Time-Saving Repair

Click the video to watch Part 1 of 2 of the Rebound HRD V hernia repair device. Click here to watch video Part 2 of 2. [1]

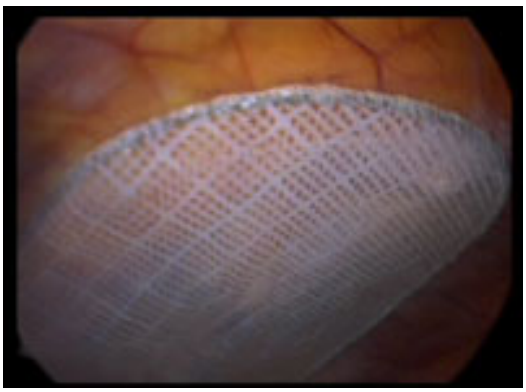
Having performed laparoscopic ventral incision hernia surgery for a number of years, Roderick Brown, MD, had confirmed the laparoscopic method to repair hernias was a better way to fix hernias than open surgery for a number of reasons, including less post-operative discomfort, improved cosmetic outcomes and low reoccurrence rates.

However, traditional methods for laparoscopic ventral hernia repairs can be tedious, difficult and time-consuming procedures. Traditionally, he explains, the mesh is pushed through the port with sutures placed in the corners and unfurled once inside. The surgeon must sort through the suture tails and pull them one by one up to the area to get the mesh smooth and flat. If the mesh doesn’t land smoothly, it must be redone—re-grabbing the suture passers and pulling them back out again until the mesh is smooth. Tacks or staples are often used to anchor the mesh in place.

"It’s a difficult procedure because it’s basically trying to do something akin to wallpapering the ceiling," Dr. Brown explains. "Difficulty has been to get this mesh up in position, covering the area, smoothed out and anchored securely and circumferentially."

Frustrated with the process, Dr. Brown developed the idea of a new hernia repair device with a Nitinol frame that it springs or rebounds open once placed laparoscopically. In 1998, he patented his idea for a hernia rebound device, and soon partnered with Minnesota Medical Development, Inc. in Plymouth, MN, to develop the product. In August 2007, the Rebound HRD was FDA-approved to be used in inguinal hernia surgeries, and in April 2009, the Rebound HRD V was approved for ventral hernia repairs. Both products can be used for both laparoscopic and open procedures, although the design facilitates laparoscopic methods.

Using the HRD V, Dr. Brown says he’s cut at least an hour off the procedure time, if not more with bigger procedures. Further, he’s also found that a technique of placing a disposable or absorbable centering suture on the device before deploying has helped decreased procedure time.



The device held in place with a centering suture and ready for multiple point transfacial suture fixation around the perimeter.

"When you fold up the device and put it through the port, it pops open, then, take a suture grasper, put it right down in the center of the hernia defect and then grab the suture and pull it up," Dr. Brown explains of the process. "Tag it with a mechanical clamp and your device is immediately centered up against the defect. It’s up against the abdominal wall and then you can rotate to or move it around to align it in the position or optimal access or position that you want it and it just stays there."

"You just eliminate the whole process because the mesh is automatically smooth and flat because of the frame," he continues. "Because we position with the centering suture, it’s just a matter of putting the anchoring sutures around it circumferentially."

The mesh on the Rebound HRD V is an advanced macroporous condensed polytetrafluoroethylene (cPTFE), laser cut and transparent enough to see sufficiently through to the defect area, which, according to Dr. Brown, is another time-saving aspect.

"It’s not a totally opaque mesh like most other meshes you’re pulling down the mesh and kind of peeking to make sure it’s covering accurately," Dr. Brown states. "You can see through the Rebound HRD V so you have sufficient coverage and adequate overlap around the defect with the mesh of the device."

“Care is improved as the mesh is kept smooth and flat because I think it has helped minimize problems with adhesions,” Dr. Brown says. “In my experience, I haven’t been using any tacks or staples for anchoring which are focal points for adhesions. I’ve just been using the transfascial sutures for anchoring.”

"Those tacks leave a sharp little edge," he continues. "I’ve actually had those tacks tear my glove. They’re sharp enough to do that, so they’re not totally benign. I think just avoiding the use of something like that and the associated expense is another benefit."

Due to the Nitinol frame, the Rebound HRD and HRD V devices can be x-rayed,

allowing surgeons to "check their work." Dr. Brown is finishing up a study of patients with the Rebound HRD inguinal repair device comparing post-operative x-rays taken immediately after surgery with those taken six months later to test the stability of the device that it doesn't move or change. A key finding, he says, is that the Nitinol frame seems to prevent shrinkage in the mesh, improving the scarring and healing process.

"So far, I've been very pleased with how the device has worked," Dr. Brown concludes. "And, for a problem that's been around forever, it's a very simple concept, but it does exactly what we want it to do."

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