looking back up, and there’s an indentation all the way around the tube, which is actually the wrap pushing from the outside, so you can appreciate how the valve is reconstructed when you look on a view from inside the stomach.

The next question is from Patty. The question is can you have your stomach banded with this procedure? I presume what Patty is mentioning is the new lap band procedure, which is an obesity surgical procedure. Actually, the current recommendations are not to put a band around the stomach that has had a Nissen fundoplication because there seemed to be increased incidence of erosion of the band into the stomach. You can take down a fundoplication that’s already been done and after the stomach has had a time to heal, go back in and perform a band to help patients lose weight. The band itself will fix reflux 75-80% of the stomach, so it also acts as an effective weight loss operation, but you really can’t do a weight loss procedure in someone who has had a Nissen without taking the Nissen wrap down first.

DMITRY OLEYNIKOV, M.D.

I would agree with that. What we’re doing now is actually deflating the stomach. We had a bunch of carbon dioxide in there. We’re going to deflate the stomach now and we’re going to pull our ports out. These ports go in and dilate the abdominal wall. They’re made by U.S. Surgical and they’re great because there’s no cutting blade on them, so we don’t have to then place sutures and that makes recovery a little bit easier. We’re going to just watch all of our ports come out here and we’re going to show you what we have leftover so you can get a better understanding of how the incisions are made.

What we’ve done here is removed our ports and what you can see us doing is just kind of getting that area all cleaned up. What we’re going to do is actually glue these together. We try not to put too many sutures, if we don’t have to. Once the glue is in place, we’ll put the Band-Aids and this patient will be done. We will use a little bit of the numbing medication on the skin in order to make sure that the patient, when she wakes up, does not have a lot of discomfort and pain.

CORRIGAN MCBRIDE, M.D.

How long do you anticipate that she will be in the hospital?
DMITRY OLEYNIKOV, M.D.

For this particular patient, we anticipate that she will be in the hospital anywhere from 23 to 36 hours.

CORRIGAN MCBRIDE, M.D.

We talked about the low end of the age limit scale. Is there an upper age limit for this surgery?

DMITRY OLEYNIKOV, M.D.

Well, usually an operation like this requires that a patient go to sleep, so instead of having an age limit, we do pay close attention to the patient’s health. If the patient cannot withstand the rigors of a general anesthetic, in that situation we tend to be extra careful and offer maybe medical and non-surgical options, but I’ve performed this operation on patients who were in their 80s and they’ve done great.

CORRIGAN MCBRIDE, M.D.

Let’s see, a few more questions continue to come in. I’ve recently been diagnosed with Barrett’s because of reflux. Do most patients end up having surgery if they have Barrett’s?

DMITRY OLEYNIKOV, M.D.

That’s a great question, again. We thought that Barrett’s could not be reversed, whether the operation occurred or not. All we offered patients were anti-reflux medications. Today, with some of the data that I mentioned earlier, we believe that an aggressive approach to Barrett’s esophagus, especially if it’s associated with bad reflux disease, is to have anti-reflux surgery. We feel this is the best way to prevent Barrett’s esophagus from transforming into a cancerous condition.

CORRIGAN MCBRIDE, M.D.

Very good. The next question, by Anna, I had a cervical fusion in 2001 and have problems with swallowing now. I also have acid reflux and a hiatal hernia. Would this procedure be good for me? Also, I was told by a doctor that this procedure does not work.

DMITRY OLEYNIKOV, M.D.

Well, those are kind of two separate questions. Let me answer the first one first. A cervical fusion can sometimes disrupt the muscles that help us swallow. That usually occurs at the level of the throat, not at the level of the stomach, so careful diagnosing will help determine what’s the right course from now on. As to whether this operation works or not, I think it’s fairly clear that if the patient has bad reflux disease, then surgery such
as this really relieves their symptoms. Therefore, that, in my opinion, is good enough for definition of “works.”

CORRIGAN MCBRIDE, M.D.

Is this a lifetime cure for reflux?

DMITRY OLEYNIKOV, M.D.

We have data to suggest that if the operation is performed properly, the patients can have good symptom relief for a fairly long time. How long would you say? Well, we know that some patients have had these operations for as long as 20 years and still have good symptom control. The laparoscopic data, although the operation is the same, is not as long as the operation has only been around, so the laparoscopic data go out to about 10 years and the data are pretty good.

CORRIGAN MCBRIDE, M.D.

Myrna wrote in asking I am a 57-year-old female who has had reflux disease for almost 20 years. Last year I had an esophageal manometry performed, which revealed a rating of 2 for the function of the valve. I have a hiatal hernia and take two Protonix 40 mg daily. I’m within 20 pounds of my ideal weight. Would I be a good candidate for this surgery?

DMITRY OLEYNIKOV, M.D.

Well, Dr. McBride, maybe you better take that one.

CORRIGAN MCBRIDE, M.D.

It is a little more detailed. Certainly two Protonix every day is a very high dose of proton pump inhibitors, which is one of the class of medications used to treat reflux. Being within your ideal body weight means that some of the lifestyle modifications that we would normally think about, such as losing weight, aren’t going to help you much. The actual decision to perform surgery is a very individualized one between you and your surgeon, but certainly considering surgery and researching your options and finding a surgeon in your area who has expertise in this to get a better informed opinion about your particular medical case, I think, would be an excellent idea for you.

DMITRY OLEYNIKOV, M.D.

I would agree with that completely.

CORRIGAN MCBRIDE, M.D.

Other patients, Gage wanted to know if it was okay to continue to lift weights after this operation. There’s certainly a recovery period after any surgical procedure, where we ask
you not to do any heavy lifting because of wound complications. However, over the long-
term you certainly will be able to return to all normal physical activity.

Other patients questioned how long they would be off work. As Dr. Oleynikov
mentioned, most patients are in the hospital overnight or into the next day and before they
go home, they’re started on a liquid diet. The most important determination for when
somebody is ready to leave the hospital is when they can drink enough that they don’t
need their IV any longer because they can drink enough that they will not get dehydrated.
We do recommend that they stay on a liquid diet for several weeks after surgery, while
everything is healing. What we don’t want to happen is to have someone eat a large
amount of solid food that could get stuck under the wrap if there’s swelling in the first
week or so and have vomiting or retching because this can predispose to slipping of the
wrap later, as we showed in the artist’s drawings, so we recommend a liquid bland diet
for several weeks and then a gradual advancement to real food and most people are on
real food by 4-6 weeks after surgery and they’re back to their normal activities.

As far as when patients can go back to work, it really kind of depends on what kind of
work you do. People who sit at a desk and do not have to do a lot of lifting of physical
activity, I’ve had patients who go back to work as soon as 3-5 days after surgery. Other
patients, because of the type of work they do and the physical activity that’s required of
their work, take more like 2-4 weeks off for surgical procedures like this.

DMITRY OLEYNIKOV, M.D.

Dr. McBride, I hate to interrupt you, but I’m afraid the operation is just about over. Let
me just say thank you to all of the surgical team who helped us out, Dr. Brian Zabrowski
and Dr. Seyed Shah, who are helping us close the actual incisions right now. We are also
going to thank our most excellent nurses, Tina and Missy, for helping us with the
operation. Of course, we couldn’t have done this without our anesthesiology help from
Dr. Crossman, who is busy at work right now, as well as Dr. Juerns, getting the patient
ready to wake up. We’re just about finished here, so I’m going to say goodbye. I’m going
to let Dr. McBride do the same and thank everybody for looking in on us on the world
wide web.

CORRIGAN MCBRIDE, M.D.

Again, thank you very much for joining us in our first live surgical webcast from the
Nebraska Medical Center. If we can be of any assistance, please feel free to contact us if
you have questions regarding this operation and you live in our area. To make an
appointment, you can also contact us through connections on the website. Again, thank
you for tuning in. Have a good day.

NARRATOR
Thank you for watching the live Nissen fundoplication procedure from the Nebraska Medical Center in Omaha, Nebraska. To obtain more information, make appointment, or make a referral, please click the buttons on the player window or the web page.