THE JOURNAL OF OBSTETRICS AND GYNECOLOGY OF INDIA

The Journal of Obstetrics and Gynecology of India (March–April 2016) 66(2):134–136
DOI 10.1007/s13224-016-0846-6

INSTRUMENT REVIEW

Mangeshikar Uterine Manipulator

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Received: 12 January 2016 / Accepted: 16 January 2016 / Published online: 26 February 2016

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The Mangeshikar uterine manipulator has been recommended for use in total laparoscopic hysterectomy (TLH), laparoscopic supracervical hysterectomy (LASH), laparoscopic-assisted vaginal hysterectomy (LAVH) and hysterectomies for malignant pathology. The device itself consists of several components and needs assembly before each procedure. The methodology of assembly is simple and is easily learned. The special features are that the jaws can be fixed to the cervix and the cup can be drawn over the held cervix to delineate the fornices. The cup also helps in bladder dissection in cases of previous cesarean section as well delineating a clear rim for colpotomy. Cups of different diameters are available to cater to different sizes of cervices. The instrument consists of a working element of two stems—an inner stem with two jaws on either side of a rim on to which the insert can be screwed on to, which fits snugly into an outer stem which in turn can be locked into the handle. A screw arrangement fitted in the handle ensures the opening/closing of the jaws vis-a-vis the cervical rim. Working inserts or rods of different lengths corresponding to different sizes of uteri can be screwed on to the rim between the jaws. The cup is attached to a sheath (black color, as seen in picture) which can be easily slid over the working element of assembled two stems of the instrument. A linear rod device on the sheath enables it to be locked in position. Silicone leaflet washers and valves prevent any leakage during surgery. The exact usage methodology is that the instrument is assembled just prior to the surgery. The cervix is dilated up until number 8/9 Hegar. The uterocervical length is determined. Now the length of insert which is about one cm less than the uterocervical length is screwed on to the instrument. The reason for this is that the joint to which the insert is fitted needs to be within the cervical rim (external os) for the jaws to close in on to the cervix and grip it in a vice-like manner transversely. The cup can be maintained outside the vagina during the surgery. The initial position of the rod-like device can serve as a guide vis-a-vis the position of the uterus during surgery. Whenever colpotomy has to be performed, this rod-like device can be loosened and the sheath with the cup attached proximally can be slid into the vagina over the held cervical margins to stretch and demarcate the vaginal fornices clearly. At this point in time due to stretching of tissue some bleeding from vessels lateral to the cup may take place. This has to be attended to. The cup also delineates the position of the uterines very well. After TLH the uterus can be delivered vaginally with the entire assembly maintained. The outer sheath with the attached cup can be slid off the main stem of the instrument, and with the rod handle tightened to prevent loss of insufflation, it can be reintroduced into the vagina to act as vaginal mobilizer to help in laparoscopic suturing of the vagina. Uterine manipulators used for TLH are quite different to the ones used in other indications for laparoscopic gynecological surgery due to the fact that the cervix is pierced and held and that some element which helps in colpotomy is included. As opposed to vaginal hysterectomy wherein downward traction is performed throughout, the manipulator performs the same function in reverse in TLH. The advantages of using a manipulator in TLH are many and are quite obvious. The uterus is well stretched and can be moved in several directions throughout the surgery. Bladder dissection is enhanced. Due to stretching, optimal tissue is dissected and cut. The bladder and ureters fall laterally and away as the uterus is denuded of its attachments. Fornices are well demarcated and colpotomy is precisely done. A port is freed for other use at surgery. The uterine manipulator is not mandatorily used during TLH. Methods for TLH have been described wherein uterine manipulators have not been used at all during the procedure. However, those who do use the uterine manipulator during TLH do so in the belief that the

cephalad movement of the uterus prevents ureteric injury [1]. Also by lateralizing the uterus, manipulators facilitate a perpendicular approach to the uterine vessels [1–3]. According to a detailed review which entailed a comprehensive survey of the efficacy and safety of uterine manipulators in laparoscopic surgery [4], there was no conclusive evidence of the role of uterine manipulators in the prevention of ureteric injury. Also this review did not find an optimal manipulator. The same review though found the Mangeshikar uterine manipulator quite superior to the several others assessed. It found that the unique independent levorotation and the dextrorotation offered by this manipulator allowed an easy approach to the uterine vessels. This manipulator along with another also provided the best exposure of the cul-de-sac. However, this article also goes on to mention that no publications of cohort studies or randomized controlled trials are yet available on uterine manipulators. Mettler et al. [5] found the Mangeshikar uterine manipulator to have a range of movement of 130° and found it to be of use at TLH and in surgery for endometriosis. The Mangeshikar manipulator can be used with advantage in cases of TLH for large uteri as well. In such cases though manipulation is additionally required with a myoma screw as well, the lateral movement enabled by the Mangeshikar manipulator helps in coagulation of the uterine vessels and the combined movement afforded by the myoma screw and the manipulator helps in the rest of the surgery. I have personally used this instrument with great advantage in the performance of TLH. The Mangeshikar uterine manipulator is marketed by Karl Storz, which has in its stable several other manipulators as well. Full details are available at www. Karlstorz.com Disclaimer: Dr. Prashant Mangeshikar has provided me the pictures of the Mangeshikar uterine manipulator for publication. This was necessary to avoid any copyright infringements.

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