

## Hysterectomy: Indications, Route of Surgery & Techniques: An Overview

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Hysterectomy (surgical removal of uterus) is one of commonest major gynaecological surgical procedure performed. The choice of hysterectomy as a therapeutic procedure will depend on patient's age, her wish for pregnancy and desire for preserving uterus. Although there is general agreement as to the indications for hysterectomy, the incidence of different pathologic conditions leading to surgery varies considerably from one surgeon to another; same is true for the route of surgery.

Due to addition of various minimally invasive techniques of surgery including Laparoscopic Hysterectomy, Laparoendoscopic Single Site Surgery (LESS) or single port surgery, Robotic surgery; in addition to the conventional techniques of Abdominal and Vaginal routes for surgery still majority of hysterectomies are performed abdominally. In 2010, over 430,000 inpatient hysterectomies were performed in the United States. From 1998-2010 the distribution of the surgical approach was Abdominal (65%), Vaginal (20%), Laparoscopic (13%), Robotic (0.9%) and Radical (1.2%) [1].

### Indications for Hysterectomy

Fibroid uterus, Abnormal vaginal bleeding, Severe endometriosis, Adenomyosis, Pelvic organ prolapsed, Pelvic inflammatory disease, Cervical intraepithelial neoplasia, Invasive cervical cancer, Ovarian or endometrial cancer and Chronic pelvic pain

Abdominal hysterectomy is still the most common approach used worldwide. Even though vaginal route is associated with fewer complications, shorter hospitals stay more rapid recovery and lower overall cost. Conventionally patients with Gynaecological malignancies, Uterine size more than 12 weeks size, Limited uterine prolapsed, Large cervical fibroid or cervical malignancy and an unknown adnexal mass, extensive pelvic endometriosis and adhesions from previous pelvic surgeries or pelvic infections are candidates for an abdominal hysterectomy [2]. Some of the complications which are associated with abdominal route are infection, hemorrhage and injuries to adjacent pelvic organs such as bladder and bowel.

Vaginal hysterectomy, when feasible is the safest and most cost effective procedure for the removal of uterus. There are no absolute contraindications for vaginal hysterectomy. However some factors that may influence the surgeon's choice of a route for hysterectomy. Factors are Surgeons training and experience, Accessibility of uterus, Extent of an extrauterine disease, Size and shape of a uterus, Need for concurrent procedure and Patient preference. A Cochrane review found that vaginal route, compared with all other routes for hysterectomy, yields better outcomes and fewer complications. Various studies showed that vaginal hysterectomy should be performed whenever technically feasible to reduce complications shorten hospital stay and accelerate the patients return to normal activities.

The laparoscopic hysterectomy was introduced in 1989 as an alternative for hysterectomy by laparotomy which aims to achieve same medical effectiveness' for quicker recovery. Since its introduction there is tremendous change in terms of laparoscopic instrumentation and technique. Though laparoscopic hysterectomy is technically demanding, it can be Total Laparoscopic Hysterectomy (TLH), Laparoscopic Assisted Vaginal Hysterectomy (LAVH) or Vaginally Assisted Laparoscopic Hysterectomy (VALH), Laparoscopic Subtotal

Hysterectomy. In total laparoscopic hysterectomy all the steps including uterine artery ligation and vaginal vault closure is done through laparoscopy. But in laparoscopically assisted vaginal hysterectomy ligation of uterine artery is done vaginally. In vaginally assisted laparoscopic hysterectomy all the steps done laparoscopically but vaginal incision and repair is done through vaginal route.

Laparoendoscopic Single Site Surgery (LESS) more commonly known as single port surgery has gained momentum as a feasible technique. Hysterectomy is best suited for laparoendoscopic single site surgery because of the possibility of manipulating the uterus transvaginally [3].

Conventional laparoscopy has some limitations imposed by incision size and the normal mechanics of human hand, surgical robots are developed and designed to overcome this. The robotic system (e.g. Da Vinci surgical system) provides a steady 3-Dimensional image and instrumentation with articulating tips that allow for 7 degrees of movement, surpassing wrist mobility which allows its use in patients with complex pathology for whom conventional laparoscopy often proven difficult. Robotic system was approved for use in gynecological surgery by USFDA in 2005. It is found to be effective, safe with low morbidity and fewer complications and also fewer conversions to open surgery than procedures performed with conventional laparoscopic techniques [4].

With the aim of decreasing morbidity, cost of surgery and hospital stay, according to the patient's condition and associated pathology route of surgery is too individualized. Vaginal hysterectomy and laparoscopic hysterectomy have shown definite advantage over abdominal hysterectomy but abdominal approach should not be disregarded as it can still prove to very useful in difficult situations.

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