**Supporting Information**

Table S1. The clinical path for TLH at Teine Keijinkai Hospital

Abbreviations: POD, postoperative day; TLH, total laparoscopic hysterectomy.

Patients are admitted 1 day before their surgery and see an anesthesiologist on that day. They receive appropriate antibiotics within 60 minutes of their incision in an operating room. Intraoperative redosing is conducted every 3 hours. Patients undergo a blood test and a medical examination by an attending physician on POD2 and are discharged on POD3.

Table S2. Definition and method of measuring variables

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| --- | --- | --- |
| Variable | Definition | Measuring method |
| **Preoperative factors** |  |  |
| Parity | Number of times a woman has given birth to a fetus | Medical examination by an interview |
| History of vaginal delivery | Having or not having history of vaginal delivery |
| History of cesarean section | Having or not having history of cesarean section |
| Past history of abdominal surgery | Having or not having history of  abdominal surgery |
| ASA classification | ASA classification is used to assess and communicate a patient’s pre-anesthesia medical comorbidities.  ASA class 1: a normal healthy patient  ASA class 2: a patient with mild systemic disease  ASA class 3: a patient with severe systemic disease | Diagnosis of anesthesiologists |
| **Intraoperative factors** |  |  |
| Intraperitoneal adhesion | An attending physician determines the existence of abdominal adhesion by intraoperative findings | Reference of the operative note  Reference of the operative note |
| Uterine retrieval through vagina | An attending physician retrieves the removed uterine through the vagina |
| Uterine morcellation | An attending physician retrieves the removed uterine through the abdominal wall using a morcellator |
| Specimen weight | Total retrieved specimen weight |
| Additional operative techniques | Surgical techniques in addition to TLH |
| Salpingo-oophorectomy | Resection of ovary and fallopian tube |
| Oophorocystectomy | Resection of ovarian cyst |
| Salpingectomy | Resection fallopian tube |
| Antiadhesive material | A material to prevent postoperative adhesion |
| Beriplast P | A fibrin glue to use hemostasis and closure of biological tissues |
| Bolheal | A fibrin glue to use hemostasis and closure of biological tissues |
| Interceed | A fabric composed of oxidized, regenerated cellulose adhesion barrier |
| Seprafilm | Chemically modified hyaluronic acid and carboxymethylcellulose adhesion barrier |
| AdSpray | A spray-type hydrogel adhesion barrier |
| Urinary tract injury | Intraoperative urinary tract injury |
| Bladder injury | Intraoperative bladder injury |
| Intestinal injury | Intraoperative intestinal injury |
| Intestinal resection | Intraoperative expected or unexpected intestinal resection |
| **Postoperative factors** |  |  |
| Pathological result |  |  |
| Leiomyoma | A benign tumor of uterine muscle | Reference of the pathological result |
| Adenomyosis | An abnormal presence of endometrial tissue (the inner lining of the uterus) within the myometrium |
| Endometriosis | A presence and growth of functioning endometrial tissue in places other than the uterus |
| Postoperative vaginal bleeding | Vaginal bleeding required reoperation after TLH and before vaginal cuff infection | Reference of the medical record |
| Postoperative vaginal cuff hematoma | Vaginal cuff hematoma found after TLH and before vaginal cuff infection |

Abbreviations: ASA, American Society of Anesthesiologists;TLH, total laparoscopic hysterectomy.

Table S3. Centers for Disease Control surgical site infection criteria and prevention criteria

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| **Superficial incisional SSI** |
| Infection occurs within 30 days after the operative procedure and involves only skin and subcutaneous tissue of the incision and patient has at least one of the following:  a. purulent drainage from the superficial incision  b. organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision  c. at least 1 of the following signs or symptoms of infection: pain or tenderness, localized swelling, redness, or heat, and superficial incision is deliberately opened by surgeon and is culture positive or not cultured (a culture-negative finding does not meet this criterion)  d. diagnosis of superficial incisional SSI by the surgeon or attending physician |
| **Deep incisional SSI** |
| Infection occurs within 30 days after the operative procedure if no implant is left in place or within 1 year if implant is in place and the infection appears to be related to the operative procedure and involves deep soft tissues (e.g., fascial and muscle layers) of the incision and patient has at least one of the following:  a. purulent drainage from the deep incision but not from the organ/space component of the surgical site  b. a deep incision spontaneously dehisces or is deliberately opened by a surgeon and is culture positive or not cultured when the  patient has at least one of the following signs or symptoms: fever (.388C), or localized pain or tenderness (a culture-negative  finding does not meet this criterion)  c. an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathological or radiological examination  d. diagnosis of a deep incisional SSI by a surgeon or attending physician |
| **Organ/space SSI** |
| An organ/space SSI involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure. An organ/space SSI must meet the following criterion. Infection occurs within 30 days after the operative procedure if no implant1 is left in place or within 1 year if implant is in place and the infection appears to be related to the operative procedure and infection involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure and patient has at least one of the following:  a. purulent drainage from a drain that is placed through a stab wound into the organ/space  b. organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space  c. an abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathological or radiological examination  d. diagnosis of an organ/space SSI by a surgeon or attending physician |

Abbreviation: SSI, surgical site infection.

Table S4. Organisms recovered in vaginal cultures (n = 71)

|  |  |
| --- | --- |
| Mixed aerobes and anaerobes | 13 (18) |
| Mixed aerobes | 12 (17) |
| Escherichia coli | 4 (6) |
| Coagulase-negative staphylococcus | 4 (6) |
| Group B Streptococcus | 3 (4) |
| Enterococcus sp. | 3 (4) |
| ESBL-producing Escherichia coli | 2 (3) |
| Bacteroides fragilis | 2 (3) |
| α-Streptococcus | 1 (1) |
| Corynebacterium sp. | 1 (1) |
| Candida tropicalis | 1 (1) |
| Peptostreptococcus anaerobius | 1 (1) |
| No organism recovered† | 24 (35) |

Values are presented as n (%).

†Cultures not obtained, or showed no growth, likely due to previous receipt of broad-spectrum antibiotics.