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Laparoscopic Surgical Approaches for Ulcerative Colitis

Narrator:
Welcome to “Medical Breakthroughs” from Penn Medicine, Advancing Medicine Through Precision Diagnostics and Novel Therapies. Your host is Dr. Lee Freedman.

Dr. Freedman:
Our patients with ulcerative colitis often need to take multiple medications to attempt to achieve and sustain remission. Laparoscopic J-pouch surgery is a procedure that can often cure patients with ulcerative colitis as well as eliminate their risk of colorectal cancer. I am your host, Dr. Lee Freedman, and with me today is Dr. Najjia Mahmoud, an Associate Professor and the Chief of the Division of Colon and Rectal Surgery in the Department of Surgery at the Hospital of the University of Pennsylvania. Dr. Mahmoud, welcome to the program.

Dr. Mahmoud:
Thank you so much.

Dr. Freedman:
We are very excited to hear about J-pouch surgery, and I'm an internist so I know really nothing about this. Could you perhaps start by telling us what this procedure is?

Dr. Mahmoud:
Well sure, and I should be a little bit more specific. So, when we say J-pouch surgery, what we are really talking about is the removal of the colon and the rectum and then creation of, you could call it, a neo-rectum or a new rectum by fashioning it from the terminal ileum and attaching that to the tissue just above the anus in the anal canal. So really it is a laparoscopic total proctocolectomy with J-pouch reconstruction. We also call it an ileal reservoir. We also call it a Park's pouch, so there are a lot of synonymous terms for this, but it is done typically for patients who suffer from ulcerative colitis as well as familial adenomatous polyposis, the genetic or an inherited syndrome.

Dr. Freedman:
And that would make sense in that it essentially limits those latter patients' risk for colorectal cancer?

Dr. Mahmoud:
Correct. It does actually.

Dr. Freedman:
And are all patients with ulcerative colitis candidates for this or does it need to be something that really affects a large portion of the colon?

Dr. Mahmoud:
Ulcerative colitis is a disease that can take a few different forms. It can be severe; it can be mild; it can be moderate. Patients can suffer from ulcerative colitis with dysplasia, which is changes in the cells of the lining of the colonic epithelium that can predispose them to cancer, so really, you know, the indications for J-pouch, we do not do J-pouch surgery or total proctocolectomy J-pouch reconstruction for all patients with ulcerative colitis. Clearly, patients with limited proctitis and left-sided colitis are patients who could probably avoid J-pouch surgery. Patients who are well maintained on medical therapy and are comfortable with good quality of life and minimal

medication side effects are patients who can avoid J-pouch surgery. Patients who have colonoscopy every year with serial biopsies, who lack or fail to show dysplasia, either low grade or high grade in the colon or rectum, are patients who can avoid J-pouch surgery, but if any patients fail to meet those criteria, in other words, if they are failing medical management and have become steroid dependent, for example, symptoms are so miserable that medication does not work and their quality of life is suffering, then surgery is the next option. The other thing that we do J-pouch surgery for, or total proctocolectomy, is dysplasia, and we think that patients who have both high and low grade dysplasia is a little bit more controversial but not, not terribly controversial, but low and high grade dysplasia or multifocal low-grade dysplasia are patients who are good candidates for J-pouch surgery because their risk of cancer is so high and the cancers that they have can be quite small and quite difficult to detect. That is the other major indication for J-pouch surgery.

Dr. Freedman:
Very interesting and are lesser surgeries ever done for ulcerative colitis?

Dr. Mahmoud:
It is an area of some controversy. So there are practitioners, surgeons and gastroenterologists who occasionally do, or recommend, patients for total colectomy with an ileorectal anastomosis sparing the rectum. The difficult part about having a total proctocolectomy is the proctectomy part, a total proctocolectomy, because a lot of the function is in the rectum, and a lot of the morbidity of the operation itself is conferred by the proctectomy portion of the case. Damage to the hypogastric nerves controlling sexual function, damage to the parasympathetic nerves controlling urinary function; you know, just simply the functional consequences of not having a rectum to store stool or mediate defecation makes it difficult. So there are very, very selected few patients who may be a candidate for a rectal-sparing procedure, but it is not very commonly done, and it is not a very widely advocated operation, I'll put it that way.

Dr. Freedman:
If you are just tuning in, you are listening to medical breakthroughs from Penn Medicine on ReachMD. I'm your host, Dr. Lee Freedman, and I am speaking with Dr. Najjia Mahmoud about J-pouch surgery. Now, Dr. Mahmoud you mentioned that it is a relatively big procedure with some risks, but that there are other options should patients not want to have the procedures you were describing. What are the other options that patients have?

Dr. Mahmoud:
Well, I was really kind of referring to the fact that there are sometimes some patients who are so ill, they are so malnourished or they are on high doses of steroids, that we opt to do something called a 3-stage procedure rather than a 2-stage procedure. It is not as if the patients do not qualify for J-pouch procedure, it is just that putting in a J-pouch in a patient who has a prealbumin of less than 10 or 15 or has an albumin of less than 3 is really dangerous and increases their risks of infection. So what we typically do in those circumstances is that we do what is called a 3-stage. We first do a laparoscopic subtotal colectomy and bring out an end ileostomy. About 2 to 3 months later after the patient is healed and is healthy off all medications, we go back and we do a completion proctectomy J-pouch procedure, leaving a loop ileostomy in place in the same place that we had the end ileostomy and then 2 months after that we go back and we close the ileostomy.

Dr. Freedman:
So, a more prolonged procedure overall, but it gives time for each stage to heal?

Dr. Mahmoud:
And, consequently, minimizes the risks of septic complications. So there are ways to offer patients GI continuity who have severe ulcerative colitis or medically unresponsive ulcerative colitis who can't have a J-pouch right away. There is a way to do it that sequences things in a way that minimizes sepsis.

Dr. Freedman:
And after this procedure has been done and the patient is without a colon, what kind of things do we need to watch for metabolically or side effect wise as we follow these patients down the road?

Dr. Mahmoud:
So this goes back to the counseling question. How do you counsel somebody about what their postoperative function is going to be like? Most of the preoperative counseling for J-pouch surgery has to do with first deciding whether or not somebody is a candidate for the procedure, whether their continence is good preoperatively. If they are incontinent of stool preoperatively, then a J-pouch is not going to help that situation; in fact, it is going to worsen that situation, and how risk tolerant or risk averse they are, and what their motivation is for preserving GI continuity. So you have to establish that--a sort of performance status and physical statuses pre-surgery, preoperatively. So deciding what operation is good for them. Then you have to talk to them about the functional consequences of J-pouch surgery. Once you have decided, okay, we are going to go down the road of establishing a J-pouch and you are a good candidate

for a J-pouch, what kind of function can you expect postoperatively. I tell patients that after the ileostomy closure and we reestablish GI continuity, really the major challenge for those patients initially is bowel frequency. So the good part about J-pouch surgery for most patients with ulcerative colitis is they get rid of the colon, they get rid of the medications associated with their symptoms, and that horrible feeling of cramping and nausea that they get, and they get rid of the urgency, but they do not get rid of the frequency necessarily. So, most patient with J-pouches, I say, will have good function if they have between 5 and 7 bowel movements per day. That is considered good function without urgency. So, that it is important because most patients with severe ulcerative colitis struggle with urgency and that is a terrible feeling for them. So, the fact that they can be medication free without urgency is a real triumph, and that is what a J-pouch can do, but you also have to tell them, look, you know, initially when we first close your ileostomy, you could have real frequency or you could go 10, 20, 30 times a day initially for the first few weeks, and there are ways that we can help you through that with things like Imodium, antidiarrheals, fiber, to thicken up the stools and reduce peristalsis, make you go less frequently, but there are going to be challenges in the first few months after ileostomy closure. I also tell them though that those challenges get fewer and fewer as time go on. So, the body does have an internal biofeedback, its own internal biofeedback loop and way of accommodating through that kind of frequency, so the body learns itself to slow down.

Now, you had asked about metabolic issues associated with J-pouch surgery, and the patient still has the entire complement of small bowel, the entire length of small bowel. They still have the terminal ileum as well. Also, interestingly enough, after several months the small bowel will accommodate and take up some of the absorptive function of the colon. You know patients with J-pouches are really not very prone to things like electrolyte disturbances or protein malnutrition or malabsorption of fats or any of those other problems with derangements; they actually do really well.

Dr. Freedman:
That is very interesting. So, the vitamin deficiencies, and you really do not have to worry about that?

Dr. Mahmoud:
They really don't. They really don't. They don't really even need vitamin B12. They still have their entire terminal ileum, and that terminal ileum is functioning. That's the good news for them. They can have issues with dehydration initially when they have their ileostomy. You really have to counsel patients about watching and monitoring how much their temporary ileostomies are putting out.

Dr. Freedman:
I can imagine and especially if they are going 10, 20 times a day for the first month or two afterward. Dr. Mahmoud as we look ahead in the next 5 years or so, do you see any new developments in this type of technique?

Dr. Mahmoud:
Well, you know, it is interesting because it is a technique that has evolved over the past, I would say, 20 to 30 years. In the early 1980's, we used to do these procedures, obviously not laparoscopically, we used to do them in an open fashion, and before the wide advent of surgical stapling devices, we used to do something called a mucosectomy where we would, from the anal approach, I would do a combined approach, transanal and transabdominal, and taking the colon and the rectum out, and then basically skinning the anal canal and doing a hand sewn anastomosis or a hand sewn connection, and some people still do that, but the advent of surgical stapling has created a situation where we can very easily and readily attach the J-pouch to the top of the anal canal, and I would say that that has been the biggest and best improvement in both the surgery itself as well as postoperative function. Patients with a staple technique have better postoperative function than patients who have had the hand sewn mucosectomy technique. I think that the next advance well may be, although it is certainly not for sure yet, but may be involve doing the pouch part robotically or doing the rectal part robotically, although many of us do that part laparoscopically right now, so it is unclear what advantage the robot would have, but that may be something that’s increasing in the future.

Dr. Freedman:
Well that is very interesting, and I want to very much thank Dr. Najjia Mahmoud for being with us today, and describing for us some of the considerations and the techniques of the so-called J-pouch procedure for ulcerative colitis. Thank you so much Dr. Mahmoud.

Dr. Mahmoud:
Well, thank you so much too; it has been a pleasure.

Narrator:
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