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Discussion

DR. HIRAM C. POLK, JR. (Louisville, Kentucky): Dr. Cameron, Dr. Copeland, Ladies, and Gentlemen. I think this paper represents a rare coming of age of laparoscopic papers. You can compliment the presentation, you can compliment the work, but this is distinctly different from the reports we have heard from the laparoscopic community over the last year and many meetings prior to this in which hundreds of patients who have at least belched once have had laparoscopic Nissen fundoplication.

We have been told this morning that 10% of the American population have reflux esophagitis. The good news is they will all soon be postoperative, so we will not have to hear about them anymore.

I think you need to contrast this paper, though, because John did not dwell on some things that make this paper extremely good. Number one, there is a precise discussion of technical detail about how to do this operation.

There also is an honest discussion of patients that he wished he had not operated on. I think those are the things that let you know someone is approaching this with real objective care.

Let me stress again that he had 21 patients who failed after pneumatic dilatation. There were six more who failed after balloon dilatation. There were two patients who failed after transthoracic myotomy, and there was one patient with a failed botulinum toxin.

Furthermore, there were three patients who had onset of swallowing disorders after fundoplication. Almost all of those people have had achalasia all along; it has just been missed.

I think this is a remarkable report that is a coming of age of the new generation of laparoscopic procedures. I probably would only challenge one point. They have not stressed the importance of crural repair. It probably is as important as a loose repair as a part of the Heller myotomy operation.

I think this is a wonderful paper that has been very well presented. More and more of our laparoscopic papers should try to emulate this standard for reporting results in patients who need operations.

Thank you very much.

DR. WILLIAM O. RICHARDS (Nashville, Tennessee): Thank you, Dr. Cameron, Dr. Copeland, Members, and Guests. It is a great privilege to be able to discuss this paper. John and his colleagues have presented extraordinary results with their approach.

First, I'd like to amplify that their approach is the best approach available now. We started out doing this transthoracically and found that the approach makes it very difficult to reach the lower esophageal sphincter (LES), which is the critical point of this operative procedure. The transabdominal approach allows you to divide the LES, and it provides much better results.

Moreover, it is simpler because you do not have to insert a double lumen endotracheal tube or a chest tube.

My question and comment is related to whether or not you need to add the antireflux procedure to this procedure. My colleague, Ken Sharp, and I have performed laparoscopic Heller myotomies in 21 patients, and only two of those patients, 10% of our population, are symptomatic with reflux at this time. Moreover, we have had the opportunity to do 24-hour pH studies in many of these patients, and we have not found significant gastroesophageal reflux in these patients.

Perhaps one thing we are doing is a routine intraoperative endoscopy to grade the amount of LES sphincter division intraoperatively. That may be one difference.

Finally, I'd like to say that I question the routine use of the antireflux procedure in these patients because of the question that you addressed, John. The dilated sigmoid esophagus has poor propulsion. What is going to happen to these patients long term if you add more LES resistance? Are we going to see these patients 15 years down the road with a dilated esophagus unable to propulse food bolus past the LES?

I'd like to thank the Association for the privilege of the floor.

DR. WILLIAM C. MEYERS (Worcester, Massachusetts): Dr. Hunter, Dr. Branum, and colleagues continue to lead the way in some of the newer, minimally invasive procedures. Thank you for this superb study.

The Heller myotomy does appear to be a good operation to be performed laparoscopically. It satisfied the criteria that it is the safe, simple, and efficient operation, and one can perform exactly the same operation as one would with an open operation.

I have two questions. First, what do you think of those two criteria for defining whether or not an operation in general should be performed laparoscopically? We have also performed five Heller myotomies in children, as Dr. Richards has, without fundoplication.

There has also been an excellent relief of symptoms with no evidence of reflux on short-term follow-up.

We also use esophagogastrosomy intraoperatively to help guide our cut. Do you think we should still be adding a fundoplication?

I thank the Association and Dr. Hunter for the privilege of the floor.

DR. JOHN G. HUNTER (Closing Discussion): Dr. Polk, Dr. Meyers, and Dr. Richards, thank you very much for your kind comments and questions.

Addressing Dr. Polk's question about the crural repair, I think this is a very interesting phenomenon because it generally is reported that patients with achalasia don't have hiatal hernias. As the esophagus dilates in these patients, frequently they develop hiatal hernias, not from the stomach transgressing the diaphragm, but from the large esophagus dilating the hiatal ring. We routinely add loose crural approximation to our repair when we do the Heller myotomy. Again, on the very large esophagus, we are a bit ginger about this because we do not want to create outflow obstruction by doing so.

I think the questions of Dr. Richards and Dr. Meyers about the need for an antireflux procedure are very germane. The question is do you cut too much or do you cut not enough? I think this is the problem. How much is enough?

An endoscope has been used as a guide in the University of California at San Francisco experience, but this has really been

an inaccurate method of gauging the lower of the myotomy. In fact, when the University of California at San Francisco group has looked at their data using the endoscope, they had three patients initially who they didn't cut enough. They completed the myotomy laparoscopically. Then, when they looked back at their reflux results, they found 20% of their patients refluxed. So, the others may have had an excessively long myotomy.

It is really a hard thing to calibrate. When you look at the literature, in patients who had either balloon dilation or Heller myotomy for achalasia, 25% will have a pathologic 24-hour pH probe unless you do an antireflux procedure.

If you look at patients who are symptomatic from this, often the first symptom is the development of a peptic stricture, an end-stage outcome of Heller myotomy, or balloon dilation, which often requires esophagectomy. We want to prevent that.

Heartburn is a very unreliable symptom in these patients. Many of them have esophagitis from stasis, from yeast overgrowth, and from poor esophageal clearance. So patients will often have heartburn preoperatively, and heartburn postoperatively may be caused by the same factors. It may not be caused by gastroesophageal reflux. In fact, if you look at pH scores and try to correlate them with symptom scores, they just don't correlate.

Once you have performed a myotomy, it is difficult and dicey

to go back in and to add a fundoplication with a second procedure. We felt it prudent to add an antireflux procedure as they do in Italy and South America, where they deal with Chagas' disease or infectious achalasia, and have the world's greatest experience with these problems.

The outflow obstruction that Dr. Richards alluded to, I think, is very important. In the megaesophagus, the posterior fundoplication may angle the esophagus anteriorly, potentially causing outflow obstruction. In fact, one of these patients is our one patient with a sigmoid esophagus, and the patient does have some difficulty swallowing now.

Dr. Meyers asked about two criteria. I believe those are "safe" and "easy." I am not sure that any of this is really particularly easy to do. I think with observation, practice, establishment of a good team, and the necessary equipment, one can make this reasonably facile. One can train residents to do these procedures. Many of these procedures were done by residents. But I think the most important thing is safety and willingness to convert.

I think the iatrogenic mucosal laceration is something that initially gives heartburn, but this can be easily repaired with fine interrupted suture in the magnified environment. Not a single one of these patients leaked postoperatively.

Thank you very much.