



FOGSI - ICOG

Good Clinical Practice Recommendations G CPR

Advances in Hysterectomy



Convenor – Subash Mallya Co-Convenor – Sampath Kumari, Neha Varun

Mentors - Hrishikesh D Pai, Madhuri Patel, Laxmi Shrihande

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ENDOSCOPY COMMITTEE

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Endoscopy Committee

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Disclaimer: These recommendations for “Advances in Hysterectomy” have been developed, to be of assistance to gynecologists, practicing medical officers, and general practitioners by providing guidance and recommendations for hysterectomy. The recommendations included here should not be viewed as being exclusive of other concepts or as covering all legitimate strategies. The suggestions made here are not meant to dictate how a particular patient should be treated because they neither set a standard of care nor do they guarantee a particular result. To evaluate patients, counsel about different routes of hysterectomy, and provide the best care possible while also taking the necessary safety precautions, clinicians must rely on their own experience and knowledge. The writers or contributors disclaim all responsibility for any harm and/or damage to people or property resulting from the use or operation of any techniques, goods, guidelines, or ideas presented in this content.

Intent: The guidelines are a reference for recommended care and are not an endpoint of clinical care. The guidelines are subject to evolution with advances in scientific knowledge and technology.

LEVEL OF EVIDENCE

Level of evidence	Recommendation	Description
Level 1	Strongly recommended	Data derived from multiple randomized trials or meta-analyses.
Level 2	Suggested	Data derived from a single randomized trial or a large nonrandomized trial.
Level 3	Unresolved	Consensus of opinion of experts or small studies, retrospective studies, cross sectional studies, or registries.
Level 4	Clinical practice points	Opinions/consensus by experts or preclinical study.
Grade A	Strongly Recommended	Well-conducted RCT with 100 or more patients, including meta-analysis.
Grade B	Recommended (intermediate)	Poorly controlled RCT, well-conducted case control or observational study.
Grade C	Suggested (weak recommendation)	Expert opinion.
GPP	Clinical Practice Points (not evidence based)	Evidence not sought. A practice point has been made by the guideline development group where important issues arose from the discussion of evidence-based or clinical consensus recommendations.

EXECUTIVE SUMMARY OF RECOMMENDATIONS

- Vaginal hysterectomy (VH) is the approach of choice whenever feasible. Evidence demonstrates that it is associated with better outcomes when compared with other approaches to hysterectomy (Grade A, Level 1).
- VH is still considered the preferred route of hysterectomy, but laparoscopic hysterectomy (LH) is an appropriate alternative minimally invasive approach (Grade A, Level 2).
- LH is a preferable alternative to open abdominal hysterectomy for those patients in whom a VH is not indicated or feasible (Grade A, Level 1).
- However, when both approaches are feasible, VH is still associated with more relevant benefit compared to LH and should therefore be the approach of first choice (Grade A, Level 1).
- There was no particular preference for TLH or LAVH. The surgeons should use the technique that is best mastered (Grade B, Level 3).
- For LH, RH has no advantages and is associated with higher costs (Grade B, Level 2).
- Hysterectomy for benign indications should preferably be approached by either vaginal or laparoscopic routes (Grade A, Level 1).
- Opportunistic salpingectomy can be considered at the time of hysterectomy, but the planned surgical approach should not be changed for this sole purpose (Grade A, Level 3).
- Women should be counseled about the benefits and risks of removing the ovaries at the time of the hysterectomy. This should include discussion about the risk of ovarian cancer as well as the long-term health implications of earlier menopause linked to bilateral oophorectomy (Grade A, Level 2).

- Urinary tract injury is a known complication of hysterectomy, and clinicians should have a low threshold for further investigation in cases where injury is suspected. Surgeons performing hysterectomy should have access to diagnostic cystoscopy, individually or through consultation, to evaluate bladder and ureteric integrity (Grade A, Level 2).

BACKGROUND

Hysterectomy remains the most commonly performed gynaecological surgery in India. In recent times, a surge in hysterectomy cases, especially in younger women, has raised a nationwide alarm among healthcare providers and policymakers alike. The exact prevalence of hysterectomy has been difficult to estimate due to lack of standardisation across the nation of guidelines on reporting and indications. A study conducted in 2018, reported the prevalence of hysterectomy to be around 17 per 1000 ever-married women in India that varied from 2 to 63 per 1000 women across different states. Hysterectomy is mostly seen among females aged 40–45 years, and by 65 years of age, approximately 37–39% of the women undergo this surgery. A procedure which often can be a life saver has fallen into disrepute and the question over its necessity is now being raised. The Government of India has laid down advisory regarding the same and mandated state and national level hysterectomy monitoring committees, in an effort to curb unnecessary hysterectomies.

PURPOSE AND SCOPE

This GCPR provides comprehensive knowledge about hysterectomy and its recent advances. It aims to provide a consensus on a standardised approach to patient care. The guidelines are a reference of recommended care and are not an endpoint of clinical care. The guidelines are subject to evolution with advances in scientific knowledge and technology.

TARGET AUDIENCE

This Good Clinical Practice Recommendation (GCPR) provides a comprehensive knowledge about hysterectomy and its recent advances. It is meant for obstetricians, gynecologists, and practicing medical officers. This manual will help in enhancing the knowledge of gynecologists in providing services, preventing unnecessary hysterectomies, and also provide knowledge about the treatment of the most common gynecological conditions, which are responsible for unnecessary hysterectomies.

METHODOLOGY

These GCPRs, given by the Federation of Obstetric and Gynecological Societies of India (FOGSI), followed the process mentioned in the RCOG “Guideline for Guideline Development—2020”. The topic was selected and approved, and a task force was formulated. The core group was identified, and the timelines were discussed and communicated. The scope of the guideline was drafted, objectives were framed, and the stakeholders were listed and incorporated into the scope. A systematic review of the literature was conducted to provide the best possible evidence base for the GCPR. Existing guidelines, meta-analyses, systematic reviews, and key articles on hysterectomies and their recommendations in different countries and by different societies were reviewed by the core group, and recommendations relevant to the Indian scenario were framed. These recommendations review the available evidence in the field by the members of the task force, which include eminent obstetricians and gynecologists. The guideline was peer reviewed by experts, multiple times, and feedback was incorporated. No conflict of interest or good standing was appropriately expressed by all concerned for professional, personal, or non-personal interest, either financial or nonfinancial.

INDICATIONS OF HYSTERECTOMY

- Abnormal uterine bleeding/dysfunctional uterine bleeding
- Vaginal discharge
- Lower abdominal chronic pelvic pain/pelvic inflammatory disease (PID)
- Leiomyoma
- Adenomyosis
- Uterovaginal prolapse (UV prolapse)
- Endometriosis
- Abnormal/unhealthy looking cervix or precancerous lesions of cervix

- Premalignant condition of uterus (atypical endometrial hyperplasia)
- Malignant tumors of uterus and cervix
- Gender affirming surgery

Specific indications related to type of hysterectomy:

VH:

- Hysterectomies should be routinely done by the vaginal route (DUB/Leiomyoma/adenomyosis)
- It need not be by the abdominal route or laparoscopically assisted or totally laparoscopic merely because of uterine fibroids, nulliparity, etc.

The vaginal route will make a difference to the patient, anesthetist, surgeon, etc. in high-risk cases

TAH:

- When hysterectomy via vaginal route is contraindicated and LAVH appears risky or very difficult
- Uterus 22–24 weeks size or greater
- Adnexal pathology
- Invasive cancer
- If adnexal pathology is suspicious of malignancy or frozen study at laparoscopy or VH suggests possible or doubtful malignancy
- Advanced endometriosis
- Excessive vaginal narrowing

LAVH:

- There is indication for hysterectomy along with contraindication for hysterectomy via vaginal route
- LAVH is indicated when laparoscopic assistance can undo contraindication or the hindrance to perform VH
- Uterine fibroids, adenomyosis, and dysfunctional uterine bleeding with uterine size greater than 12–14 weeks size or broad ligament fibroid, or uterine volume more than 300 cc.
- Benign ovarian cyst, tubal, and/or ovarian mass (non-malignant and non-tuberculous)
- Endometriosis
- Pelvic adhesions
- PID
- Chronic pelvic pain
- Occasionally, oophorectomy or salpingo-oophorectomy

CONTRAINDICATIONS

VH:

- Uterus more than 12 weeks size
- Uterine volume of more than 300 cc
- Restricted uterine mobility, limited vaginal space
- Adnexal pathology
- Vesicovaginal fistula repair (VVF)
- Cervix flush with vagina
- Inaccessible cervix
- Invasive cancer of the cervix

For experience vaginal surgeons:

- Uterine size not greater than 14–16 weeks
- Uterine volume greater than 400–500 cc
- Freely mobile uterus, if with adnexal pathology
- Adnexal pathology should be mobile and benign
- If uterine mobility is restricted, there should be absence of adnexal pathology
- Absence of other contraindications (5–8 from above)

TAH:

- High risk
- Table risk patient
- Woman refuses

LAVH:

- When hysterectomy via vaginal route is possible and is without any contraindication for it
- Uterus enlarged to 22–24 weeks size with limited mobility
- Uterine volume of 500–600 cc (for highly experienced, may be more up to 700–800 cc)
- Dense adhesions—tubal and/or ovarian mass
- Inability to visualize pelvic sidewall structures adequately
- Intraoperative dense adhesions and/or intraoperative uncontrollable bleeding

Types: Different types of hysterectomies are described in [Table 1](#).¹

Table 1 Different types of hysterectomy

Abbreviations	Name	Description
TAH	Total Abdominal Hysterectomy	Total hysterectomy performed through a laparotomy under direct vision using conventional surgical instruments.
VH	Vaginal Hysterectomy	Total hysterectomy performed entirely through vaginal access under direct vision using conventional surgical instruments.
LASH	Laparoscopic Supracervical Hysterectomy	Subtotal Hysterectomy performed by transabdominal laparoscopy.
LAVH	Laparoscopic Assisted Vaginal Hysterectomy	Total hysterectomy where first the cranial part of the uterus is dissected via transabdominal laparoscopy and afterward the caudal part of the uterus (including ligating the uterine vessels) is dissected under direct vision using conventional instruments.
LH	Laparoscopic Hysterectomy	Total hysterectomy where first the cranial part of the uterus is dissected via transabdominal laparoscopy (including ligating the uterine vessels) and afterward part of the operation is performed vaginally under direct vision using conventional instruments.
TLH	Total Laparoscopic Hysterectomy	Total hysterectomy where the entire uterus is dissected via transabdominal laparoscopy.
RH	Robotic Hysterectomy	Robotic hysterectomy is a type of laparoscopic surgery that uses a robot, and the entire uterus is dissected transabdominally using a surgical robot. The surgeon uses a computer to control the surgical instruments. The computer station is in the operating room. The surgeon is able to control the robot's movements steadily and precisely.
VANH	Vaginally Assisted NOTES Hysterectomy	Total hysterectomy, where first the caudal part of the uterus is dissected vaginally under direct vision, and afterward the rest of the hysterectomy is performed via transvaginal NOTES using an endoscopic camera and endoscopic instruments.
RVANH	Robotic Vaginally Assisted NOTES Hysterectomy	Total hysterectomy, where first the caudal part of the uterus is dissected vaginally under direct vision and afterward the rest of the hysterectomy is performed via transvaginal NOTES using a surgical robot.
TVNH	Total Vaginal NOTES Hysterectomy	Total hysterectomy, where the entire uterus is dissected via transvaginal NOTES using an endoscopic camera and endoscopic instruments.
RTVNH	Robotic Total Vaginal NOTES Hysterectomy	Total hysterectomy, where the entire uterus is dissected via transvaginal NOTES using a surgical robot.

VAGINAL HYSTERECTOMY (VH)

- VH is the approach of choice whenever feasible, as it is associated with better postoperative outcomes when compared to other approaches to hysterectomy (Grade A, Level 1).
- If the vagina is accessible to divide the uterosacral and cardinal ligaments, uterine mobility is usually improved enough to allow VH, even in cases where there is minimal uterine descent.

- VH can be safely performed in women without uterine prolapse, up to 12 weeks of enlarged uterine fibroid, in patients with history of one or more previous Caesarean sections, previous laparotomies, premalignant cervical or endometrial pathology, or in nulliparous women (Grade B, Level 2).
 - Opportunistic salpingectomy can usually be safely accomplished at the time of VH (Grade A, LEVEL1).
 - When the pathology is not confined to uterus, i.e., adnexal pathology, known or suspected adhesions and endometriosis, it is advisable to perform LAVH to restore the anatomy or to free the adnexa before proceeding to VH (Grade B, Level 2).
 - Prophylactic bilateral salpingectomy with ovarian preservation during VH should be undertaken routinely as a preventive measure of ovarian cancer (Grade B, Level 2).
 - LAVH should be employed first if there is uncertainty in removing the ovaries vaginally, i.e., laparoscopic approach should be used to complete VH (Grade B, Level 2).
- Recommendations by International Society for Gynaecologic Endoscopy (ISGE) for successfully performing a vaginal hysterectomy for a non-prolapsed uterus.²*
- A circular incision at the level of cervico-vaginal junction is recommended (Grade A, Level 3).
 - The posterior peritoneum should be opened first (Grade A, Level 3).
 - Clamping and cutting the uterosacral and cardinal ligaments before or after getting access to the anterior peritoneum is recommended (Grade A, Level 3).
 - Routine closure of the peritoneum during VH is not recommended (Grade A, Level 2).
 - Vertical or horizontal closure of the vaginal vault following VH is recommended (Grade A, Level 3).
 - To insert a vaginal plug following VH is not recommended (Grade A, Level 2).

LAPROSCOPIC HYSTERECTOMY (LH)

- Laparoscopic assessment of the pelvis can be performed at the beginning of the procedure to assess the feasibility of proceeding with a minimally invasive approach to hysterectomy in cases of adnexal pathology, severe endometriosis, or adhesions.
- LH is an alternative to abdominal hysterectomy for women in whom VH is contraindicated or not possible (Grade B, Level 2).
- Preoperative volume reduction treatment of patients with fibroids does not seem advisable as the advantages are marginal (Grade B, Level 2).
- When uterine volume reduction is desirable, to increase the possibility of minimal invasive surgery, preoperative treatment with GnRH agonist should be considered (Grade B, Level 2).
- GnRH agonist as a preoperative treatment should be given for at least 3 months (Grade C, Level 3).
- It is necessary to discuss with patients about facts that high BMI, large uterine size, and previous surgeries influence intraoperative blood loss, operative time, complications, and conversion risks (Grade A, Level 1).
- Vaginal examination should always be performed to evaluate the operability of a patient and predict the best surgical approach (Grade C, Level 4).
- A good knowledge of pelvic anatomy is recommended (Grade C, Level 3).
- Ultrasound is sufficient to detect potential additional pathology, and MRI is not needed (Grade C, Level 3).
- Uterine manipulator is recommended during LH for better overview of anatomy as it helps prevent ureter injuries (Grade C, Level 3).
- Standard insertion of ureter stents during LH is not recommended (Grade B, Level 2).
- In cases of suspected distorted anatomy (deep infiltrating endometriosis, oncology), stenting of urethra can be considered (Grade C, Level 3).
- Standard cystoscopy after LH is not recommended as an additional procedure after LH (Grade B, Level 2).
- Low threshold for additional diagnostic procedures (cystoscopy, urology opinion) is recommended when urinary tract injury is suspected intraoperative LH (Grade B, Level 2).
- Patient should be counseled about risks of morcellation (risk of spill of potentially malignant cells and parasitic fibroids) (Grade B, Level 2).
- Open morcellation is not recommended when hypervascularization is observed on USG and/or MRI in combination with necrosis and/or other risk factors for sarcomas (Grade C, Level 3).
- Mini laparotomy/contained morcellation can be done when uncontained morcellation is estimated to be unsafe (Grade C, Level 3).

ROBOTIC SURGERY

This allows surgeons to perform more complex procedures and finer dissections. This technique also results in fewer complications, less pain, and faster recovery compared to an open procedure. The cost of robotic hysterectomy surgery in India may vary depending on the different hospitals in different cities. Approximately, it costs 2,65,000 (Two lakh sixty-five thousand only).

- Complex pelvic procedures where greater precision is needed, conventional laparoscopy (CL) has seen limited applications because of the restricted space and complex anatomy of the pelvis.
- The introduction of a robot as an additional tool in laparoscopic procedures has overcome many of these limitations by providing superior dexterity, intuitive movement, 3D vision, improved ergonomics, autonomy of camera control, and a shorter learning curve.
- The disadvantages of robotic assisted laparoscopy (RAL) include lack of haptic feedback, the position of the surgeon away from the patient, and higher costs compared with CL.
- Complex gynecological procedures are defined as having multiple characteristics, based on either anesthetic or surgical complexity, such as previous abdominal or pelvic surgery, obesity, large retroperitoneal pelvic masses, posterior myomectomies, deep pelvic procedures, e.g., extensive rectovaginal endometriosis, or pelvic floor procedures.
- Women were referred for RAL, if surgery was expected to last longer than 180 min, or if they were defined as 'complex' with a BMI of 45 kg/m² or more.
- RAL is well established in benign gynecology, especially for tubal reconstructive surgery, myomectomies, and hysterectomies, with an increasing trend in RAL hysterectomy and a decrease in abdominal and vaginal hysterectomies (Grade B, Level 2).

vNOTES

The vNOTES procedure uses the vagina as a surgical access route to the uterus, fallopian tubes, and ovaries, eliminating the need to make visible incisions in the patient's abdomen. New hysterectomy procedure offers less pain, quicker recovery with no visible scars.

Different types of hysterectomies have few advantages and disadvantages over one another ([Table 2](#)).

Table 2 Comparison of different approaches of hysterectomy

<i>VH compared to AH</i>	<i>VH compared to LH</i>	<i>LH compared to AH</i>	<i>LH compared to RH</i>
<ul style="list-style-type: none"> • Shorter duration of hospital stay • Faster return to normal activity • Better functional capacity and improved pain assessment • No evidence of difference in satisfaction, intraoperative injury, or complications 	<ul style="list-style-type: none"> • Shorter operating time • Lower overall costs • Patients were more satisfied than those who had a laparoscopically assisted VH (no difference between VH and total laparoscopic hysterectomy) • No evidence of difference in return to normal activities, urinary tract injury, complications • Lower risk of conversion • Lower risk of vaginal cuff dehiscence • Patients in the LH group had lower postoperative pain scores and required analgesia for a shorter period 	<ul style="list-style-type: none"> • Faster return to normal activity • Shorter duration of hospital stay • Fewer wound or abdominal wall infections • Longer operating time • Higher rate of lower urinary tract (bladder and ureter) injuries • Improved quality of life in the first months and at 4 years post-surgery • No evidence of difference in satisfaction or major long-term complications • No evidence of difference in overall cost (limited studies) 	<ul style="list-style-type: none"> • No evidence of difference in any of the measured outcomes • No studies evaluated costs

CHOOSING ROUTE OF HYSTERECTOMY³

Some basic guidelines for selecting the route of hysterectomy:

- Confirm indication for hysterectomy.
- Exclude contraindication.

- Uterine prolapse is not a prerequisite for VH.
- As a rule, uterus without surrounding pathology descends (downward mobility) when traction is applied under anesthesia, Uterine descent becomes progressively easier as the uterosacral and mackenrod's ligaments are cut.
- Nulliparity, or fibroid per se, does not contraindicate a VH.
- Abdomino-pelvic surgery even repeat, in past per se do not contraindicate a VH.
- The size of the uterus that can be removed vaginally increases with experience, size of 12 weeks or less in general and up to 14–16 weeks for experienced vaginal surgeon do not contraindicate VH.
- Should the need for oophorectomy arise, it should not pose a problem for an experienced vaginal surgeon. However, there should be no hesitation to seek laparoscopic assistance.
- To have a look at the abdominal contents, particularly the appendix, the abdominal route should be used only if a surgical opinion so indicates.
- Reliable ultrasonography is extremely useful in decision-making. In case of doubt or with adnexal pathology, a CT scan or MRI can guide further.
- Examination under anesthesia should form an integral part of the preoperative management of patients requiring hysterectomy. This should be correlated with ultrasonography (or imaging study) findings to evaluate for the route. AH should only be considered in patients if, under anesthesia, any contraindication for VH is revealed.
- When VH appears possible but Surgeon is in doubt, it is desirable to schedule hysterectomy as tentative one or for trial of vaginal route.
- Laparoscopic evaluation (not laparoscopic operative assistance) should be done when in doubt about adhesions, endometriosis, or pelvic findings in absence of contraindication. This will clear up the doubt about taking the vaginal route for hysterectomy.
- Confirm that adnexal pathology is benign with imaging and tumor marker studies. It is ideal to have a routine laparoscopic evaluation for an adnexal mass, which is to be excised via vaginal route. Laparoscopic evaluation is mandatory if there is slightest suspicion that adnexal mass could be tuberculous or malignant.
- Preoperative investigations and fitness for surgery and anesthesia.
- Respect medical record documentation.

For TAH:

- When there is indication for hysterectomy but vaginal route is contraindicated and LAVH is very difficult or risky method.
- If VH can be performed with lap assistance, it should be preferred to abdominal opening or laparotomy.
- Commonest contraindications are based on uterine size, mobility normalcy of adnexa.
- Whenever possible, ideal is to perform through Pfannenstiel incision or its variant incision. Only when this is not possible or makes exposure difficult or inadequate, vertical incision is used.
- If other methods of hysterectomy are unsafe in operator's hand.
- Laparoscopic instruments or expertise are not available.

For LAVH:

- If VH is possible, LAVH should not be done. LAVH should never be a replacement for VH.
 - With laparoscopic assistance, VH can be accomplished.
 - Balancing the risks involved, LAVH is preferred to abdominal hysterectomy.
 - Preoperative counseling is essential.
 - Laparoscopic evaluation will clear doubt and provide guidance.
 - Equipment should be of high order, and the operator should be experienced.
 - One member of the team must be experienced and well trained.
 - It should be converted to abdominal hysterectomy. When (a) LAVH is risky or very difficult; (b) Suspicion of malignancy; and (c) Laparoscopic expertise not available.
 - Experience with LAVH will reduce abdominal hysterectomies and increase proportion of VH.
- Laparoscopic assistance may allow some patients to undergo a VH when they would have otherwise required laparotomy.

Advantages of VH:

- Vaginal surgery is the least invasive, minimally accessed route, and results in better postoperative quality of life outcomes.
- All hysterectomies should be vaginal unless indicated otherwise.

- Vaginal surgery has always been the hallmark of the gynecologic surgeon.
- Choice would be vaginal, vaginal with laparoscopic assistance total laparoscopic and abdominal in that order, if hysterectomy by all four technics is possible.

HYSTERECTOMY IN SPECIAL SITUATIONS

Hysterectomy in obesity:

- Abdominal hysterectomy in obese women has worse reported outcomes than CL hysterectomy (Grade A).
- Morbidity was 31% higher in morbid/severe (class 3) obesity (BMI 40 kg/m² or over) using a laparoscopic approach than in non-obese women (Grade A).
- Obese patients showed a 28-fold increase in conversion to laparotomy hysterectomy with a CL approach, and a 17-fold increase with VH compared with RAL (Grade C).
- Lower morbidity and decreased length of stay in obese women undergoing RAL hysterectomy, and concluded that the advantage of RAL may be more apparent in complex gynecology cases, where the use of CL is relatively contraindicated (Grade B).
- The ability to perform RAL under ultra-low intra-abdominal pressure (6 mm Hg) has been shown to be feasible without compromising the outcomes and might be advantageous in patients with poor respiratory compliance and obesity (Grade B).

SURGICAL COMPLICATIONS OF HYSTERECTOMY

The complications of hysterectomy depend majority on the route and technique used.

- Complications include haemorrhage, infection, venous thromboembolism, injuries to genitourinary or gastrointestinal tract, nerve injury or vaginal cuff dehiscence (**Table 3**)⁴
- Severe complications include death, thromboembolism, myocardial infarction, stroke, renal failure, severe infection, secondary haemorrhage, fistula, ureteral obstruction, and visceral damage (**Table 3**).

Table 3 Complications during abdominal, vaginal, and laparoscopic hysterectomy⁵⁻⁷

Complications	Abdominal hysterectomy	Vaginal hysterectomy	Laparoscopic hysterectomy
Infectious complications	10.5%	13.0%	9.0%
Venous thromboembolism	1% clinical events, 12% by laboratory methods		
Injury to the genitourinary tract (1–2%)	Ureteric/1000 hysterectomy	2.6	0.4
	Bladder/1000 hysterectomy	5.8	5.1
Injury to the gastrointestinal tract 0.1–1%	0.3%	0.2%	0.1–1.0%
Bleeding complications (median range of estimated blood loss)	238–660 mL	215–287 mL	156–568 mL
Vaginal cuff dehiscence (0.39%)	0.15%	0.08%	1.35%
Neuropathy	0.2–2% rare		
Mortality	0.03%		

Infections

The most common sites of infection posthysterectomy are vaginal cuff cellulitis, infected haematoma or abscess, surgical site infection, urinary tract, respiratory tract and febrile morbidity.

- LH and VH decreased rate of febrile morbidity compared with TAH.
- LH decreased rate of abdominal wound infection than TAH.
- Treatment of preoperative bacterial vaginosis or trichomoniasis.

- *Prevention of cellulitis and abscess:* Good surgical technique, including aseptic technique, proper tissue handling, haemostasis, and re-dosing antibiotics if surgical time or blood loss exceeds normal, limiting surgical dead space, subcutaneous sutures only when necessary, maintaining small tissue pedicles, and using appropriate irrigation.
- *Prevention of wound infection:* Reduce preoperative hospitalisation, avoid hair removal, antimicrobial body wash the night before surgery, control of postoperative blood glucose.
- *Prevention of postoperative UTI:* Early removal of indwelling catheter and aseptic technique for clean intermittent catheterization.
- *Prevention of postoperative pneumonia:* Discontinue nicotine prior to surgery, treatment of any upper respiratory tract infection (URTI), encourage coughing and deep breathing in postoperative period, adequate pain control for deep breathing, treatment with bronchodilators as indicated.

Bleeding Complications of Hysterectomy

- Median range of estimated blood loss for AH > LH > VH.
- *Blood transfusion:* Laparoscopic > Vaginal hysterectomy.
- *Change in haemoglobin:* Abdominal hysterectomy > Laparoscopic
- *Factors:* Obesity, large masses, adhesions, distorted anatomy, surgeon expertise, use of aspirin/antiplatelet drugs, venous thromboembolism (VTE) prophylaxis
- Pelvic haematoma and vascular injuries same in all routes.
- *Prevention:* Identify the pelvic vascular anatomy and its relationship to ureter, bladder, and rectum. Be familiar with the retroperitoneal anatomy, avascular surgical planes. Clamping bleeding ovarian and uterine vessels carefully. Careful bladder dissection from cervix and upper vagina.

Control of Bleeding

- Exposure to ascertain site and extent of the vascular injury.
- *Small venous bleeding point:* Direct pressure.
- *For identified bleeding site:* Clamp and suture ligated/clip/bipolar and monopolar electrocautery.
- *Diffuse bleeding from a venous plexus:* Haemostatic agents (thrombin or coagulation products) with pressure.
- *Significant bleeding:* Assess patient's vitals + replace adequate blood products (including clotting factors).
- *Replace clotting factors:* Fresh frozen plasma (FFP), cryoprecipitate, platelets for every 4 units of packed red blood cells (PRBCs) transfused [1:1 ratio for massive blood loss is also acceptable protocol].
- *More difficult to control bleeding:* Ligation of the anterior division of the internal iliac arteries.
- Pelvic pressure pack placed firmly in pelvis for uncontrolled bleeding. ICU care with maximal haemodynamic support and replacement of blood products. Reattempt for haemostasis after 48–72 hours when the patient is stable.
- Interventional radiology for arterial embolization in advanced haemorrhage.

Genitourinary Tract Injuries

- Previous caesarean delivery, endometriosis, pelvic adhesive disease, and malignancy are risk factors for cystotomy.
- Previous pelvic surgery, haemorrhage, endometriosis, malignancy, compromised exposure due to large pelvic masses or leiomyomas, and obesity are risk factors for ureteric injury.

Prevention of Genitourinary Tract Injury

- Proper identification and delineation of structures during dissection to avoid injury.
- Urinary drainage by Foley catheter at the beginning of the case.
- Enter the peritoneal cavity in a more cephalad direction.
- Mobilise bladder flap before uterine artery ligation and cervical amputation.
- Sharp bladder dissection off the cervix is recommended in previous caesarean delivery.
- *Protect bladder in VH:* Sharp dissection at anterior peritoneal entry and retractor elevation.
- Critical to identify ureter on medial leaf of broad ligament in the pelvis. If not seen directly, try retroperitoneal approach by opening the pararectal space.
- Remain medial to all previous surgical pedicles during hysterectomy.

- Control haemorrhage in pelvis before attempting clamping and ligating in an obscured field to prevent bladder and ureteric injury.
- Ureteral stenting before surgery does not decrease ureteral injury during hysterectomy. Intraoperative ureteric stenting for nonidentifiable ureters can be useful.

Identification of Injury

- Obvious extravasation of urine at the time of cystotomy, the finding of air in the Foley collection bag in laparoscopy.
- A small injury can be recognised with retrograde bladder filling of 300 mL of indigo carmine or methylene blue into the bladder through a Foley catheter. Identifies injury, number of sites, the presence of any serosal or muscularis injuries.
- Cystoscopy useful in the diagnosis of bladder injury.
- A transected ureter can be seen during dissection, but partial-thickness or full-thickness injury can go unnoticed. Intravenous injection of indigo carmine (1 or 2 ampule, 2.5 mL) can reveal both transection (with extravasation of dye) and obstruction (lack of flow of dye into the bladder as visualised by cystoscopy).
- *Lack of flow on cystoscopy:* Intraoperative ureteral stenting can help for diagnosis (fluoroscopy) and repair at same time.
- Postoperative suspicion of genitourinary (GU) injury (postoperative fever, haematuria, abdominal or flank pain, ileus, signs of ascites, an acute abdomen, or a combination of these): Rule out by a cystogram or abdominal/pelvic computed tomography (CT) with contrast.

Treatment and Repair of Genitourinary Tract Injuries (Table 4)

- *General principle of intraperitoneal bladder injury repair:* Tension-free two-layer closure (3–0 delayed absorbable) with patency confirmed after the closure of the first layer.
- *Serosal or muscularis tear with intact mucosal layer:* Single-layer closure with interrupted 2–0 delayed absorbable suture.
- Evaluation of the trigone with cystoscopy or open cystotomy should be undertaken before and after the repair of the cystotomy.
- Placement of ureteral stents may be required to ensure patency of the ureter.
- Post repair catheter drainage with a transurethral Foley catheter:
 - <1 cm drained for 3–5 days.
 - *A larger injury or trigonal:* 2 weeks of drainage.
 - Cystogram before the removal of the catheter is recommended.
- *Principles of ureteric injury repair:* Careful mobilisation to avoid ureteral devascularization, removal of any devascularized tissue, stenting, tension-free repair.
- *Ureteroureterostomy:* Repair of proximal two-thirds of the ureter by end-to-end re-anastomosis with 4–0 absorbable suture.
- *Transureteroureterostomy:* Removal of large segment and implanting it into lumen of the contralateral ureter.
- *Ureteroneocystostomy:* In distal one-third of the ureter injury, the proximal end is tunnelled through bladder and affixed to mucosal surface with a 3–0 absorbable suture. Psoas hitch maybe required. Stent and urinary catheter is also given.

Table 4 Repair of ureteric injury based on the nature of injury

Kinking by a suture	Removing the stitch and confirming ureteral efflux on cystoscopy
Minor crush injury	Stenting
Major crush injury	Resection of the injured portion with re-anastomosis
Partial laceration	Stenting and repair
Complete laceration	Stenting and re-anastomosis

Gastrointestinal Tract Injury

- No difference in the rate of bowel injury based on the subtype or route of hysterectomy.
- *Typical signs:* Fever, nausea, vomiting, abdominal distention, elevated white blood cells (WBCs) and acute abdomen.
- Confirmed by an abdominal and pelvic CT with oral contrast.

Prevention of Gastrointestinal Tract Injury

- No clinical benefit to mechanical bowel preparation [shown by randomised controlled trial (RCT)].
- Understand the potential sites of harm.
- *Good surgical technique:* Gentle tissue handling, careful dissection along anatomic planes, judicious use of electro-surgery, and compression of bleeding before attempting blind clamping of structures.
- Nasogastric tube helps prevent injury during LH by decompressing stomach.
- *LH:* Special care with electro-surgical instruments, needles, and trocars.
- *Use Palmer point/open entry:* Previous abdominal surgeries, larger sized uteruses.
- *Types of injury:* Thermal, Mechanical, and Indirect.
 - Thermal injury (blanched spots on serosa, monopolar instrument usually, delayed course - days to weeks postoperatively).
 - Direct mechanical damage (sharp/blunt instruments during adhesiolysis).
 - Indirect injury by disrupted vascularity (indolent course).
- *Rectosigmoid colon injury detection:* "Bubble test" trans-anal passage of air by proctoscope. Bubbles in the saline in pelvis confirm that defect must be located and repaired.

Treatment and Repair of Gastrointestinal Tract Injuries (Table 5)

- Bowel rest and antibiotics are useful adjuncts.
- *Surgical principles:* Gentle handling of tissue, use of moist mops, appropriate surgical instruments, assuring adequate blood supply, and a tension-free repair.

Table 5 Different types of gastrointestinal tract injuries and their repair

<i>For significant thermal injury:</i> Immediate resection is essential (monopolar spread is more than bipolar electro-surgery)	
Small isolated thermal injury	Closure of defect with a 2–0 absorbable suture, transversely
Larger thermal injuries	Segmental resection and re-anastomosis
<i>Immediate or delayed bowel injury from direct mechanical trauma or vascular disruption leading to necrosis:</i> Local excision with re-anastomosis	
Colonic injury	Diverting colostomy or ileostomy (extensive trauma resulting in compromised blood supply, extensive infection, or radiation to the injured area)
Denuded serosa	Oversewing the serosa (transverse fashion to avoid narrowing of lumen)

- Postoperative bowel rest until bowel sounds have returned, when liquids can be allowed. Regular food once flatus has returned.
- *Bowel obstruction:* It presents with abdominal distention, vomiting, crampy abdominal pain, and inability to pass flatus. Plain abdominal radiography to confirm the diagnosis.

Thromboembolism

- The clinical signs and symptoms of deep vein thrombosis (DVT) are leg pain, oedema, and erythema.
- VTE incidence same between TAH/VH/TLH.
- *Management (DVT or PE):* Supportive care (respiratory support, leg elevation, and pain control) and immediate anticoagulation (heparin to achieve activated partial thromboplastin time (aPTT) target 2–3 times control). Total 3–6 months therapy with warfarin after incident event.

Prevention

- *Unfractionated heparin:* 5,000 U 2 hours before and 8 hourly after operation till hospital stay.
- Low molecular weight heparin (LMWH).
- Graded compression stockings or intermittent pneumatic compression device.

Vaginal Cuff Dehiscence

- Rare
- 1.5–3.5 months after surgery (postcoital bleeding, vaginal spotting, or watery vaginal discharge, bowel evisceration).
- Robotic H has highest rates >>>> TLH >>> LAVH >> TAH > VH.
- Monopolar energy for colpotomy increases risk.
- *Other risk factors:* Direct trauma from sexual intercourse, chronic cough, constipation, obesity, straining, smoking, malnutrition, anaemia, diabetes, immunosuppression, menopausal status, and previous pelvic surgery.

Prevention

- “Cold” incision of the vagina than electrosurgery. Low voltage electrosurgery with reduced tissue contact, using cutting (compared with coagulation) current, and using other energy devices such as harmonic scalpel, minimise the use of electrosurgery for haemostasis, end-to-end vaginal approximation with all vaginal layers, 1-cm suture margins, and haemostasis.
- No evidence that primary closure is preferable to secondary granulation, a two-layer closure is superior to a single layer or open cuff.
- *Management:* Conservative or surgical.
 - *Small/partial dehiscence:* Broad-spectrum antibiotics + pelvic rest.
 - *Large/complete dehiscence:* Surgical closure usually vaginally.
 - Inspect bowel thoroughly in case of bowel evisceration.

Conversion to Laparotomy

- *Laparoscopy:* Depends on surgical complexity, comorbid conditions, and surgeons’ expertise.
- *Vaginal route:* For visualisation of abdominal cavity (laparoscopy or laparotomy)
- Bleeding without access to vascular pedicles.
- *Significant intra-abdominal adhesions:* Concomitant laparoscopic visualisation.
- Abnormal or unusual uterine anatomy.

Nerve Injuries

- 0.2–2% neuropathies after major pelvic surgery. More common with radical hysterectomy.
- The most common neuropathy associated with pelvic surgery involves the femoral nerve, ilio-hypogastric and ilio-inguinal nerves, and peroneal nerve.
- Most injuries are transient, recover spontaneously (may take several weeks to months).
- Diligent counselling of patients preoperatively and after an injury is essential.

Late Complications

- *Urinary incontinence:* Increased urinary incontinence over time.
- *Risk of pelvic organ prolapse:* Increased risk when initial hysterectomy done for existing prolapse. Similar rates of prolapse between LH and VH for non-prolapse uterus.⁸
- *Pelvic organ fistula:* A four-fold higher rate.
- *Persistent opioid use:* 5% of patients continue opioid use after benign hysterectomy.
- *Risk of occult malignancy:* Can be diagnosed at hysterectomy for a presumed benign disease.
- *Adhesions:* Postoperative adhesion leading to small bowel obstruction, pelvic or abdominal pain.
- *Reproductive system:* Earlier menopause and fallopian tube prolapse.
- *Cardiovascular and metabolic morbidity:* –A small but significant increased risk of cardiovascular morbidity, independent of oophorectomy.
- *Mortality:* 0.32–0.5 per 1000 procedures (higher when associated with pregnancy or cancer). Higher mortality rate of TAH > VH (15 versus 4 per 10,000 procedures).

PREVENTION OF UNINDICATED HYSTERECTOMY

Raising Awareness of Common Gynaecological Conditions Among Community

Local level campaigns: Local language, leaflets, plays, groups discussions at frequent intervals involving the community for the dissemination of information regarding common gynaecological conditions.

Building a community group of women who are trained by doctors and nurses for guiding women about gynaecological issues. Group can involve ASHA/ANMs/HA workers in village level.

Creating a mobile application for the dissemination of correct treatment practices for common gynaecological problems and if required counselling team/chat options for clearing the doubts and guiding for facility where treatments are available.

- Removing myths and misconceptions
- Good menstrual hygiene practices
- Measures to prevent of pelvic inflammatory diseases (PIDs) and sexually transmitted diseases (STDs)
- Ensure safe sex practices
- Awareness of risk factors for genital tract malignancies and their presenting complaints
- Safe treatment modalities other than hysterectomy.

Raising Awareness Among Health Care Providers

Gynaecologists, doctors of other specialities, general duty doctors, nursing, ANM, ASHA, and HA should be made aware of the acceptable indications of hysterectomy, the disadvantages associated with hysterectomy, regarding the alternative treatment modalities available for gynaecological diseases for which hysterectomy is usually done and providing those services for the medical and nonsurgical interventions required to prevent unnecessary hysterectomies.

Disadvantages of unnecessary hysterectomy

The complications/conditions that can arise due to hysterectomies:

- Menopausal symptoms with the removal of ovaries such as hot flushes, sweating, vaginal dryness, mood swings, etc.
- Long term increased chances of developing osteoporosis, dyslipidaemia, cardiovascular diseases, and stroke.
- Earlier menopause even if ovaries are retained.
- Mood changes/irritability/insomnia/grief/possible depression.
- Difficulty in concentrating/mental confusion/decreased cognition.
- Vaginal dryness/changed sexual behaviour/dyspareunia.
- Vaginal itching/dysuria/urinary urgency/stress or urge incontinence.

Ensuring availability of diagnostic and treatment modalities for common gynaecological conditions

Healthcare settings need to be strengthened with supplies and resources along with the training of stakeholders for carrying out the suggested line of alternative treatments available for the common benign gynaecological conditions.

- Abnormal uterine bleeding (AUB)
Basket of medicines: Mefenamic acid, oral contraceptive pills (OCPs), progesterone's oral, injectable, levonorgestrel-releasing intrauterine system (LNG-IUS), tranexamic acid, gonadotropin hormone-releasing hormone (GnRH), ulipristal, and mifepristone.
Diagnostic and therapeutic procedures: Endometrial aspiration/sampling, hysteroscopy/guided biopsy, and endometrial ablation by hysteroscopy.
- *PID/Pelvic pain:* Kit-1, 2, 6/Condoms for prevention of sexually transmitted infection (STI)/Inj. Antibiotics/Partner treatment/anti-tubercular treatment (ATT) for genital tuberculosis (TB)/venereal disease research laboratory (VDRL)/HBsAg/human immunodeficiency virus (HIV).
Vaginal discharge examination/Urine routine and microscopy/USG/visual inspection with acetic acid (VIA)/Pap smear.
- *Precancer Cervix:* VIA/Pap smear/cervical biopsy/human papillomavirus (HPV) testing/colposcopy/loop electrosurgical excision procedure (LEEP), large loop excision of the transformation zone (LLETZ), and cryosurgery/management of cervical cancer (surgery or radiotherapy) at proper centres.

- *Prolapse*: Lifestyle modification + Pelvic floor exercises for 1st/2nd degree prolapse/3rd degree – pessary/uterine conserving surgery <40 years various sling operations, sacro-hysteropexy, sacro colpopexy, colporrhaphy, colpoepineorrhaphy, and sacrospinous fixation
- *Obstetrical hysterectomy*: Oxytocics availability and use/conservative methods/uterine balloon tamponade/ nonpneumatic antishock garment (NASG) /systematic devascularisation of uterus/uterine compression sutures/uterine artery embolisation.

Audit of All Cases of Hysterectomies (Box 1)

- Maintaining records of hysterectomy (indications, hysterectomy <40 years, morbidity, mortality) at all facilities, private and government. A line list of all women who underwent hysterectomy every month.
- Medical Audit Team of technical expert + social science expert.
- More frequent audits may be necessary in areas where high rates of unindicated hysterectomy are suspected.
- Data monitoring at district and state level 3 monthly.
- District, State and National Hysterectomy Monitoring Committees to do audit of hysterectomies at regular 6 monthly.

Box 1 Details to be noted down during the audit of hysterectomies

- Audit for hysterectomy*
- *Detailed Patient Profile*: Age, fertility/parity, SE status.
 - *Assessing for the eligibility of hysterectomy for the patient*: Signs, symptoms, diagnosis, medical, surgical, anaesthetic, and psychological fitness.
 - *Attempt to use alternative effective treatment*: Counselling, medicines, and minor procedures.
 - Whether choice of surgical method was appropriate? Patient counselled of risks/costs/rationale.
 - *Ethical issues*: Counselling/informed consent/second opinion/conflicts of interest.
 - *Route of hysterectomy conducted*: Abdominal/Vaginally/Minimal invasive.
 - Indication for hysterectomy conducted.
 - Documentation of intraoperative/postoperative complications.
 - Blood transfusion/parenteral iron for postoperative anaemia.
 - Insurance cover for hysterectomy availed.
 - *Full expenditure on hysterectomy*: All related to investigations, treatment, operation, stay, etc.

Auditable Topics in Hysterectomy (Table 6)

- Medical audits are utilised to monitor the appropriate use of specific procedures.
- Audit should be part of all gynaecology units.

Table 6 Few points which can be included among the required auditable topics

Patient profile	<ul style="list-style-type: none"> • Age • Number of living children • Socioeconomic status • Education • Cultural beliefs • Occupation • Area of residence • Distance from hospital
Eligibility of patients for hysterectomy	<ul style="list-style-type: none"> • Is the indication for hysterectomy matching with the signs and symptoms of the actual disease from history taking, clinical examination, and pathological and radiological findings? • Is the patient really eligible for hysterectomy – age group, cause, menstrual symptoms, marital status, desirous of fertility, etc.? • Is the patient prepared for anaesthesia and hysterectomy – medically and psychologically fit?

Contd..

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<p>Use of alternative and effective medical treatment</p>	<ul style="list-style-type: none"> • <i>For benign condition:</i> Were alternative non-surgical/medical treatments tried? Yes/No • Was counselling on alternative treatment modalities done? Yes/No • What was the alternative treatment provided? <ul style="list-style-type: none"> – <i>Polyp:</i> Polypectomy – <i>Adenomyosis:</i> LNG-IUS/Oral hormonal therapy – <i>Leiomyoma:</i> Myomectomy/Hysteroscopic resection/UAE/GnRH analogues/Ulipristal acetate /Inj. DMPA/LNG-IUS – Endometrial hyperplasia: High-dose Progesterone/LNG-IUS – <i>CIN:</i> Conization/LEEP/LLETZ – Treatment of coagulopathy – <i>AUB:</i> Progesterone therapy – <i>Utero-vaginal prolapse:</i> Pessary – <i>Obstetrical haemorrhage:</i> UAE/Compression sutures/Uterine balloon tamponade • For how long was the alternative treatment used? • Was the effectiveness of alternative treatment assessed before deciding on hysterectomy? Yes/No 														
<p>If any answer is YES Was it documented in the patient's case notes with necessary supportive documents</p>															
<p>Choice of surgical method</p>	<ul style="list-style-type: none"> • What was the rationale for selecting the type of surgical procedure? • Was the patient made aware about the risks and outcomes of the selected procedure? • Was the comparison of costs of recommended procedures done - AH/VH/TLH? 														
<p>Ethical issues</p>	<ul style="list-style-type: none"> • Was involved and informed consent of the patient taken for the decision on selecting the surgery? • Was primary care for the gynaecological condition available to the patient? • Was the choice of second or expert opinion available to the patient? • Was there any conflict of interest by the provider? (training situations/monetary benefit/insurance agency) • Whether audit is interfering with professional freedom of the practitioner or with doctor-patient relationship in that particular setting? 														
<p>How was the hysterectomy conducted?</p>	<ul style="list-style-type: none"> • Route of hysterectomy? <ul style="list-style-type: none"> – Abdominally – Vaginally – Laparoscopically 														
<p>Why was the hysterectomy conducted?</p>	<ul style="list-style-type: none"> • Indication: <ul style="list-style-type: none"> – Uterine fibroids – size/symptom – PID chronic – Chronic pelvic pain – <i>Abnormal uterine bleeding:</i> Polyps, adenomyosis, endometriosis, endometrial malignancy or hyperplasia, malignancy ovaries, cervix or fallopian tubes. Premalignant lesions of cervix - iatrogenic – Utero-vaginal prolapse – <i>Obstetric indications:</i> • Atonic PPH • Traumatic PPH • Adherent placenta with/without placenta accreta • Sepsis • Rupture uterus • Intractable PPH 														
<p>Were there intraoperative or postoperative complications during/following hysterectomy and were these documented?</p>	<table border="1"> <thead> <tr> <th data-bbox="606 1741 963 1778"><i>Intraoperative</i></th> <th data-bbox="971 1741 1347 1778"><i>Postoperative</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="606 1787 963 1823">Ureteric injury</td> <td data-bbox="971 1787 1347 1823">Catheterisation >10 days</td> </tr> <tr> <td data-bbox="606 1832 963 1868">Bladder injury</td> <td data-bbox="971 1832 1347 1868">Readmission within 30 days</td> </tr> <tr> <td data-bbox="606 1877 963 1914">Urethral injury</td> <td data-bbox="971 1877 1347 1914">Return to theatre within 72 hours</td> </tr> <tr> <td data-bbox="606 1923 963 1959">Bowel injury</td> <td data-bbox="971 1923 1347 1959">Blood transfusion</td> </tr> <tr> <td data-bbox="606 1968 963 2004">Nerve injury</td> <td data-bbox="971 1968 1347 2004">Venous thromboembolism</td> </tr> <tr> <td data-bbox="606 2013 963 2050">Estimated blood loss >500 mL</td> <td data-bbox="971 2013 1347 2050">Death</td> </tr> </tbody> </table>	<i>Intraoperative</i>	<i>Postoperative</i>	Ureteric injury	Catheterisation >10 days	Bladder injury	Readmission within 30 days	Urethral injury	Return to theatre within 72 hours	Bowel injury	Blood transfusion	Nerve injury	Venous thromboembolism	Estimated blood loss >500 mL	Death
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Was there need for correction of anaemia by blood transfusion/ parenteral iron?	
Was the hysterectomy covered by an insurance scheme?	
What was the cost incurred due to hysterectomy, including related interventions/treatment before, during, and after the procedure?	
For prolapse surgery	<ul style="list-style-type: none"> • Outcome following various surgical procedures for PHVP. • Development of SUI following surgery for PHVP. • Sole and concomitant procedures • Primary and repeat operations for prolapse
Whether prespecified methods (in person, telephonic, mail, etc.) and numbers of follow-up were done?	<ul style="list-style-type: none"> • Yes/No • Intervals of follow-up visits
Any measure of patient improvement after hysterectomy followed? e.g. Global impression of improvement (GII) after surgery?	<ul style="list-style-type: none"> • Yes/No

CONSENT

Consent taking is very important before performing any surgical procedure. The surgeon has to explain the following points to the patient:

- Surgical procedure in detail (vaginal or open or laparoscopic)
- About indication and purpose of surgery
- About any extra procedure to be performed along with the main surgery (removal of one or both ovaries)
- About immediate, early, and late risk associated with the surgical procedure
- Anaesthesia-related complications
- About all alternative management like conservative and medical.

CONCLUSION

- VH is the approach of choice whenever feasible and is still considered the preferred route of hysterectomy, but LH is an appropriate alternative minimally invasive approach (strong and moderate).
- LH is a preferable alternative to open abdominal hysterectomy for those patients in whom a VH is not indicated or feasible.
- For LH, RH has no advantages and is associated with higher costs.
- For an individual patient, the surgeon should account for clinical factors and determine which route of hysterectomy will most safely facilitate removal of the uterus and optimize patient outcomes, given the clinical situation and surgeon training and experience.
- Selection of the route of hysterectomy for benign causes can be influenced by the size and shape of the vagina and uterus; accessibility to the uterus (e.g., descensus and pelvic adhesions); extent of extrauterine disease; the need for concurrent procedures; surgeon training, and experience; average case volume; available hospital technology, devices, and support; whether the case is emergent or scheduled; and preference of the informed patient.
- The obstetrician–gynecologist should discuss the options with the patient and make clear recommendations on which route of hysterectomy will maximize benefits and minimize risks given the specific clinical situation.
- The relative advantages and disadvantages of the approaches to hysterectomy should be discussed in the context of the patient’s values and preferences, and the patient and health-care provider should together determine the best course of action after this discussion.

- Opportunistic salpingectomy can be considered at the time of hysterectomy, but the planned surgical approach should not be changed for this sole purpose. Opportunistic salpingectomy usually can be safely accomplished at the time of VH.

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Disclaimer - These recommendations for "Advances in Hysterectomy" have been developed, to be of assistance to obstetricians, gynecologists, consulting physicians and general practitioners by providing guidance and recommendations for managing women with anemia and suffering from hemorrhagic conditions. The recommendations included here shouldn't be viewed as being exclusive of other concepts or as covering all legitimate strategies. The suggestions made here are not meant to dictate how a particular patient should be treated because they neither set a standard of care nor do they guarantee a particular result. To diagnose patients, choose dosages, and provide the best care possible while also taking the necessary safety precautions, clinicians must rely on their own experience and knowledge. The writers or contributors disclaim all responsibility for any harm and/or damage to people or property resulting from the use or operation of any techniques, goods, guidelines, or ideas presented in this content.