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LAPROSCOPIC GASTRIC BYPASS PERFORMED LIVE FROM
WAKE FOREST UNIVERSITY BAPTIST MEDICAL CENTER HOSPITAL
IN WINSTON-SALEM, NORTH CAROLINA.
Broadcast April 20, 2004

NARRATOR
For most of her life Nicole Slomka lived with the complications of excessive weight. Last year she turned to Wake Forest University Baptist Medical Center for help to overcome her morbid obesity.

NICOLE SLOMKA
The motivation was being tired all the time. Not being able to play with my little boy. Always out of breath. Worried about health reasons and day to day complications due to the weight.

NARRATOR
To help Nicole, surgeons from the weight management center performed a laparoscopic gastric bypass to create an egg size stomach pouch. This small stomach restricts the amount and type of food that Nicole can eat. Which lead to weight loss and a dramatic lifestyle change.

SPEAKER
What surgery does is it basically knocks down their weight rapidly, very quickly in the first few months. I cannot think of a patient who has never felt like they have had a tremendous increase in their energy as soon as some of that weight starts coming off. And that does is liberate them. They stick to their diet. And now they will start exercising, and lose even more weight. And it really is a significant life change.

NARRATOR
During the next hour you will see surgeons at Wake Forest University Baptist Medical Center perform a laparoscopic gastric bypass. You may send questions to the operating room anytime by clicking the email button below. If you registered for continuing medical education, be sure to complete the post test at the end of the presentation to receive credit. This live internet broadcast from Wake Forest University Baptist Medical Center in Winston Salem, North Carolina is part of the Medical Center's ongoing efforts to bring the latest in medical care to it's patients and medical education to the health care community.

DR. CARL WESTCOTT
Good afternoon. Welcome. This is a live view from Operating Room 25 at Wake Forest Baptist Medical Center. We are in the midst of performing a live laparoscopic Roux-en-Y gastric bypass (RGB). This is a procedure done for treatment of morbid obesity. Performing the surgery is Dr. Adolfo "Fuzz" Fernandez. To my left is Susan Butler, our Nurse Coordinator. We are going to

answer questions by email. We are going to go through a PowerPoint presentation about morbid obesity surgery. Dr. Fernandez.

DR. ADOLFO FERNANDO
Just to get you caught up to what we have done. We have taken out some adhesions she had from a prior surgery. We have measured about fifty sonometers of small bowel. We have already gone ahead and divided that. We have one more division to make here. We are going to make that now. To elongate our mesentery defect so that we can go ahead and make the Roux-en-Y.

Take a look at the board of the mesentery up here. Let's look for pulses.

DR. CARL WESTCOTT
While this is going on I was going to answer one of a few questions that have come in over email prior to us getting started. One questions asks: How much small bowel or how much small intestine is removed during this surgery? And what are the risks of taking out small bowel? No small bowel is removed during this surgery. The intestines are re-routed and the size of the stomach is reduced so that the amount of food can be taken at any one time is reduced and that it's absorption is only modified a small amount.

DR. ADOLFO FERNANDEZ
Carl, we are going to go ahead and march up one hundred centimeters. So this limb, here about, is going to be our Roux limb. We have already marked one hundred centimeters down from here. So we are going to go ahead and run down the bowel to get to that mark.

DR. CARL WESTCOTT
To answer another question a general anesthetic is used for this procedure. There is no other choice but general anesthesia because of both the length of the procedure and because of the fact that carbon dioxide is instilled into the abdomen. This makes it necessary to give mechanical ventilation so only a general anesthetic could be used for this procedure. Typical surgical times are two to three hours. Typical recuperation is two to three weeks back to a normal amount of activity.

DR. ADOLFO FERNANDEZ
So we are going ahead here to get the small bowel back together so we can make the jejunojejunostomy.

DR. CARL WESTCOTT
One of the rationales behind doing surgery for patients with morbid obesity is that many patients find it impossible to attain a healthy body weight, or healthy BMI, despite multiple attempts. Despite medically supervised attempts and despite medications. And in that setting the risk of living with morbid obesity exceeds that of the surgery now. That doesn't mean that surgery is risk free. Of course surgery is risky. And this type of surgery has a little bit higher risk than many other types of surgery that are done for other medical conditions. The decision that needs to be made is – is living with obesity riskier than undertaking this type of surgery? The first slide discusses some statistics from an article in the Journal of the American Medical Association that estimates approximately three hundred thousand deaths per year directly attributable to morbid obesity. And that an estimated near ten percent of all health care expenditures could be attributed to overeating and obesity. In general obesity is classified as Class 1, 2, 3, and 4. Those patients

of Class 3 and 4 who have a body mass index greater than 40 are typically candidates for morbid obesity surgery. A body mass index is defined as your surface area of your skin divided into your weight in kilograms. And somebody is obese at about 25, but around 30-35 you can start to see some serious medical conditions arise as a result of untreated obesity. And as your BMI increases you have a significant increase in your overall risk. Again obesity is a problem that is not only prevalent but increasing in Americans. It's also increasing in other industrialized countries. Right now the small bowel is being put together in what we call the jejunojejunostomy. The small bowel is divided at about thirty centimeters from the ligament trytes (sp?) and then a limb of bowel is constructed, that is approximately seventy-five centimeters long, that will reach up the stomach, which is going to be reduced in size. Now the divided bowel has be put back together. So this is a connection between two pieces of small bowel which bring the food that is injected from the stomach together with the portion of the intestine which has been diverted away from the pancreas and the bile duct. There will be a picture of that later in some of the slides were are doing. But what you will see here is two stitches are placed in the small bowel and an incision will be made into the bowel that will give us a route to pass a stapling device. And the stapling device will cause the two pieces of bowel to be both divided and stapled together. And then these two holes are over sewn creating a new connection between these two pieces of small bowel. This is similar to the connection that is going to made between the stomach and the small bowel after the stomach has been reduced in size. This slide shows significant medical co-morbidities that go along with morbid obesity. This is the stapling device. You can see it holds the two pieces of bowel together. It fires six lines of staples. Between the staples a knife comes down and makes a connection between the two. And what you have left over is a small hole there that needs to be closed of course. In addition obesity has been linked to several cancers. Included among these is breast and colon cancer as well as uterine and ovarian cancer. And so obesity is a multi-system disease affecting multiple organs and organ systems that can seriously affect your ability not only to function but to live a long, healthy life. So what are options for weight loss? Historically diets have been attempted. And many people are successful with diets. But some are not. They proceed to maybe try drugs or join a health club. But despite this sometimes weight loss is not successful. In general medical weight loss programs in morbidly obese patients have been shown to have about a ten percent weight loss, and maintenance is rare in these patients, and have over a ninety-nine percent failure rate. Now of course these are morbidly obese patients who have this difficulty losing weight. And these are patients that are the ones that are considered for morbid obesity surgery. Surgical therapy in general or overall has a thirty percent excess weight loss associated with it, with good long term maintenance, and a less than fifteen percent overall failure rate. While medical therapy is relatively low risk in the short term it is high risk on the long term, if weight loss is not successful. Surgical therapy is risky on the short term but less risky in the long term in that weight loss is much more successful in the amelioration of co-morbid conditions, like diabetes and hypertension and degenerative joint disease. It can go a long way toward improving overall health. This is the closure of that incision made in the small bowel that was used to pass the stapler. In 1991 a consensus conference at the National Institutes of Health was put together in order to define indications for bariatric surgery. Among the two procedures evaluated and accepted by that group were vertical banded gastroplasty and this procedure you are witnessing today, which is a Roux-en-Y gastric bypass. In those patients it was accepted that rationale indications included a patient who had a body mass index between 35-40, who suffer from severe co-morbid conditions that were related to morbid obesity. These would include degenerative joint disease or diabetes, severe sleep apnea, or Pickwickian Syndrome. Pickwick was a character in a Dickens's novel who habitually fell asleep. He fell asleep secondary to his

obesity. In medical terms it is a obesity related hypoventilation syndrome. And then the NIH consensus conference also concluded that those patients with a body mass index of over 40, regardless of their co-medical or medical co-morbidities are rational candidates to consider morbid obesity surgery. Contraindications to surgery are those of course who just realized that they had a problem with this and had not previously attempted non-surgical weight loss methods. This is of course not your first line of therapy for weight loss. That would be medical or dietary therapy with exercise. On going illnesses that predispose or cause obesity?

I am going to go ahead to show a picture of the procedure. This is the Roux-en-Y gastric bypass. As you can see a small pouch is made from the stomach. This picture is slightly inaccurate in that this line is completely divided; it's not together. So this remnant or bypass stomach is separate from this small pouch. This small pouch is about thirty cc's in size. Will hold about the size of a large hen's egg. And then connected to that is a loop of small bowel. The loop that we had spoken about earlier. This is the connection that was just performed by Dr. Fernandez. Now we are going to turn our attention up soon, towards making this gastric pouch. This connection right here is critical in that the effect of this Roux-en-Y gastric bypass is mostly restrictive. Meaning that it restricts the amount of food that can be taken at any one time. The restriction occurs because of this small pouch, and also because of a small outlet or a small drainage pathway between the pouch and this piece of small bowel. Both of these together add a significant restriction which reduces the amount of food that can be taken in at any one time. This limb and the bypass portion of the small bowel also add a small amount of what is called malabsorption, which means that certain foods are poorly tolerated without having the duodenum and the stomach and the bile intact. And those would include high carbohydrate foods and sweets that might give you some cramping. And so there are some secondary motivations to avoid foods that we all know you should avoid in general. One of the reasons why we put together a comprehensive team that includes Susan Butler is that, with time, this pouch will dilate and the synanastomosis will get larger. And in the time in which this is the most effective you will see most of your weight loss. But after that time there is typically a plateau period where lifestyle and exercise and diet that is learned during the time right after the surgery comes into play. And that long term maintenance is best successful if all of those modifications are internalized by the patient during that time.

SUSAN BULTER
We have a few questions that people would like some answers to. How long after surgery before you can go back to work? And the answer to that is typically as long as six weeks. We have seen some patients who can go back sooner depending on how well they have done post operatively with managing their dietary changes and their exercise program. Generally we ask that patients consider taking a full six weeks as a recovery period.

DR. CARL WESTCOTT
In general that depends on what the job entails that needs to be done. If there is physical labor involved, or lifting, or if any sort of normal judgment time like driving a truck or something like that is entailed then a real good six weeks is necessary. On the other hand if there are jobs that can be performed sitting at a desk and have limited physical activity some patients have been able to go back sooner.

SUSAN BUTLER
We have also been asked about a patient that is five feet and five inches and weights about two hundred and forty nine to two hundred and fifty pounds but also has some co-morbidities of pseudotumour cerebri with thyroidism, high blood pressure and polycystic ovarian syndrome. The question is would we consider doing surgery on a patient with these symptoms? And yes certainly because this patient meet of the factors that we consider in our gastric bypass candidates. She obviously a hundred pounds overweight while she has three if not four co-morbidities that would make her a potentially good candidate for this. Although there would be a lot of testing that would be involved in determining if she would actually be a suitable candidate. Another question is how does this procedure affect a person with diabetes knowing the risk for diabetics? Well obviously in patients that have the Roux-en-Y procedure and once have lost even a small amount of weight we are seeing twenty to thirty pounds make an appreciable difference in these patients' need for their insulin and their oral agents that they manage their diabetes with. So we know that significant weight loss does help diabetic patients relieve some of the symptamology and the medication use that they have had prior to surgery.

DR. CARL WESTCOTT
Actually one of the things that is intriguing about this surgery is that those patients who have diabetes because of their obesity who undergo gastric bypass surgery have a very good chance of becoming non-diabetic. And so, being a diabetic leads you at a higher risk for surgery but again the goal is the long term effect of the weight loss and the fact that if you can eliminate diabetes then you can improve many other aspects of overall health.

DR. ADOLFO FERNANDEZ
We have completed the jejunojejunostomy here. And we closed the mesenteric defect that is below it, to prevent internal hernia formation later on. Does not mean it protects him one hundred percent, but we hope it does a good job of closing then. That is the 'J-J" there. This is the Roux Limb here. This is the end that we are going to go ahead and connect to the stomach patch. So we are going to go ahead and move now to the upper abdomen and start transecting the stomach.

DR. CARL WESTCOTT
I have moved to a different slide here which depicts actual representation.

DR. ADOLFO FERNANDEZ
We have a [unintelligible] of tracts already in place. We are going to go and get a better position here for us. So we can see the stomach.

DR. CARL WESTCOTT
As you can see here is a true representation of the fact that this bypassed or remnant stomach is truly divided. And it no longer sees contents from the mouth and esophagus. This loop of small bowel is the Roux Limb that Dr. Fernandez just referred to. It passes behind the stomach and comes back to join the intestinal tract here which is the anastomosis site or the connection between the two small pieces of small bowel that was just completed by Dr. Fernandez. This is the colon. This comes on top of the colon, not underneath it, and the colon is shown divided here to help with the schematic.

DR. FERNANDEZ
We are looking at the stomach up here. Here is the stomach. We have made a window to allow us to get behind the stomach here. What we are going to do is create a small pouch up here. This is the liver up top. This is part of the liver down below. And back there, that is the spleen. So we are going to try to create a small pouch right in here to make the anastomosis. First thing we are going to do is use a stapler to start dividing the stomach.

DR. CARL WESTCOTT
There is a question here that asks do you perform the open Roux-en-Y procedure as well and also please comment and compare the two methods. The open Roux-en-Y surgery is certainly a surgery that we can perform here. We hope to be able to perform all surgeries laparoscopically. Sometimes we start laparoscopically and convert over to a open surgery. The benefits to a laparoscopic surgery are those of a shorter convalescence and a lower incidence of complications because of a midline incision, which would include wounds, wound infections and hernias. In addition because of the reduced pain, patients who have the surgery often get up and move around and are more active earlier. And that reduces problems like pulmonary embolism, which is a rare but potentially fatal complication of open or any type of surgery. But more common with open surgery and morbid obesity just happens to be a risk factor for pulmonary embolus. The down side to laparoscopic surgery is there is a slightly higher leak rate. Meaning that when we put the valve back together again the possibility of the connections not being water tight at a later date is slightly higher with a laparoscopic surgery. So there is a trade off. But we believe that the trade off is in favor of the laparoscopic procedure. And as the procedure is around and done longer we are going to see the benefits of the laparoscopic surgery becoming more and more apparent because our technology and our technique is going to improve. And those problems that we have discovered with it, like the leak rates, are going to become lower and lower with time.

Here is a good question. How big are the staples? And what are these staples made of? How often do staplers misfire and what kind of damage could that do? These staplers are small. This cartridge, which is a blue cartridge, is 2.5 millimeters in height. Each individual staple is about a few millimeters long and the entire length of the staple ends up being about 4.5 centimeters, or 45 millimeters. Now as the tissue is compressed the actual staple distance, or effective distance in the bowels is a little bit less than that. Any sort of mechanical device can malfunction. The actual damage that could be done would be that of any sort of instrument malfunction. It is a risk. Other types of malfunctions can be rectified. Typically they would be or it is possible that they would have to be done on an open fashion in an open surgery. We would have to over sew and put back together the old fashion way with stitches and a retractor.

Another question is, is spleen damage or loss an unexpected risk or outcome of this procedure? Well the spleen is close by. It is in the upper right of the screen. You may see it and so it is in the general vicinity here. And some of the blood vessels that go from the top of the stomach over to the spleen need to be taken down on some occasions. And I could see where that could happen. That a spleen could get some bleeding and would need to come out. It would be unlikely.

SUSAN BUTLER
Another question is about the potential complications with pregnancy post operatively. And we do encourage our patients to use some form of birth control for that first twelve to eighteen months while they are doing their most rapid period of weight loss. Certainly pregnancy has it’s

own stressors as well, but as you are with very limited intake of nutrition during that time you would not want to try and sustain a rapidly growing fetus and continue to lose rapid weight during a pregnancy. So we do encourage our patients not to become pregnant during that first twelve to eighteen months. Although they can certainly become pregnant once they have achieved their maximum weight loss.

DR. CARL WESTCOTT
There are many patients who have gone on to achieve that plateau phase and go on to have children. Happening now is the gastric pouch is being constructed. This is that 30 cc pouch from the upper stomach that we had described earlier. The bottom of the screen is the excluded stomach.

DR. ADOLFO FERNANDEZ
What we are dissecting is posterior to the stomach, behind the stomach. We are creating the window between the junction of the stomach and the diaphragm so that we can make a small pouch. And that is going to be right in here.

DR. CARL WESTCOTT
Another question that has come in is if you have to have your gall bladder out and you are a candidate for laparoscopic morbid obesity surgery with a BMI or 42 could this be accomplished? And the answer to that is that it depends on the surgeon. We tend to practice that the gall bladder should come out if it has stones, or if there are some signs of colli cystitis or biliary colic. But that is not uniformly practiced. Some surgeons will take out all gall bladders at the time of morbid obesity surgery. It is a little contentious and we are in the process of, as a profession, working at what is the best way to deal with morbid obesity and gall bladder pathology.

SUSAN BUTLER
Another question has come out about if the patient does not carefully follow the post surgery diet and deliberately consumes too much food and fluid will the new stomach stretch and again permit excessive weight gain? Well yes that is certainly a possibility. Although one would wonder why someone would do that after having gone through this extensive surgery to do that. Especially since in most cases they are going to have significant weight loss and improvement in their current health situation. So that would certainly not be optimum by any stretch of the imagination.

Another question is about the nutrition deficiencies, whether they can be life threatening. We do an extensive education with our patients prior to surgery and during their hospitalization. As well as post operatively regarding all of the nutritional information that they need. In fact we being working with them immediately when we get the request about the surgery. So that they can understand that they will be on vitamins, calcium supplements and B_{12} supplements for the rest of their life.

DR. CARL WESTCOTT
Yes, unfortunately like all other weight loss mechanisms there is a failure rate. If small amounts of food are eaten continuously over a long period of time you could see how the mechanical effect would be bypassed. The amount of food, if given enough time for digestion, could be equal to that of three big meals a day if small portions of high calorie foods are taken over a long period of time. Habitually over eating, stretching the pouch can make the pouch stretch. And

then larger and larger meals can be eaten. That is one of the reasons behind both patient selection and the program. The program involves education about a new of eating and a new way of thinking about food and a new way of leading your life. We hope to give our patients all the tools they need in order to make that change.

SUSAN BUTLER
Another question is about the waiting period at our institution to have this procedure done. And that depends on a variety of factors. One is completing your patient information packet as well as getting your medical records, and then getting an appointment to see Dr. Fernandez and the members of the team. Once you see Dr. Fernandez or Dr. Westcott at that time additional testing might be necessary. And we would start that process of whether you needed the sleep study, a gall bladder ultrasound, additional lab work. Any variety of tests that might help us understand and manage you better as a surgical candidate. So the procedure waiting time could be as long as three to four months. And of course we also have to work closely with your insurance company during that time to determine if they will help with reimbursement issues for you, because this is considered elective surgery. And it is very expensive.

DR. FERNANDEZ
Just to keep you guys up to speed, what we are doing is we have completely divided the stomach now. And we are about to begin over sewing the bypass stomach staple line. Reinforce this staple line here. And then once we are done with this we will go ahead and start putting the pouch to the small intestine connection together.

SUSAN BUTLER
Dr. Fernandez, someone has asked what happens to the stomach that is bypassed? Does it just take up space in the body cavity or does the body absorb it?

DR. FERNANDEZ
You body does not absorb it. It still takes up space that it has taken up before. But it atrophies. It is like a muscle that you don’t use. It will shrink over time as you don’t use it. It still will secrete some acid and some other factors, but it will over time, shrink down.

DR. CARL WESTCOTT
Another questions says why reattach the bypass intestine? Could it not just be removed? Your intestines actually help you. They help you absorb many things, and not just nutrients. They help you absorb iron, they help you absorb calcium. And, the more intestine you remove, or the more intestine you bypass, the more likely you are to have complications that we know well about because of past experience with surgeries much like that where a small bowel is removed or bypassed. And, those surgeries, in many instances, needed to be either reversed or rectified because of the metabolic abnormalities that were taking out, or bypassing large portions of bowel. Some of those included liver failure and kidney stones. Although weight loss is good with a procedure like that, the side effects, particularly long term side effects, are too severe to really justify that type of surgery. And, that was one of the things that we saw out of the NIH consensus, that really only two procedures were considered rational for weight loss in that risk of obesity was reduced in comparison to having the surgery.

SUSAN BUTLER
There are also several questions about what types of foods would have to be eliminated from the diet, post operatively, as well as the sequence of dietary interventions. Post operatively, we initially start our sequence with nothing by mouth until they've had their upper GI x-ray on their first day post operatively. Once that x-ray has been cleared then we'll let them start clear liquids followed by pureed foods for a minimum of three weeks. And, at which time we see them in the clinic at the three week visit, we'll advance their diet to soft diet. Now, the types of food that we encourage on the gastric bypass diet are certainly no highly concentrated sugars. And, we do encourage very high quality proteins, because you have such a small stomach now that you really do have to concentrate on getting the best nutrition with small portions. So, patients are encouraged to be very judicious in their food planning as they go through the phases of the gastric bypass diet.

DR. CARL WESTCOTT
Post operatively the high protein diet is encouraged because protein is an essential nutrient. It's something that you need to consume in order to build muscle and proteins, proteins that help you make enzymes that help you process chemicals. Whereas…

DR. FERNANDEZ
…what we've done. This is the bypass back here, that's our staple line that we've over sewn here. This is our patch, here. And, you can see this is the junction between the stomach and the esophagus, about the size of an egg. We've already seen, we see on the camera is magnified two and a half times. So, we're going to clean, going to make our connection right here, and just clean a little bit off here, and get started with that.

DR. CARL WESTCOTT
Many of our patients have plenty of calories that they carry with them in the form of the fat that has been built up over the years. It can't be metabolized without the proper enzymes and vitamins in order to get it back in and turn it into useable calories. And, at the same time make sure they don't, with exercise and protein intake, preserve as much muscle mass as possible.

The program aspect of any bariatric surgery program can not be underestimated in my opinion. There are many components of this. There's of course bariatric patients being the center focus of many professionals, including the hospital and the anesthesiologist, the operating room staff, mental health professionals, exercise therapists, nutritionists. And there's a good need for a coordinator who can put everything together and hold the glue of the program in and provide a comprehensive package to each patient. And we really feel that that's the way our patient's going to be as successful as possible. Entering our program, we usually have every patient fill out a patient information form so we can go through and make sure, based mostly on the NIH criteria whether they are candidates for surgery and whether they would benefit from coming down to meet us. An initial evaluation includes a visit with the surgeon coordinator as well as the nutritionist and a psychologist. There's extensive preoperative education session and insurance issues are addressed prior to surgery. Program requirements are of course, you must meet NIH guidelines. BMI of 35 and greater with medical morbidities or a BMI of 40 or greater. In addition, weight loss attempts have to have been unsuccessful. And, some insurance companies require documentation of medical weight loss, meaning physician monitored weight loss programs. We require all our patients to quit smoking. Smoking is a detriment to wound healing. And, is a risk factor for astomatic leak in RP. Again, multiple pre operative weight loss

attempts have to be documented. The diagnosis and treatment of co-morbid conditions which could impede surgical success need to be undertaken and treated – hypertension, sleep apnea, skin infections, any untreated or under treated depression or other medical health, or mental health co-morbidities.

One question came is how many of these…

DR. FERNANDEZ
So, we made the connection between the small intestine and the pouch. This is the roux limb, that is the part of the small intestine that we're pulling up to the pouch. And, that's what makes this a Roux-en-Y gastric bypass. I don't know if you guys have been talking about that already.

DR. CARL WESTCOTT
Yes, this is the roux is going to come up to the pouch, that's the 30 cc pouch which is further away. And, closer to us is the small bowel which is going to be connected to that pouch.

DR. FERNANDEZ
And, this is our pouch and we're going to go ahead and sew these two together and make a connection between the two.

DR. CARL WESTCOTT
While you're sewing, listen to this question, because I'm going to try and answer it then I would like to hear what you have to say. How many of these surgeries do you think a surgeon needs to perform before he can be considered very experienced in this particular field. Now, I was going to answer first, I am a, I have pretty extensive experience in laparoscopic surgery, I am still in the learning phase of how to do this surgery. And, so I think this is a very complex surgery. And, from the data that I know of that's been proposed that between 100, 50 and 100 surgeries, and I think that's probably accurate. Many of these skills are acquired only after practice and are best done with a mentor who has already acquired them. Fuzz, what do you think? Is that accurate?

DR. FERNANDEZ
That's what the literature says. I think it was Child at the University of Pittsburgh, and Ballantine in New Jersey who both said that it was somewhere between 50 and 100 procedures that would be required to get over that so called learning curve, which is basically that curve where you're, i.e., the timing it takes you to do the procedure drops down to where it plateaus, and the amount of complications start to plateau, meaning they start to decrease or be minimal. Some will argue with that, obviously, but as Dr. Sauer and Dr. Ballantine saw doing the procedure without doing one before, they saw that so I think it's probably less if you learn an established technique from an established surgeon who's been doing it for a while. You're probably, learning curve's going to be quicker than that. But, that's kind of variable from program to program. Be careful… in the back of your jaws there because it will cut the suture.

DR. CARL WESTCOTT
There is one question here that says," How is the leak test performed the day after surgery?" We're gonna do one leak test shortly as soon as this connection is completed. That's done during the surgery. Of course because, just because that is negative or that just because the connection is airing water type now doesn't mean that it will be in one to two days. But the first post operative

day we have our patients drink gastric graft which is a radio take which means if you shine x-rays through it, it bounces back its a visible contrast study. And uh we do that on the first day uh get a barium or a gastro graph and swallow and we look and see if there is any leaking. Now the real reason for the test is to uh, have our patients stay for a few days and monitor them and watch them for some other signs of leak that occur, uh that aren't picked up by the gastro graph and swallow. Those will include high heart rate, uh sense of impeding doom, backache, shoulder pain and uh it's a real risk for that. And its one of the reasons our patients stay a few days, and one reason why if you come from out of town we want you to stay in town for a few days after that. And its one reason why Susan gives you a phone call for a couple days after the surgery. Checks up with ya on a weekly basis and you come back and see us regularly.

SUSAN BUTLER
We also have several questions about gall bladder surgery. Previous laprascopic gall bladder surgery as to whether that would disqualify a patient for the laproscopic weight loss surgery. And we also have a question about could the gall bladder be removed at the same time as the laproscopic surgery? And the answer is uh no. It would not disqualify you to have the weight loss if you already had a laproscopic gall bladder procedure. And the gall bladder can be removed at the same time as surgery, if you have gall bladder stones. So those are two different options there.

DR.FERNANDEZ
Susan ahh??? Did you guys go over the history with this patient we are having in surgery today?

SUSAN BUTLER
No we haven't.

DR. FERNANDEZ
Cause I believe she did have her gall bladder taken out and she also had… a little… an abdominal surgery as well aside of that one. I think she had a hysterectomy, is that correct?

DR. FERNANDEZ
You mean an appendectomy.

DR. CARL WESTCOTT
Previous surgery is not a (unintelligible) indication to having this surgery performed laproscopicaly. It does leave you at a higher risk to needing a longer surgery and it certainly leaves at the risk of having the surgery needing to be done open. Eventually because of adhesions or because of scar tissue formation. Um and we've er everybody or different patients form scar tissue differently. We have been able to complete a laproscopic procedure on a patient who had extensive pre operative… extensive abdominal surgery including liver surgery. Umm prior to us undertaking the surgery. We try to start laproscopic knowing we may have to do an open surgery. Ummm we certainly try to reap all the advantages of laproscopic procedure if it is feasible without it exposing anybody to excessive risk.

DR. FERNANDEZ
We are going to go ahead and make uh small opening in the small intestine here. And that's so we can get our stapler in. Ummm to make the astamosis here. We do a staple than an astamosis here. Just like we did down in the small intestine part. That little bit of blood is how we know we

are in the actual pouch. And we will put the stapler, one part of it in the pouch the other part into the small bowel.

DR. CARL WESTCOTT
It's critical that this connection be made as small as possible. We like to make this a centimeter in circumference. We will show you later on how this is performed but one of the first steps in making sure it is the right size is to get the stapler introduced to the right distance. We can do that with the letter son the side. We know where to stop.

DR. FERNANADEZ
So this is a connection. Now once we have completed this we are gonna put a couple of stitches in and than we are gonna go head and pass the gastro scope through the astamosis and that will help keep it open while we close the openings above it. And than we'll use that to test our astamosis and than the procedure will basically be done.

SUSAN BUTLER
Dr. Fernandez one of the viewers has written in asking about the potential of excessive bleeding after this surgery.

DR. FERNANDEZ
Umm there is always a risk there is a known risk of bleeding from this procedure where patients have had to be transfused where we had to take them back to the operating room. Like for any other surgery where you are making ummm incisions on the bowel and on the abdominal wall there is always that risk they can bleed after surgery. And have to be taking back to the operating room. Its fairly safe, its not something that happens very commonly but its certainly something that can happen. I have been kind of rude and I haven't introduced our staff in here today. Ummm John is scrubbing, Paul is circulating for us, umm holding camera for us is Kelly Baer one of our medical students and my very gracious assistant is Jeff Pierce one of our third year residents. At the head is Steven Holter one of our other third year residents he is going to be driving the gastro scope. And a whole pack of anesthesia personnel in the room. Their the ones hiding behind the green sheet behind the patient's head.

DR. CARL WESTCOTT
Typical patients come back and see us…. Which time a visit with our nutriuonist as well as the surgeon are provided. Routine follow up blood work is done. And than again at six months and three months, and than yearly there after. Some labs need to be drawn on a regular basis, which would include monitoring for iron and vitamin B-12.

SUSAN BUTLER
This is one of my favorite topics. Uh Dr. Westcott how soon after the program should one begin a walking program. Uh we actually encourage our patients to start walking immediately. In fact the night after they've had their procedure we do encourage them to get up and walk in their room and make trips to the bathroom. And than the next day after their upper G.I. x-ray and we determine they do not have a leak. Than we expect them to be out walking in the hall. Of course walking helps for a variety of reasons. Umm one it increases your recovery uh as far as recovering faster from a procedure. It also makes patients feel better emotionally and than of course it also and most importantly decreases the risks of complications like a pulmonary embolism. (unintelligible) from having general anesthesia. So walking is certainly encouraged.

DR. CARL WESTCOTT
Walking is encouraged and it's uh one of the…

DR. FERNANDEZ
Look at eh inside picture now, you can actually see the gastro scope kind of sticking out of the astamosis. He's gonna go back inside than advance in. Ok than we will follow him a little ways down the small bowel.

DR. CARL WESTCOTT
This is how we assure its going to be a centimeter in diameter. Because that scope is a centimeter in diameter. Yes well walking is encouraged. In fact it is one of the advantages of laproscopic surgery. You'll see near the end of the procedure the size of some of these wounds. Their either five millimeters in diameter or twelve millimeters in diameter. And there is nothing that could be done that could make these wounds pop open. And which uh uh is real assuring to patients and helps them be able to get up and move around. And walk. Addition to pain after the surgery which is much reduced and the active walking not only decreases the risk of pulmonary embolism, its something that needs to be done everyday for the rest of your life. In fact t we uh like to get our patients speedometers so thy can monitor how much walking they do. Exercise is the key and its really the linchpin to long term success. Uh eventually this pouch as we said before is going to dilate up a little bit. Patients will learn which foods they can tolerate and which they can't. And uh um exercise helps burn off those calories and maintain your muscle mass and maintain good cardiovascular fitness. Umm and so walking is one of those low impact uh types of uh exercise patterns we encourage a great deal.

SUSAN BURNS
Another viewer has asked about age limits for this procedure and currently we say that our age limits are eighteen to fifty-five. However there are occasionally exceptions to that rule. Not with the under eighteen population because we certainly don't know the long term of effect of this type of surgery on an adolescent. Also patients need to have achieved full growth. But patients that are slightly older than fifty five will occasionally be considered. Depending on their current health situation. So we do look at each case individually before we just uh deny someone the potential of having this weight loss surgery.

DR. FERNANDEZ
So we have completed the inner part of the connection between the pouch and the small bowel. Now we are going to do one extra layer outside to make it a two layer astamosis. So we are basically doubly reinforcing this area here. In hopes of preventing a leak or a problem post operatively.

DR. CARL WESTCOTT
Another question we have gotten kind of touches on one of the issues we are discussed here and it says. " Is it very likely that during rapid weight loss, gall stones will be developed and later prompt gall bladder surgery?" And this is one of the issues that are still being contentious and still being working out. In fact if during a rapid weight loss period patients are adherent to talking active gall which is a chemical or a drug that helps reduce the amount of gall stones that are formed. Gall stones are not very much of an issue, the difficulty is the stomach pouch is very small and that pill is very large and so many patients are unable to take that pill. And uh so in many of our patients that have stones or is symptomatic we take the gall bladder out at the time

of the surgery. Now that's not the uniformly adhered to practice. Some doctors believe that should gall stones form during the rapid weight loss period. Laproscopic (unintelligible) could be done at that time. Particularly if you do this procedure laproscopicaly. If we were to finish this procedure laproscopicaly and you need to go back in, in two or three months umm you would find that surgery very feasible to do. There would be minimal adhesions in fact the area near the gall bladder would be relatively free of adhesions and uh it would be likely that a laproscopic gall bladder could be completed in a few months after the surgery if its found necessary.

SUSAN BUTLER
Dr. Fernandez would you have a chance to speak about how many laproscopic gastric bypass we have performed here and what your previous experience was before you came to Baptist.

DR. FERNANDEZ
Umm yep this is our twenty eighth today. And my experience where I completed my training prior to this was approximately a hundred and fifty laproscopic gastro bypasses and over fifty open gastro bypasses. Both new and revisions. And we did quite a few revisions laparoscopically there to. So we are completing this outer layer now.

DR. CARL WESTCOTT
Another good question has come in here it says, " How does a patient keep from getting dehydrated when they cannot have but so much food and liquids will fill up the stomach?" Well liquids will flow through that astamosis fairly readily and we recommend a brisk water intake. It helps with your weight loss and helps keep your hydration status adequate. And so liquid ingestion is not as much of an issue as solids… solids and food is what we need to help limit. Umm that said a large amount of liquid food can help defeat this surgery and so we have a pretty well developed diet we like our patients to stay on and adhere to. That goes along with their new intestinal configuration and helps limit dehydration and uh augment a healthy weight loss.

Here's another good question, from a surgical colleague. " How do you keep track of the two limbs of the small bowel during the procedure and keep them from getting confused? Which is the distal limb? Which is the proximal limb?" Dr. Fernandez any thoughts?

DR. FERNANDEZ
Well what we do is after we transect the small intestine and make our mesentery cuts. The assistant actually grabs and does not let go of the proximal portion of the small intestine. So that we have it basically in our grasp the whole entire time. And do not get confused. But it has happened. I have heard of those happening in the past. Not personally to me but they can occur and obviously when you hook up the wrong limbs of the bowel, causing a bowel obstruction.

DR. CARL WESTCOTT
Well not during this case because we have a good amount of time to set it up but during that portion of the case we do go through those two limbs several times in order to verify that we are uh putting the bowel back together in the configuration in which it was intended.

SUSAN BUTLER
We've also had some viewers ask about the high risk of this procedure, and what are the risks involved or complications. And there are several risks that we talk about at length with our patients prior to considering them as surgical candidates. Of course there is a small likely hood,

point five to one and a half percent of patients that will potentially die from complications of their surgery. There are also complications like wound complications, of course we have already talked about the leak risk.

DR. FERNANDEZ
And what we are going to do now we are going to do the gastrophy portion of the procedure. Dr. Holter is going to perform that and we are going to take a good look inside and we are also going to do the leak test at the same time. So Dr. Holster if you don't mind. Start pulling back your gastro scope please..

DR. CARL WESTCOTT
About sixty six percent excessive weight loss at five years and about fifty percent weight loss at fourteen years. The most common perioperative complications are…Wound complications, followed by leak and the leak can occur around two percent of the cases. Which is not a small number, its two in a hundred. Umm pulmonary embolism can occur and death can occur as stated by Susan. As many as one point five percent of series. The most optimistic has been about one in two hundred reportedly in the largely series. So it certainly is a risky procedure.

DR. CARL WESTCOTT
This is a risky procedure…

DR. FERNANDEZ
…small intestine, and he's going to start insufflating. Make sure your insufflator's on low. Alright, so that's the view inside the small bowel. If you want to pull back. He's going to pull back into the small pouch now, the stomach pouch. And, that's that connection there, and if he gets himself centered, pull all the way back, please. Good, so that's the patch, keep it center. And, so that's the pouch, pull back some more, and that's, you're starting to see there the boundary with the swallowing tube there with the esophagus there. Ok, go ahead and advance back into the small bowel. He's going to go back into the small bowel, and if you're looking at the laparoscopic view now, this is where you would see bubbles if there were any, and there weren't any, so ok, go ahead and suction out the air…

DR. CARL WESTCOTT
…small bowel put under pressure from the gastroscope, which is placed inside the abdomen, no bubbles are coming through, and this is our intraoperative, or the leak test we do during the surgery to verify that our anastomosis, or the connection between the two bowels is in fact adequate, is in fact good. As I was saying, with a procedure that has a optimistically reported, 1 in 200 death rate, this needs to be procedure for those who are considering it, something that you would consider and undertake only after truly coming to the conclusion that this is the only way you are going to be successful at making yourself healthy. Some late complications from this surgery can include stomalstenosis, and that's a narrowing of this area where the small bowel and stomach are put together, and that can be managed with a dial H. And, also where these two portions of small bowel and stomach put together can get ulcers, and single hernias can certainly form. Weight regain is a definitely possibility in this, as we've said before isn't a miracle, this is a tool, and it's uh, it's done and with the hopes of uh, helping to um, promote and uh, learn uh, long, life long behavior modifications which promote healthy, healthy behaviors and a healthy life.

SUSAN BUTLER
One of the questions has come in about the high quality quarantines which I alluded to in our earlier question. And, high quality proteins would be things like dairy products, like cottage cheese, yogurt, soft fish. Patients do not tend to tolerate meat products very well, like stringy chicken or beef or pork. And, they certainly should stay away from processed meats. High quality protein, we encourage patients to use protein supplements. And, if you want protein shakes, we provide recipies and options for using those sorts of things.

DR. CARL WESTCOTT
I'm not a dietician, but I would say a good example of low quality protein would be a Slim Jim.

SUSAN BUTLER
That would be correct.

DR. CARL WESTCOTT
Whereas a high quality protein would be cottage cheese, or a protein shake, or just eggs. Eggs are a very good, healthy form of protein.

SUSAN BUTLER
Dr. Fernandez, one of the questions here is that you do not get hungry after the surgery after eating so little. Can you explain how this works?

DR. FERNANDEZ
That's one of the odd things right now that we're not sure is occurring. There was a thought that it was the Garelin factor, which is that factor that's secreted mostly in the stomach and part of the small intestine that those levels go up as we get hungry. And, one study initially showed that those levels went down immediately after gastric bypass. But, subsequent studies have not shown that to be true. So, we still do not know exactly why, but that is one of the common effects, our patients, immediately after surgery, will have no appetite. We have to tell them to just schedule their meals so that they don't, basically, eat too little after surgery, which can be a danger. One other risk early on is not eat enough, not drink enough and get very dehydrated, get very cathartic, which causes nausea and some incidents vomiting after surgery. Just to kind of give you an idea of what we're doing here, is we're just using some of this amenum here to kind of wrap our anastomosis. And, kind of another layer of protection to hopefully prevent a leak form happening. Or if a leak happens, make sure it's a small leak, a contained leak so it won't be an issue for the patient.

SUSAN BUTLER
One of the viewers has asked about some physicians choosing to leave drain tubes in after the procedure.

DR. FERNANDEZ
That's very variable. When I trained I found that those drains ended up working, as far as containing a leak or helping a leak, much less than half of a time. And, we actually found that sometimes patients would get a leak after the drain was pulled. So, we just decided to go away from using drains routinely. Now, in reoperative cases, or cases where there's been a revision, drains may not be a bad idea. Those are higher risk cases, have a higher chance of leak and complications and a drain may be a good use there. There's also some physicians that would go

ahead and put a gastrostomy tube and bypass the stomach right off the bat. Again, that's something we didn't do routinely in the normal patients. But, the patients who were revisions, we did put a gastrostomy tube in at the time of the procedure.

DR. CARL WESTCOTT
One more question, Fuzz, what do you do if there is a leak? What would by typical, how would the patient look, what would we do, and what's the typical outcome for a patient like that?

DR. FERNANDEZ
I think, initially if there's a leak, basically comes down to how the patient is doing. If the patient has any symptoms or signs of a leak. Are they tachocardic, are they symptomatic of it? If they are, I think that patient requires a reoperation. Meaning going back to the operating room. Not necessarily open, but laparoscopically to explore, see if we can identify the leak and then fix it, and put a drain in, and a gastrostomy tube in at that time. If the patient is unstable, though, those patients typically don't tolerate anumal perineum laparoscopy, so those patients typically will have to be explored open. Now, if a small leak that's contained, and the patient's tolerating it, meaning they don't have any blood pressure problems as far as meaning blood pressure low, then those patients we can actually go ahead and just watch on the floor and see how they do.

We've had patients where the leak has been small and contained and does not need to be re-explored.

SUSAN BUTLER
We've also had several questions, Dr. Fernandez and Dr. Westcott, about patients that have had previous surgeries, and whether they would actually be candidates for this type of procedure. And, so many things depend on the type of surgery they've had, whether it's reconstructive surgery, secondary to something like forms of cancer. We would assess the patient, just fill out the patient information pack and send it to us and we'll have an opportunity to review that as well as some of their medical records.

DR. FERNANDEZ
So, prior surgery is usually not a contrary indication. If they've had any abdominal cancer surgery, usually we like to wait at least five years. Five years of disease free time before considering weight loss surgery. And, then previous gastric surgeries, not a contrary indication, although it does increase the risk, especially if it was weight loss surgery in the past, that does increase the risk of the patient.

DR. CARL WESTCOTT
So, in summary, we've performed a laparoscopic gastric bypass where we've created a very small stomach and minor bypass of part of the small intestine. This is done to help patients who have a great amount of difficulty and a medical need to lose weight. We do this in concert with a multi-disciplinary team, and life long follow up. I'd like to thank everybody for staying late and getting this case done and helping get his web cast done, and thank you for your attention.

NARRATOR
This has been a laparoscopic gastric bypass performed live at Wake Forest University Baptist Medical Center in Winston-Salem, North Carolina. The presentation is a continuing medical education program. For those of you who are registered for CMP, click on the slide in the

window to your right to take the post test now. Physicians who would like to refer a patient may call 1-800-277-7654. Patients who would like to make an appointment, or receive more information about the procedure may call 1-800-446-2255.