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A decade of experience with laparoscopic ventral hernia repairs☆

DR. DAVID LINZ (Parma, Ohio): I would like to congratulate the authors for a very well done retrospective study and particularly for obtaining long-term data on 63 patients who underwent laparoscopic hernia repair all more than a decade ago. As we know, the treatment of abdominal wall hernias remains a far too common problem for the general surgeon and a difficult problem. There is continued evolution in particular regard to the mesh composition. So that being said, I have a number of questions for Dr. Lund.

So the first question, the exclusion group, there seemed to be a high exclusion group. You excluded 47% of the patients that underwent hernia repair? Did you evaluate that group? Did they have similar demographics? Did they have similar complication rates as your long-term group?

Secondly, your manuscript notes that ten different surgeons performed these laparoscopic hernia repairs over this time period. Was there a selection criteria for open versus laparoscopic? Were there a similar number of open cases versus laparoscopic? And did you detect any selection bias for one or the other?

Third question, in your manuscript, you note that 20% of your operations had concurrent operations, some of which were not insignificant, such as a Rou-en-Y. Did that confound your data?

And with regard to complications, a couple questions. The SBO rate seemed to be high at 16%. Do you have an explanation for that? And then your mesh infections, if you look at your data, you mention five mesh infections. Two of the five were less than 120 days and then three of the five were more than eight years. So how do you explain the latent infection being detected eight years later? Was the mesh removed? Was the mesh cultured? Do you have any data on that?

I also notice that you didn't record any SSIs, which, you know, most of us think that's one of the main advantages of laparoscopic, they don't have to create these large flaps with seromas and hematomas and so forth.

And then, finally, you note with regard to the type of mesh, PTFE, what exactly was that? Was that a dual mesh? What's the current practice at Mayo? What are you using for your mesh, and how have this data your paradigm and practice of laparoscopic hernia repair?

DR. LUND: For the first question about the excluded patients, you're right, we did exclude a significant number of patients due to not having long-term follow-up. We compared all of the demographic and perioperative details between those two groups. We found two significant differences between those groups. The first was age. Our excluded group was on average eight years older, close to ten years older than our included group. And the second was BMI. Our excluded group had a significantly lower BMI by about three points. When I looked at those patients to see why they were excluded, about 36 of those patients were excluded due to dying prior to ten years postoperatively. 34 of those patients died due to unrelated causes, and so it makes sense that the age would be significantly higher in that excluded group.

When we looked at complication rates between two groups, we saw that it was 32% long-term complication rates for our excluded group and 44% for our included group or our group with long-term follow up. There was no significant difference between those two rates. We did not compare specific complication rates between the two groups.

To your question on having multiple different surgeons performing these operations, the first about selection criteria. There were no specific selection criteria for laparoscopic versus open repairs at the time. It was up to the surgeon's preference, which means that there may have been some selection bias at that point surgeon to surgeon for laparoscopic versus open repair. I don't have the numbers and the percentage of repairs that were open versus laparoscopic during those years, but open repairs were certainly still being performed at that time or during those years.

Your question about concurrent operations. We did have about one in five operations were also had other operations. The most common were inguinal hernia repairs, as well as, I believe, four Roux-en-Y gastric bypasses that were performed concurrently with laparoscopic ventral hernia repairs.

We had the same question you did, is this causing us to have sicker patients in our population? Are these patients having longer operative time? And so we looked at length of hospital stay and we also looked at operative time for these patients to see if there's any difference between our patients who had current operations and the patients who didn't. And there was no significant difference between those groups.

You mentioned our small bowel obstruction rate, which is high at 16%. When I looked at the literature, I found rates closer to four – even 0.3%. Most of these studies are looking at two-year postoperatively. One study I found at five years postoperatively had a rate up to 12%. So it may be that with time we're gathering more data. It may also be that these patients are having other operations that are increasing their risks for bowel obstructions with time. But also our patients had on average 2.5 previous abdominal operations before their surgery with us. And they also had an operative time of over 2 h on average. And so it may be that these patients with their previous abdominal histories increased their risk for bowel obstructions in the future.

You mentioned mesh infection and why we're seeing mesh infections out to eight years predominantly, and this may be due to

☆ (Presentation given by Sarah Lund, B.S.).

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immunosuppression the patients experience at the age or due to other medications. It may be due to other operations the patients have down the line where surgeons go through the mesh that was put in place during their previous operation and they develop an infection after that. Or it may just be a latent infection that is rearing its head eight and a half years down the line.

In terms of mesh removal or culture of mesh, we don't routinely culture mesh when it is explanted, but the diagnosis of mesh infection here was diagnosed based on mostly patient reports and some outside record, and the mesh was removed in four or five of these patients.

In terms of surgical site infections, you're right, we didn't see any surgical site infections in our retrospective study. It may be that these infections were diagnosed at other hospitals and the patients did not recall having these surgical site infections, but we did not see any in our study, in our patients.

And, finally, in regards to the type of mesh that was used, PTFE, which we usually used dual mesh, so coated PTFE during those years.

And, finally, in terms of any changes that we have implemented based on this study and based on other literature, the major change is that we no longer use GORE-TEX mesh routinely during our operations due to the increased sort of risk or association with having mesh infection.

DR. PETER HALLOWELL (Charlottesville, Virginia): When you're looking at ventral hernia repairs, at the time that you did the repair, were all of them consistent? Was the length of mesh overlap the same? Did you close defects? Can you speak to what the procedure was at the time?

DR. LUND: That's a great question. Because this is retrospective, we couldn't give a protocol for the specific operations the patients were undergoing. All meshes were put in an underlay fashion. They were all fixed, except for hernias that were repaired primarily instead of with mesh. But as was mentioned, ten different surgeons performed these operations, and so there is likely variability in their methods.