

Instrument Review

Halder's Uterine Manipulator

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The Halder's uterine manipulator is a recent addition to the basket of various types of uterine manipulators developed for manipulation of uterus during laparoscopic Gynecological surgeries. The Halder's manipulator is developed by Dr. Abhijit Halder, a young Gynecologist and laparoscopic Surgeon of West Bengal. He used to do laparoscopic surgeries in peripheral area of West Bengal, after training from Kiel University, Germany. During his initial days he faced lots of uterine perforation by his vaginal assistant while doing total laparoscopic hysterectomy (TLH). This is the drive, which made him to develop a very simple, effective and of course a perforation preventive uterine Manipulator which is now known as Halder's uterine manipulator.

The Halder's uterine manipulator is based on a simple 45 cm stainless steel shaft (Fig. 1). It was shaped as a rod with threads at the proximal end. The distal end of the shaft has handle which is easily detachable by screwing movement. Diameter of the shaft at the proximal end was thinner than the rest of the shaft. The utero-cervical inserts were 5 mm in diameter and come in 6, 8, 9 cm lengths respectively. Each has an upward 15 degrees angle and can be connected to the shaft tip hole by

screwing movement. After measuring the utero-cervical length, appropriate insert is fitted at the tip of the instrument. The distinguishing feature of the manipulator is the 'cervical guard', which guards the manipulator from perforation when forcefully advanced forward. This metallic cervical guard is 2.8 cm in diameter and 2 cm thick. It is fitted at the proximal end of the shaft over the threads by screwing movement. The guard can be moved forward and backward with clockwise & anticlockwise screwing movement respectively so as to achieve required length of the manipulator within the utero-cervical canal during elevation movement, simultaneously doesn't allow inadvertent advancement of the manipulator inside the uterine cavity even during accidental forceful manipulation.

Even single cervical insert fitted at the shaft tip can perform various surgery of different uterocervical length because length can be changeable with rotational movement of the cervical guard.

The tubular cervical cups were made of ceramic material (20 mm) at proximal edge. Each was 60 mm in height and come in 2 different diameters of 35mm and 42 mm respectively. This design makes a clearer visualization of the cervico-vaginal

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fold when the cup is placed in the vaginal fornices (Fig. 2).

The exact method of use of Halder's manipulator is that the instrument is assembled just prior to surgery after sterilisation. After dialating the cervix upto 5 mm, the appropriate length insert is selected by measuring the utero-cervical canal and screwed over the instrument tip. Even if proper length is not ascertained, it



Figure 1: Fully assembled Halder's uterine manipulator

may be directly put into the canal and the cervical guard is positioned just touching the external os.

During TLH, if it is difficult to get the UV (utero-vaginal) fold properly. The colpotomy tube, kept already over the rod outside the vagina, can be pushed inside over the cervical guard to get the area of dissection and fixed to the shaft rod by fixation screw. After dissection of UV fold the colpotomy tube is unscrewed and pulled outside the vagina. As the vascular pedicles are not stretched by the colpotomy tube it is easier to grasp the uterine bundle with bipolar grasper and coagulate and cut keeping the colpotomy tube outside vagina. Then Colpotomy tube pushed inside and vault is cut with monopolar/ bipolar/ harmonic energy. If a different size cup is to be put inside, the handle of the rod can be detached from behind to negotiate a different size cup and again reattached with screwing movement. This also makes it unique.

Finally, during delivery of the uterus after hysterectomy, the entire instrument is removed and a mop or vaginal pack is used

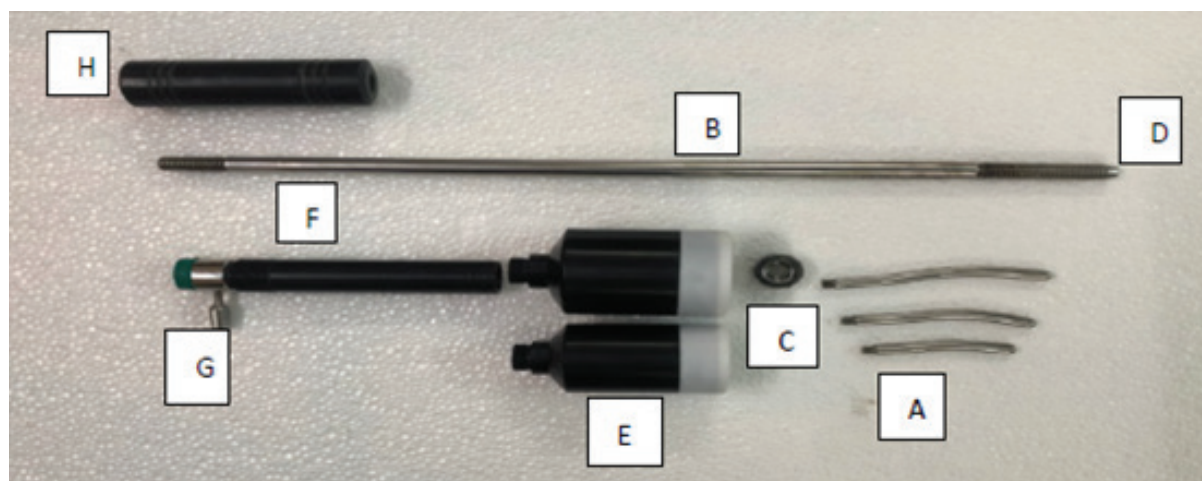


Figure 2: (A) 3 cervical inserts (4cm, 6cm, 8cm)(B) Shaft or Rod (C) Cervical guard with a hole (3 cm outer diameter) (D) Threads at rod tip (5.5 cm length) (E) 2 cervical cups (35 mm & 40 mm in diameter) with ceramic margin (F) Colpotomy tube (G) Colpotomy tube fixation screw (H) Rod handle – detachable

to maintain pneumoperitoneum. In this step some amount of loss of pneumoperitoneum is possible. The uterus is removed with vulsellum holding the cervix under camera guidance.

The vaginal fornices can be easily identified when the colpotomy tube with cup is pushed inside over the rod. Ureter can be more lateralized from the field of surgery when the instrument is pushed forward and colpotomy tube is fixed over the rod with fixation screw. The colpotomy cup with tube acts as a very good pneumo-occluder. No leak of gas has been demonstrated during surgery except minimal avoidable gas leak during specimen retrieval.

The speciality of the instrument is that it can be used in non TLH cases also without the chance of perforation complication.

The drawback of this instrument is that removal of the specimen is to be done by vulsellum under camera guidance. But most of the surgeons are familiar with specimen retrieval technique through vagina. During vulsellum introduction for holding the cervix there is chance of loss of pneumoperitoneum. but this is not a problem if a folded mop is wrapped over the external vaginal orifice.

A patent application for the device has been filed in India (application number-201931019950). Search of patency has been done worldwide for this instrument design and it has confirmed to be a new invention among the manipulators. More details of the instrument application and videos of performing TLH with this instrument are available at www.drabhijithalder.com.