# The Trend Shift in Hysterectomy Technique in Siriraj Hospital

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Hysterectomy is one of the most common gynecologic surgical procedures performed.[1] From 2001 through 2006, a total of 6,688 women or about 25% of gynecologic surgical procedures performed in our department were hysterectomy. The rate of hysterectomy has varied between 6.1 and 8.6 per 1000 women of all ages. A woman's chance of having a hysterectomy is dependent on a variety of factors, including her age, race, and where she lives and the sex of her physician. About 75% of all hysterectomies are performed in women between the age of 20 and 49 years. The rates of hysterectomy vary by region of the country. Hysterectomy is more often performed in African American than in white women and is performed more frequently by male gynecologists than by female gynecologists.[2-5]

The indications for hysterectomy include benign, premalignant, malignant diseases and obstetric emergency conditions. Uterine leiomyomas are consistently the leading indication for hysterectomy. The other common indications are dysfunctional uterine bleeding, intractable dysmenorrhea, pelvic pain, pelvic inflammatory disease, pelvic relaxation, and endometriosis. Hysterectomy is usually indicated for endometrial hyperplasia with atypia and it is an option for treatment of adenocarcinoma in situ of the cervix when invasive disease has been excluded. It plays a role in the staging or treatment of endometrial, ovarian and cervical carcinoma.

The first reported hysterectomy was performed through a vaginal approach by Conrad Langenbeck in 1813. Ellis Burnham is the first surgeon who achieved the first successful abdominal hysterectomy with surviving patient in 1853. When the cervix is not removed, this is known as a subtotal or supracervical hysterectomy. The first elective supracervical abdominal hysterectomy was performed by Charles Clay of Manchester in 1863.[6] This procedure remained the operation of choice until 1929, when E.H. Richardson performed the first total abdominal hysterectomy. Subsequent concerns over the potential for the development of cancer in a conserved cervix, combined with further improvements in operative and anesthetic techniques, led to almost complete substitution of total hysterectomy for subtotal hysterectomy. Abdominal and vaginal hysterectomy remained the only two approaches for removal of the uterus until the latter half of the 20th century. Although abdominal hysterectomy (AH) is still the dominant surgical technique worldwide, laparoscopic hysterectomies have become a routine procedure in many gynecologic departments since Harry Reich described laparoscopic-assisted vaginal hysterectomy (LAVH) in January 1988.[7] He also reported the first total laparoscopic hysterectomy (TLH) in 1993.

Currently, the approaches to hysterectomy may be broadly categorized into 3 groups: abdominal hysterectomy (AH), vaginal hysterectomy (VH), and laparoscopic hysterectomy (LH) where at least some of the operation is conducted laparoscopically. There are no specific criteria that can be used to determine the route of hysterectomy. The route chosen should be individualized. Table 1 demonstrates the frequency of each approach of hysterectomy performed in our department between 2001 and 2006. The AH is the most common route selected. However, the proportion of LH has gradually increased from 4% in 2001 to 8.7% in 2006.

The abdominal approach has traditionally been the surgical approach for gynecological malignancy, or for cases when other pelvic pathology is present such as endometriosis or adhesions, and in cases with an enlarged uterus. It remains the last option if the uterus cannot be removed by another approach.[8] To enhance laparoscopic procedure in our department, our young staff members

**TABLE 1.** Frequency of each hysterectomy approach performed each year in the Dapertment of Obstetrics and Gynecology, Siriraj Hospital.

| | Year (N %) | | | | | |
|---|---|---|---|---|---|---|
| **Hysterectomy** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** |
| Total abdominal hysterectomy | 949 (88.4%) | 813 (86.6%) | 868 (87.0%) | 1000 (84.8%) | 938 (80.6%) | 1105 (82.7%) |
| Sub-total abdominal hysterectomy | 16 (1.5%) | 13 (1.4%) | 13 (1.3%) | 16 (1.4%) | 18 (1.5%) | 12 (0.9%) |
| Vaginal hysterectomy | 65 (6.1%) | 76 (8.1%) | 68 (6.8%) | 83 (7.0%) | 91 (7.8%) | 102 (7.6%) |
| Laparoscopic hysterectomy | 43 (4.0%) | 38 (3.9%) | 48 (4.9%) | 80 (6.8%) | 117 (10.1%) | 117 (8.7%) |
| Total | 1073 | 939 | 997 | 1179 | 1164 | 1336 |

**TABLE 2.** Frequency of each laparoscopic hysterectomy approach performed each year.

| Laparoscopic Hysterectomy | Year (Number) | | | | | |
|---|---|---|---|---|---|---|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| Laparoscopically assisted vaginal hysterectomy | 43 | 37 | 46 | 77 | 111 | 85 |
| Total laparoscopic hysterectomy | 0 | 0 | 0 | 1 | 13 | 28 |
| Laparoscopic supracevical hysterectomy | 0 | 1 | 2 | 2 | 3 | 4 |
| Total | 43 | 38 | 48 | 80 | 117 | 117 |

and residents are regularly trained. Although the trend of AH in our department is decreasing, the rate of AH is still high. Many of the AHs are still performed by the majority of our staff members who are not interested in laparoscopy. In addition our department is in a major teaching hospital for students and residents in Obstetrics and Gynecology in Thailand, and nearly half of all AH are performed by residents who need many abdominal hysterectomies for their training.

Many advocate the VH as an excellent alternative to both abdominal and laparoscopic hysterectomy techniques because it is associated with fewer complications, shorter length of hospitalization, speedier return to normal activity and lower hospital charges than AH. The risk for febrile morbidity was 2.1 times higher for AH than for VH, and the risk for transfusion was 1.9 times higher for abdominal surgery. The vaginal approach was originally used only for prolapsed uterus, but has become more widely used for menstrual abnormalities such as dysfunctional uterine bleeding. In recent years VH has become more common and is extendedly used in mobile myoma uteri not larger than the size of 12 weeks of gestation.[9] In a recent study of 617 hysterectomies, 548 were VH, LH was used in 63 and an AH was required in only 6 patients.[10]

With limitation only for genital prolapse, the rate of VH in our department is still low (about 7.5%) without significant change. If we develop the guidelines to determine the route of hysterectomy based on the evidences, VH in our department may be increased substantially in a few years. The trend shift in favor of laparoscopic technique has been substantially observed in our department. One hundred and seventeen LH were performed by our 10 gynecological endoscopists in 2006. Today, LH is considered an alternative to AH when VH is difficult or contraindicated. Except for longer operating times, LH offers a number of advantages over AH; fewer wound or abdominal wall infections, fewer unspecified infections or episodes of pyrexia, a smaller drop in hemoglobin level, less pain, earlier discharge from hospital and return to normal activities and improved quality of life after surgery. To reduce uterine size before hysterectomy, patients with large leiomyomas may be pretreated with a gonadotropin-releasing hormone. Treatment with a short course (8 weeks) of leuprolide acetate before surgery enabled patients' procedures to be converted safely from an AH to either a VH or a LH. This preoperative regimen has been shown to be associated with a rise in hematocrit before surgery and, shortened hospital stay and convalescent period.[11]

This operative technique was primarily initiated by endoscopic surgeons in the department. However, over the years and based on the wishes and demands from both staff members and patients, LH should be performed as a routine technique whenever possible.

More recently, LH has three further subdivisions. Laparoscopic assisted vaginal hysterectomy (LAVH) is where a vaginal hysterectomy is assisted by laparoscopic procedures that do not include uterine artery ligation. Laparoscopic hysterectomy [LH (a)] is where laparoscopic procedures include uterine artery ligation. Total laparoscopic hysterectomy (TLH) is where there is no vaginal component and the vaginal vault is sutured laparoscopically.[8] However, we categorized LH into only two subdivisions: LAVH and TLH because LH(a) are included into LAVH.

Whilst many gynecologists in training are now exposed to LH, very few contemporary newly trained gynecologists will have sufficient expertise and confidence to tackle TLH, which requires the highest level of surgical skill. Although it has been unclear whether TLH offers any benefit over other forms of laparospopic hysterectomy, the proportion of TLH in our department had gradually increased as shown in table 2. Instead of TLH or LAVH, laparoscopic supracervical hysterectomy (LSH) has become routine in some institutes,[12-13] because they believe that LSH should be the gold standard for hysterectomy. Although the U.S. Center for Disease Control and Prevention clearly showed in MMWR 1992 that resultant decrease in mortality from cervical cancer is clearly due to the use of Papanicolaou smears, not the performance of total hysterectomy, only a few cases of LSH are performed per year in our department due to concern of cervical cancer development after surgery. Our common indications for LSH are endometriosis with obliteration of anterior and posterior cul de sac, and the large myoma and massive pelvic adhesion in virgin patients. During a technically difficult surgical procedure, there may be concerns about the potential morbidity associated with the removal of the cervix such as increase operative and postoperative morbidity.

## CONCLUSION

The AH is the most common route selected for hysterectomy in our department. Although the trend of AH is decreasing, the rate is still high. Many advocate the VH as an excellent alternative to both AH and LH techniques. However, the rate of VH in our department is still low (about 7.5%) without significant change. With modern equipment, trained staff, and strategic support, we have in a 6-year period increased the LH rate from approximately 4% to approximately 8.7%. This technique is in most cases preferred by endoscopists in our department, and almost all patients are satisfied with the shorter hospital stay and shorter recovery time. With sufficient expertise and confidence in laparoscopy, the TLH technique in our department is gradually increasing and appears to have an impact on other gynecology departments in our country.

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