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Instruments and Techniques

Round Ligament Technique and Use of a Vessel-sealing Device to Facilitate Complete Salpingectomy at the Time of Vaginal Hysterectomy

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ABSTRACT Prophylactic salpingectomy at the time of hysterectomy has been recommended for women at average risk for ovarian cancer. Vaginal hysterectomy is considered the preferred approach to a benign hysterectomy, and adnexectomy should not be considered a contraindication to this approach. This paper with accompanying video describes and demonstrates the round ligament technique and use of a vessel-sealing device to facilitate removal of the entire fallopian tube at the time of vaginal hysterectomy. Journal of Minimally Invasive Gynecology (2015) 22, 1084–1087 © 2015 AAGL. All rights reserved.

Keywords: Round-ligament technique; Salpingectomy; Vagina; Vaginal hysterectomy; Vessel-sealing device

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Recent findings suggest that high-grade serous ovarian cancer originates from the distal fallopian tube [1–3]. It also appears that the fallopian tube provides a conduit for the passage of ectopic endometrium and inflammatory agents that may facilitate the development of endometriosis-related clear cell and endometrioid ovarian cancers [4]. This likely accounts for the lower rates of ovarian cancer in women in low-risk populations who have undergone tubal ligation [4,5]. These observations have led the Society of Gynecologic Oncology to recommend that "for women at average risk for ovarian cancer, salpingectomy should be discussed and considered prior to abdominal or pelvic surgery, hysterectomy, or in lieu of tubal ligation" [6].

Adnexectomy at the time of vaginal hysterectomy (VH) is widely considered technically challenging, however. In a study involving 144 877 hysterectomies, women who underwent a VH were less likely to have an oophorectomy (17%) compared with those who underwent hysterectomy with laparoscopic (51%) or abdominal (54%) techniques [7]. With the current downtrend in the rate of VH, and the fact that few gynecologic surgeons perform more than 5 vaginal surgeries in a year, there is grave concern that the need to remove the tubes and/or the ovaries will cause a further decline in the number of hysterectomies approached vaginally [8,9].

This paper with accompanying video describes and demonstrates use of the round ligament technique to facilitate access to the distal fallopian tube for its complete removal with preservation of the ovary during VH.

Vaginal Salpingectomy Technique

The patient is positioned safely in high lithotomy position using the candy cane stirrups. Adequate vaginal exposure is provided using the Magrina–Bookwalter vaginal retractor system (Symmetry Surgical, Antioch, TN). On completion of the hysterectomy, the round ligament–fallopian tube–utero-ovarian ligament (RFUO) complex (commonly referred to as the "utero-ovarian ligament") is clamped, cut, suture-ligated using polyglactin suture (Vicryl; Ethicon, Blue Ash, OH), and tagged. Use of the vessel-sealing device

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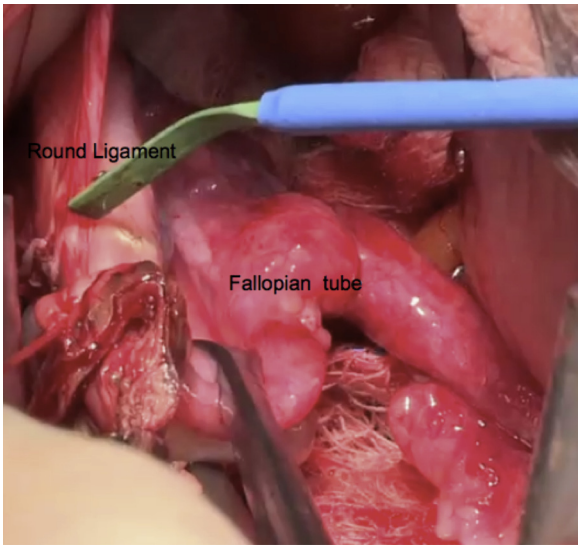
Fig. 1

The round ligament is identified and divided using a monopolar instrument.



on the RFUO complex is not recommended when salpingectomy is to be performed, because it would require regrasping of the sealed edges, which may cause bleeding.

A moist 4″ × 36″ cotton vaginal pack (Dukal Corp, Ronkonkoma, NY) is placed into the pelvic cavity to protect the bowel. A long Deaver retractor is placed lateral to the adnexa, on the side where salpingectomy will be performed, to retract the pelvic peritoneum. The proximal portion of the fallopian tube and the ovary are grasped with an Allis clamp. With gentle traction applied to the RFUO complex, the round ligament is identified and divided using a monopolar instrument (eg, a Bovie cautery pencil) (Fig. 1).

Division of the round ligament is made above the suture ligature, with care taken to avoid dissecting into the mesosalpinx or ovarian vessels, to prevent bleeding (Fig. 1). Dividing only the round ligament from the RFUO complex facilitates skeletonization of the utero-ovarian pedicle. It also allows the adnexa to drop away from the pelvic sidewall and into the operative field. A window is then created in the mesosalpinx, inferior to the fallopian tube, and the clamp is replaced on the more distal portion of utero-ovarian pedicle, closer to the ovary (Fig. 2). Using Metzembaum scissors, the remaining fallopian tube–utero-ovarian ligament (FUO) complex is recut, releasing the most proximal portion of the fallopian tube. A vessel-sealing device, such as the LigaSure Impact system (Covidien, Minneapolis, MN), is then used to serially seal and divide the mesosalpinx until the fimbria is reached (Fig. 3). This allows for complete removal of the fallopian tube at the time of the VH. The utero-ovarian ligament is then religated using polyglactin suture and tagged to allow for inspection for hemostasis at the end of the procedure.

Discussion

There has been a major shift in our understanding that high-grade ovarian cancers may actually originate from the fallopian tubes. This theory first arose from studies showing that cancer precursor lesions known as serous tubal intraepithelial cancer (STIC) have been found in the fimbriated end of the fallopian tubes or its immediate vicinity in both BRCA-positive and BRCA-negative women, with no corresponding precursor lesions found in the ovary [1,10,11]. Molecular and genetic studies provide further evidence that serous cancers originate from the mucosa of the fallopian tubes rather than the surface of the ovaries. This is in keeping with findings that STIC precursor lesions have p53 mutations matching those found in high-grade serous ovarian cancers. Similar p53 mutations have

Fig. 2

For removal of the entire fallopian tube (including the most proximal portion), a window is first created in the proximal mesosalpinx (A). The clamp is replaced to isolate the utero-ovarian ligament, and the RFUO complex is recut, releasing the most proximal portion of the fallopian tube (B).