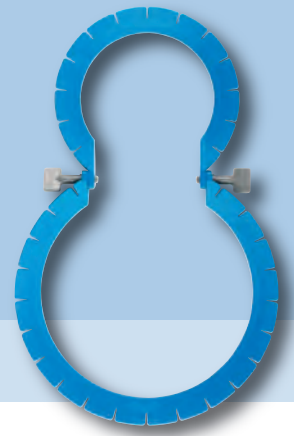


SURGEON PROFILE:

Andrew Cassidenti, M.D.

Hydrodissection technique to perform a full thickness anterior vaginal wall dissection for optimal pelvic organ prolapse mesh placement utilizing the Lone Star Retractor System™



In this article we will share the experience of Dr. Andrew Cassidenti and his use of the Lone Star Retractor System in pelvic organ prolapse repair procedures.

Dr. Cassidenti comments on how this self-retaining retractor system greatly assists him and simplifies his surgeries for better outcomes. He discusses his use of the system for his hydrodissection technique used in mesh and sling placements for pelvic floor repair. Dr. Cassidenti has been in practice for over 23 years and is the Director of Urogynecology and Pelvic Reconstructive Surgery at St. Joseph's Hospital in Orange, California.



Dr. Andrew Cassidenti

Dr. Cassidenti attended medical school at UCLA and completed his ObGyn residency in 1988 at LA County USC Medical Center. After practicing as a general ObGyn for 10 years, he completed a three year fellowship in urogynecology and pelvic reconstructive surgery with Dr. Donald Ostergard at UC Irvine and Long Beach Memorial Medical Center. Dr. Cassidenti is a Fellow of the American College of Obstetrics and Gynecology as well as a Diplomat of the American Board of Obstetrics and Gynecology. He is a member of the American Urogynecologic Society, International Urogynecology Society and AAGL. He is a member of the Society of Gynecologic Surgeons as well as a reviewer for the Journal of Minimally Invasive Gynecology. He is a Clinical Professor of Obstetrics and Gynecology at the Keck University of Southern California School of Medicine and trains residents, fellows and community physicians in the latest advances in surgical procedures for pelvic organ prolapse and urinary stress incontinence. He has given lectures, presented papers and surgery videos at medical conferences on urogynecology and pelvic reconstructive surgery internationally. He has a very busy private practice and performs over 250 surgeries for pelvic organ prolapse annually.

What procedures make up the majority of your practice?

Surgeries for pelvic organ prolapse (POP) and urinary incontinence.

Please describe the demographics of your patient population.

Age ranges from 40 to 96 but most patients are 50 and above. My practice for the past 7 years has been almost exclusively devoted to urogynecology and I'm fortunate that now about half of my referrals come from happy patients who send their friends and family and half are from referring doctors who are primary care physicians and other Ob/Gyns in the area.

What are the major procedures in which you use the Lone Star Retractor System?

Anterior and posterior repairs with and without mesh augmentation and mid-urethral slings.

Do you ever perform A&P repairs without mesh?

I do if they are younger women who have excellent native tissue that I can repair and feel confident it's going to work and be durable. Most women that I see are older and don't have good native tissue and that's where mesh is important to increase the chance of success. The recent July 13, 2011 FDA communication about using transvaginal mesh I believe highlights the importance of the need to perform a full thickness vaginal wall dissection and place the mesh in the vesicovaginal space as one does in sacrocolpopexy to minimize mesh misbehavior and complications.

What is your preferred combination of retractor and stays to use and why?

I use the Snowman (3304G) and the 5 mm blue sharp hooks (3311-8G). They are perfect for vaginal surgery in my opinion. I bend the Snowman at its joint at a right angle and put the small circle on top of the abdominal drape and secure it to the drape. I tighten the locks at the hinges and then the large circle encircles the introitus and is what I use to attach the hooks for retraction. I think the blue hooks are the best for vaginal surgery retraction. I know some surgeons prefer the larger yellow hooks with a more blunted needle tip, as they can get frustrated with the sharper blue tip needles occasionally hooking and putting a hole in their

gloves and then they have to change gloves, but that will happen less and less as they get more experience handling the hooks. I handle the hooks with forceps or a Kelly clamp, not with my fingers, and that minimizes this. I think the smaller blue hooks are better for the delicate dissection of the layers of the vaginal wall. In my opinion they are the best way to go.

What features of the Lone Star Retractor System are most important to you for your surgical technique?

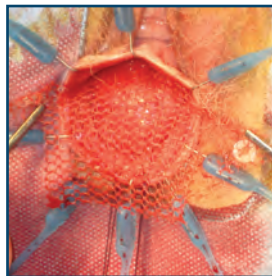
It gives outstanding, constant and precise exposure. You put the hooks exactly where you want to see things and the Lone Star never tires. If you have assistants holding Allis clamps, they get tired and so Lone Star takes fatigued retraction out of the picture. And then also specifically with a full thickness vaginal wall dissection to access the vesicovaginal space for optimal mesh placement, the Lone Star is critical because it gives me constant retraction pressure, which facilitates the dissection. You see the four layers of the vaginal wall peel away with just gentle knife pressure in the midline during an anterior wall dissection.

How does it help you in your mesh procedures and then separately, the urinary incontinence procedures?

It greatly assists the dissection to access the vesicovaginal space for optimal POP mesh placement and then provides optimal visualization during placement and tensioning of the mesh. For midurethral slings to treat stress incontinence, it also provides optimal visualization during tensioning of the sling under the urethra.

Some surgeons call dissection the critical step in vaginal repair procedures. Would you agree?

Absolutely. Synthetic mesh requires a full thickness vaginal wall dissection. If you place the mesh in the vesicovaginal space through a full thickness vaginal wall dissection, and place the mesh in that space as you would in a sacrocolpopexy (done laparoscopically, robotically or through a laparotomy), then the chances of mesh misbehaving with respect to contracture, dyspareunia and exposures are no higher than a sacrocolpopexy. And if everyone agrees that a sacrocolpopexy is the gold standard, than this is a functional transvaginal sacrocolpopexy that is safer, quicker and less morbid.



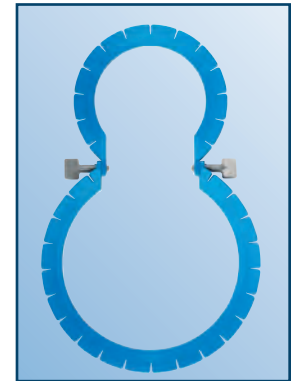
How does the Lone Star Retractor System help you with your hydrodissection technique?

It separates the labia so I can visualize the anterior vaginal wall as I use a Tuohy epidural needle to fill the vesicovaginal space with

about 60 cc of a 0.50% lidocaine with epinephrine solution diluted 1 to 1 with injectable normal saline. The technique is described step by step on the last page here.

Why hydrodissection? Are there other methods for dissecting into the vaginal wall? What are the differences?

If you create a water balloon in the vesicovaginal space and dissect down to it you have done the full thickness vaginal wall dissection necessary for optimal POP mesh placement. You use the water balloon to stay in the correct surgical plane as you take the vaginal wall off the bladder and access the white line and sacrospinous ligaments for later mesh attachments.



How does your hydrodissection technique differ from other hydrodissection techniques out there?

Others are using a standard sharp needle for their hydrodissection and Allis clamps for retraction. As they move the needle around during their hydrodissection to infiltrate multiple areas, it's difficult to stay in the exact same full thickness dissection plane which makes later sharp dissection more difficult and less reproducible. Using the epidural needle to create a water balloon in the vesicovaginal space and staying just this side of the water balloon cover keeps you on the same plane automatically, is more reproducible and is much easier to learn. I travel across the country teaching physicians this technique and everyone seems to get "create the water balloon and try not to pop it."

Does your hydrodissection technique utilizing the Lone Star Retractor System only help in the placement of mesh or would it help in slings or other pelvic floor repairs?

Well, I also hydrodissect for mid-urethral slings, but you don't need a Tuohy epidural needle for that. There is no true periurethral vaginal space as there is a true vesicovaginal space. I use a standard sharp needle and hydrodissect under the vaginal wall to create water tunnels for my sling placement which simplifies and minimizes the sharp dissection needed and bleeding. I essentially use Metzenbaum scissors to pop into my water tunnels after my midline mid-urethral incision is made and the dissection is done.

Is Lone Star useful in the mini-sling procedures in use today?

I think all mid-urethral slings are easier with a Lone Star, especially if you're going to do a mini-sling which is a very small, usually a

centimeter incision. Using Lone Star with gentle retraction you can actually see and tension your sling better as you're placing it. Sling tension is paramount and the Lone Star provides optimal visualization of the mid-urethral and your sling to help without the need of an assistant. Using the Lone Star you can actually visualize everything. You can see it right in front of you – you see how tense you're getting and then stop. I think the Lone Star is critical to that and I think it's really, really helpful. So, is it absolutely necessary? No. Is it very, very helpful? I think it is.

What did you use before the Lone Star Retractor System was available?

A lot of right angle retractors, Allis clamps and an assistant surgeon on one side and a nurse on the other. And again, an assistant cannot provide constant retraction and retractive force that does not fatigue as a Lone Star can.

When did you first use the Lone Star Retractor System?

I first saw it in use at my hospital in 2003 and immediately adapted it.

If you were presenting Lone Star to another surgeon, what would resonate the most in your opinion?

It's just optimal exposure and retraction at all times without having to worry about a fatigued assistant holding Allis clamps correctly. You can also adjust the tension of your retraction because of the elastic component of the stays.

And one of the positioning points of the system is that it is better than another set of hands. Do you find this to be true?

Oh absolutely. It's better than 10 pairs of hands. Hands will get in the way and obstruct your view. Allis clamps get in the way. Here you have these small elastic stays that don't get in the way, so it's just less material to get in the way and again it is constant optimal exposure and retraction that you can adjust.

Have you seen any staff benefits by using this system?

Yes, I do a lot of reconstructive vaginal surgeries now without any assistant surgeons. I commonly use an RNA (registered nurse assistant) but many times they are busy and they're getting pulled for emergency surgeries. I can do this surgery by myself with just a scrub tech who will do suctioning for me. This does all the retraction I need. So the only other assistance I need is suction at certain times. With decreased reimbursement for assistant surgeons today it makes no sense economically for surgeons to assist each other anymore. It's just that the reimbursement is very low so this is a huge benefit to take that surgeon assistant out of

the OR and put them back in the office or doing something else so it's not draining their time. The Lone Star is a surgical assist for roughly \$100.

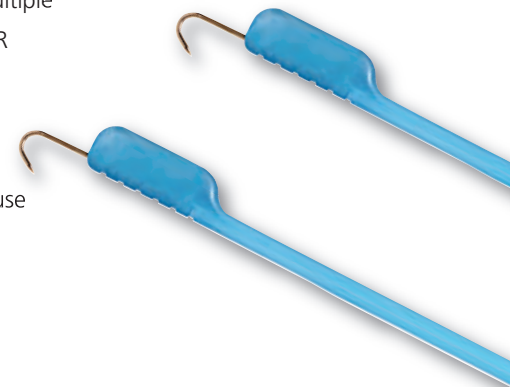
We say the system simplifies surgery. Do you agree?

Well, in this dissection it not only simplifies the surgery, it is also a critical element in performing it. It helps you do the surgery. Once you create the water balloon in the vesicovaginal space with the Tuohy needle hydrodissection, the Lone Star hooks provide constant retractive force on the cut edges of the vaginal wall so that with simple knife pressure, the four layers of the vaginal wall peel away for you until you get to the translucent vesicovaginal space and this is when the dissection is stopped. You replace the hooks on the full thickness vaginal wall edges, and the constant retractive force assists you in completing the dissection of the entire bladder off the anterior vaginal wall and then accessing the arcus tendineus fascia pelvis (white line) and sacrospinous ligaments. The hooks then provide optimal visualization for mesh placement and tensioning. It's a very simple and reproducible technique.

The Lone Star gives optimal retraction and visualization for standard native tissue repairs as well. For those using biologic graft augmentations, it also helps with dissection and graft manipulation and placement. Commonly surgeons fashion their own biologic grafts and then suture them to the white line and sacrospinous ligaments. The notches in the Lone Star figure eight can hold the multiple sutures in place and display the graft for the surgeon as he or she ties the sutures down.

If you were promoting the Lone Star Retractor System, what would be your message?

It offers optimal visualization for any vaginal prolapse repair surgery as well as constant retractive force, which is a great aid in dissecting through the vaginal wall and is superior to any help a surgery assistant with retractors and Allis clamps could provide. A human being can't give you constant pressure retraction at multiple points as the Lone Star can with multiple hooks. It saves time in the OR which benefits the patient, the surgeon and the hospital. In my opinion, it really is a "no brainer" to use a Lone Star.



Dr. Cassidenti's Hydrodissection steps to perform a full thickness vaginal wall dissection and access the vesicovaginal space transvaginally for optimal POP mesh placement utilizing the Lone Star Retractor System™

Vaginal Wall Anatomy: There are four layers of tissue one must dissect through to access the vesicovaginal space transvaginally:

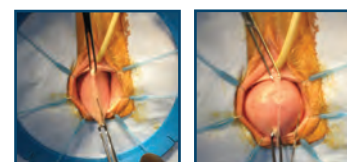
1. Vaginal epithelium
2. Lamina propia – connective tissue
3. Smooth muscle
4. Adventia – connective tissue, fat, nerves and blood vessels

Layers 2-4 have historically been called the pubocervical fascia although it clearly is not a true fascia.

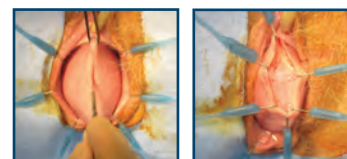
1. Place two Allis clamps vertically grasping the cystocele and use your thumb and index finger to milk the bladder off the vaginal wall to develop the vesicovaginal space. You can feel the bladder muscle wall snap away between your finger tips.



2. Use an epidural Tuohy 18 G epidural needle with 1 cm gradations to access the vesicovaginal space. The Tuohy needle has a blunted tip that gives superior tactile feedback compared to a standard sharp needle and you pass the Tuohy needle through the vaginal wall until a loss of resistance or a pop is felt which is entry into the vesicovaginal space. Then infiltrate 60 cc's of 1:1 diluted 0.5% lidocaine with epinephrine (with normal saline) through the Tuohy needle to create the water balloon in the vesicovaginal space. Care is taken not to move or change the depth of the Tuohy needle penetration during the hydrodissection and the gradations on the needle are helpful for this.



3. A vertical incision is then made in the anterior vaginal wall to a depth of 2-3 mm and the blue Lone Star hooks are then placed on the cut vaginal wall edges for retraction and visualization.



4. With gentle knife pressure, cut down slowly "cell layer by cell layer," watching the darker white layers of the vaginal wall peel away. One can replace the Lone Star hooks in steps until you proceed to full thickness vaginal wall dissection. The water balloon in the vesicovaginal space will appear translucent and this is when the depth of the dissection is stopped.



5. Then use Metzenbaum scissors in a snip/spread fashion to complete your dissection of the entire bladder off the anterior vaginal wall and to access the paravaginal space, arcus tendineus fascia pelvis and sacrospinous ligaments. It's been my experience that it is best to enter the paravaginal space just proximal to the ischiopubic ramus and then take the dissection down to the ischial spine and sacrospinous ligaments.



6. Gentle finger dissection helps complete dissection. If more than gentle finger dissection is needed, return to gentle sharp to minimize the risk of a finger dissection related cystotomy.



7. The goal is to not pop the water balloon. If it pops or deflates, you can still use the surface of the balloon to keep you on the same full thickness vaginal wall plane.



Scan. Watch. Learn more about the use of Lone Star Retractor in Dr. Cassidenti's hydrodissection technique

The surgical technique and opinions expressed are solely those of Dr. Cassidenti and not those of CooperSurgical. As always, health care providers should use their best clinical judgement and experience in selecting appropriate care for their patients.

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