

The Evolution of Laparoscopic Gynecological MIS:

A SURGEON'S VIEW OF 3DHD

Our **philosophy is simple** — make great devices to improve patient outcomes and offer customized solutions that reduce cost.



Barry Schlafstein, MD, FCOG, uses 3DHD for the following gynecological procedures:

- Hysterectomy
- Myomectomy
- Repair of pelvis organ prolapse and urinary incontinence
- Surgical treatment of pelvic pain and endometriosis

In the past twenty-five years, progress made in laparoscopic surgery ranks as one of the most important advances in gynecological care and indeed all of medicine. It has allowed for a minimally invasive approach to procedures that previously required a full incision. According to data, minimally invasive procedures are typically less painful, involve minimal blood loss, require shorter hospital stays, and result in an earlier return to work. In addition, patients report higher levels of satisfaction as compared to open procedures. In the field of gynecology, such procedures may include hysterectomy, myomectomy, surgical treatment of pelvic pain and endometriosis, and the repair of pelvic organ prolapse and urinary incontinence.

In 1910, the first laparoscopic surgical procedure was performed on a human in Stockholm, Sweden, by Hans-Christian Jacobaeus, who is credited with inventing human laparoscopy and thorascopy.¹ One year later, a similar procedure coined organoscopy was performed in the United States by Dr. Bertram M. Bernheim at The Johns Hopkins Hospital. An instrument with a half-inch diameter called a proctoscope was inserted into the body cavity of the patient and illuminated by ordinary light to peer down into the body cavity of the patient.²

Thankfully we've come a long way since those early days. Videolaparoscopy, which employs the use of a microchip camera, was introduced in the early 1990s. This approach was followed

15 years later by flat screen high-definition cameras. Today we have three-dimensional (3D) laparoscopy.

For gynecologist Barry Schlafstein, MD, FCOG, 3DHD technology offers three distinct advantages, which are discussed in this paper:

1. **Enhanced** visualization for dissection
2. Increased ability to fully **visualize** the depth of vessels
3. **Improved** suturing

These advantages have become more significant in difficult or challenging surgical cases. Says Schlafstein, "Laparoscopy has greatly advanced the field of surgery, 3DHD will transform the art."

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3 clear advantages 3DHD offers:

1 | ENHANCED VISUALIZATION FOR DISSECTION

A cornerstone of successful surgery is the ability to visualize dissection planes. While conventional 2D laparoscopy generally provides excellent visualization, the 3D laparoscope further enhances the available visual information for the surgeon, resulting in greater depth of visual field. An example of greater depth of field can be appreciated with the following simple exercise: Close one eye and then reach for an object on a table in front of you. Now do the same with both eyes open and notice the difference. 3D laparoscopy, like binocular vision, allows the surgeon greater depth of field while operating.

“The enhanced visualization enables me to identify tissue planes, which allows for the dissection of adhesions. I am able to complete difficult dissections and avoid injury to other vital organs, like the bowel or bladder. That’s a huge advance,” Schlafstein says. He adds that the 3DHD has also allowed him to offer the minimally invasive treatment to patients who might otherwise have required open surgery. “I want to do procedures minimally invasively as long as it’s beneficial to the patient. In certain cases, without the enhanced visualization, we might have had to convert to an open procedure to try to avoid injuries. Our total open hysterectomy rate is less than 1%, and our conversion rate [to open surgery from MIS] is less than 0.5% in the more than 230 hysterectomies we’ve completed since adopting 3D technology in January of 2012.”

2 | INCREASED ABILITY TO FULLY VISUALIZE THE DEPTH OF VESSELS

The 3DHD enhancement to minimally invasive procedures has also assisted in being able to fully visualize the depth of vessels when isolating and securing them, according to Schlafstein. “The 3D system allows me to visualize the full depth of the vascular bundles that are involved in a procedure and, in my experience, results in a cleaner procedure with less blood loss,” he says. “With 3D, I can capture the vessel in its entirety more easily than in 2D, which enhances hemostasis.”

3 | IMPROVED SUTURING

“The process of suturing is a very important element in advanced gynecological laparoscopic surgery,” Schlafstein says. “In fact, it’s an element that keeps a lot of physicians out of the arena of advanced laparoscopic surgery in the field of gynecology.” Because Schlafstein is proficient in suturing, he admits he was a bit skeptical in the beginning about what 3D could do for him, but now believes it has increased his efficiency. He adds that it has eliminated the need for steps, such as “touch-confirm” to properly line up the needle, which are necessary with 2D suturing.

¹ <http://www.ncbi.nlm.nih.gov/pubmed/16773384>. Accessed September 15, 2014.

² http://www.laparoscopyhospital.com/history_of_laparoscopy.htm. Accessed September 15, 2014.

AN UNEXPECTED ADVANCEMENT IN SUTURING: THE INSEAM CLOSURE

In using 3DHD for suturing, Schlafstein has developed a vaginal cuff suturing technique that involves inverting the edges of the vaginal cuff internally. It’s a technique he is introducing as the Inseam Closure. Based on his early use of this technique, he believes it could greatly reduce, or potentially eliminate, the occurrence of cuff dehiscence in patients who have hysterectomies laparoscopically, which has traditionally been a concern. The incidence of vaginal cuff dehiscence is approximately 2-3% in traditional laparoscopic and robotic hysterectomy procedures, according to Schlafstein. With the 3D scope and Inseam Closure, he has nearly eliminated the occurrence of this complication for his patients.

“The laparoscopic suturing enhancement that 3D provides allows us to do the Inseam Closure nicely. It’s one of the more difficult suturing techniques,” he explains.

3DHD MIS VERSUS OPEN OR ROBOTIC SURGERIES

While 3DHD offers similar visualization advantages to robotics, Schlafstein explains he prefers 3D for several reasons: “The 3D straight stick laparoscopy is less expensive, allows you to maintain the sense of feel, and is less invasive with smaller incisions than robotics,” he explains.

SMALLER INCISION VOLUME

“In many cases roboitic surgery is actually more invasive [than the straight stick laparoscopy 3DHD] when you add up the incision volume,” Schlafstein says. “It’s about twice the actual incision volume to do a robotic hysterectomy versus a 3D laparoscopic one and you lose the haptics sensation.”

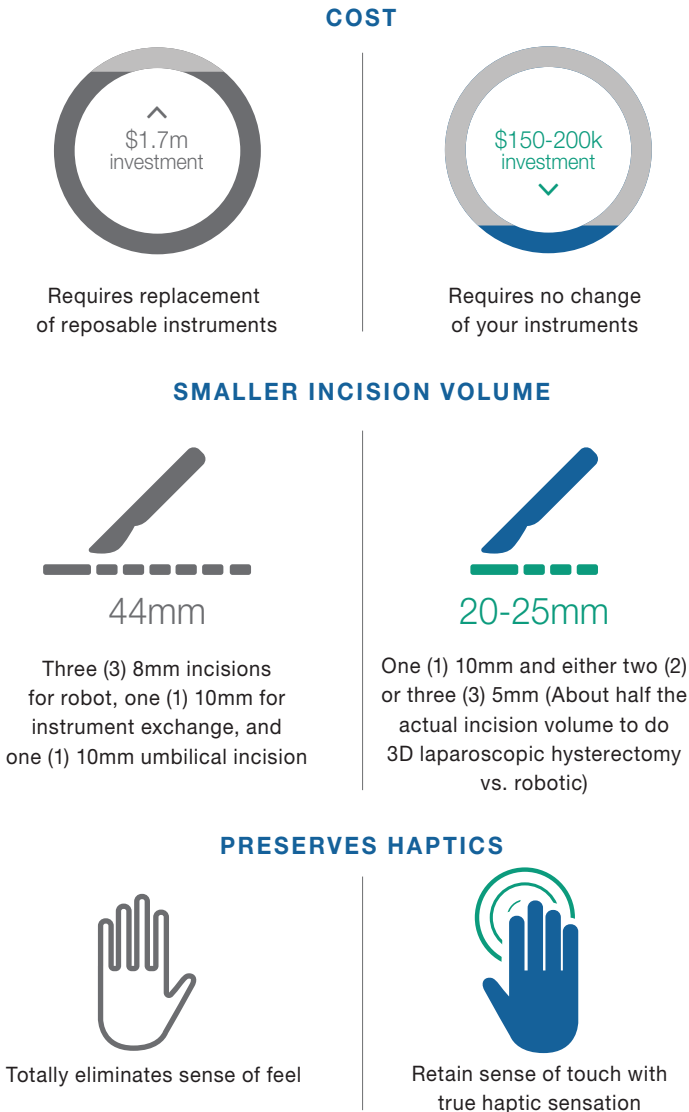
PRESERVES HAPTICS

“It’s important to be able to apply all the senses you have, especially feel and vision, in surgery,” says Schlafstein. “The more information you have and can incorporate, the better you will be. Unlike robotics, where you don’t have the benefit of haptic sensation, performing MIS using 3DHD lets me see *and* feel the tissue.”

MAINTAIN TRUSTED TECHNIQUES

While it varies for everyone, Schlafstein suggests that it takes about five cases for a surgeon to become accustomed to the 3DHD. “When you get comfortable with it and understand the depth of field, there are some adjustments you have to make, but they are minimal. Your technique as a surgeon doesn’t have to change.”

ROBOTICS vs. 3DHD



In closing, Schlafstein says 3D is akin to having both eyes open. This increased visualization allows for enhanced dissection of adherent tissue, isolation of blood vessels, and facilitation of the complex task of laparoscopic suturing.

“To me, surgery is an art form – and our efforts should give patients the best results. I want surgery to be performed smoothly and I want it to look good. Most importantly, I want the patient to have the proper outcome and a good experience. I think 3DHD is a major part of that whole concept.”

Dr. Barry Schlafstein MD, FACOG is a consultant for ConMed.

A compelling case for seeking the best possible outcomes:

When Melissa Abbott, an active kickboxer and mother, began experiencing severe abdominal pain, she was referred to gynecologist Barry Schlafstein, MD, FACOG, who found the uterus adherent to the bladder and to the anterior abdominal wall. While the complexity of her condition would have normally required open surgery, Schlafstein was able to use laparoscopic surgery with 3DHD enhancement to offer Melissa a minimally invasive approach that had her recovering and back to her daily routine quickly, with no complications.

Of note, Schlafstein was scheduled to perform the procedure at a hospital that did not have 3DHD. However, due to the complexity of the case, he knew that 3DHD was the right solution. He contacted the insurance provider for permission to complete the procedure at a hospital where he had access to ConMed’s 3DHD system. An insurance waiver was issued, eliminating the need for open surgery and allowing him to complete the procedure laparoscopically. Schlafstein has also secured waivers from insurance providers for several other select cases that presented a high level of difficulty, allowing him to complete the procedures at facilities where 3DHD was available.

Schlafstein, who specializes in Gynecology and Female Pelvic Medicine and Reconstructive Surgery, has performed more 3D laparoscopic hysterectomies than anyone in the nation. “I’ve dedicated the surgical aspect of my career to the minimally invasive treatment of gynecological problems,” he explains. “This [3DHD technology] has enhanced what I’m able to do surgically in these minimally invasive procedures. When I see the results, it’s very gratifying as a physician, but most important is the benefit for the patient.”

The 3DHD Visualization System from ConMed was the first FDA-approved, stand-alone vision system for use in laparoscopic minimally invasive surgery. A cost-effective solution as compared to robotics, the 3DHD Visualization System from ConMed leads the way for this rapidly growing technology.