Note: This information is provided for educational purposes only. Always rely on your clinical judgement when modifying any surgical technique.

2022 – Robotic Hysterectomy with 3 instruments:

Fenestrated Bipolar or Force Bipolar

Monopolar Scissors

Mega Suturecut

This document describes a robotic total hysterectomy utilizing 3-instrument technique. The technique enables a consistent approach to simple and complex anatomy. We favor a robotic technique that replicates steps of open surgery and rather than replicate the "short cuts" used in laparoscopic techniques.

Begin at the round ligaments which are fully transected using monopolar and/or bipolar cautery. The broad ligament is entered and the anterior leaf is developed.

Develop the bladder flap sharply using cautery. Avoid blunt dissection and undermining the vesicouterine peritoneum especially when there is history of Cesarean section to reduce bleeding.

If adnexectomy is planned, open the rounds more lateral to the midline. This allows extension of the peritoneal incision lateral and parallel to the IP ligament to facilitate identification of the ureter. If ovarian preservation is planned, transect the tube and the utero-ovarian pedicle separately. Dissect the posterior leaf of the broad down to the junction of the uterosacral ligament. It is important to fully develop the leaves of the broad ligaments anteriorly and posteriorly to skeletonize the uterine vessels.

Bipolar cauterize the vascular bundle above the plane of cervical cup with the manipulator pushed in. The pedicle is then transected via cold cut or cautery until the cardinal ligament is transected and the pedicle falls lateral.

Initiate colpotomy anteriorly and posteriorly using monopolar cautery with open blade technique: turn the jaws of the scissors sideways and keep them open while using the tip of one blade during colpotomy to reduce tissue sticking. Do not over desiccate vaginal cuff to minimize dehiscence. Complete the colpotomy by connecting the anterior and posterior incisions while staying medial to the uterine pedicle.

In case of opportunistic salpingectomy, monopolar cautery across the mesosalpinx underneath the tube can be used efficiently. Most of the vessels in the mesosalpinx are veins and easily cauterized with monopolar energy. Avoid bipolar energy near the ovary to minimize compromising ovarian reserve.

The monopolar hot shears are exchanged with the mega suture cut for cuff closure.

There is no clear advantage between Vicryl or barbed sutures. Interrupted figure-of-eight Vicryl sutures

or continuous barbed suture is used to close the cuff. Our preference is two continuous barbed sutures starting in each corner and overlapping in the middle. The routine use of hemostatic agents should be avoided due to the increased postoperative complications.

Additional instruments are not necessary. The vessel sealer adds excessive cost without clinical benefit. In addition, dissection and skeletonization is difficult with the vessel sealer due to its size. Some surgeons prefer the Maryland bipolar over the fenestrated bipolar. Most cases can be completed using the three-arm technique.

Six videos are provided on our website:

1. **Simple hysterectomy with 3-arm technique:**
2. **A side-by-side video demonstrating this technique with an 80-gm uterus and an 800-gm uterus.**

   This shows the technique is applicable to complex anatomy. It should yield consistent 15-20 minute operative times until the colpotomy is completed. The cuff can be closed in 10 minutes. Uterine manual morcellation through the vagina or the umbilicus adds an additional time, but if the uterus can be removed intact through the vagina, robotic hysterectomy for a uterus < 150 gm should take consistently 30 minutes or less at the console:

3. **Cuff closure with interrupted Vicryl**

   Although we have abandoned using 2 needle drivers in favor of suturing with the fenestrated bipolar or force bipolar, this video is relevant to surgeons who prefer vicryl closure. It demonstrates the importance and the distinction of closing the mucosa and the end-pelvic fascia. It is important to approximate the uterosacral to the anterior end-pelvic fascia, yet stay safely medial on the uterosacral to avoid ureter injury or kinking.

4. **Cuff closure with continuous barbed suture &**
5. **5. Cuff closure 2 v-lock**

   These videos demonstrate closure with a single needle driver and a bipolar instrument using a single or 2 barbed sutures. Note the difference of passing needles in thru the vaginal access but removing thru a da Vinci port. The typical needles must be slightly bent or ski'ed to pass thru the daVinci port. The bedside assist must be trained to go slow and not pull too hard if resistance is met. Watch the needle out in the event that the suture breaks. This will make needle retrieval easier and safer. Again note the cuff closure incorporating the mucosa and the end-pelvic fascia. Approximate the uterosacral to the anterior end-pelvic fascia.

6. **Port placement and docking video (3mins 30secs)**

If you have questions, please reach out to me or Dr Ghomi at CAVA. We can be available for your video reviews, or we will make every effort to be available for your cases for live observation.

Dr Herb Coussons, MD hcoussons@cava-robotics.com

Dr Ali Ghomi, MD Drghomi@cava-robotics.com

This information is provided for educational purposes only.

Always rely on your clinical judgement when modifying your surgical technique.