



Total Laparoscopic Hysterectomy Versus Abdominal Total Hysterectomy

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Hysterectomy is one of the most prevalent surgical procedures in the United States. Vaginal hysterectomies have been successfully performed for nearly two centuries. Abdominal hysterectomy remains the most prevalent surgical strategy, with laparotomies accounting for well

over half of all hysterectomies. With technology advancement more and more better surgical procedures are being developed which are less invasive and have less complications, Abdominal total Hysterectomy was for many years the gold standard for many cases until development of Total Laparoscopic Hysterectomy, which overall has better recovery time, less blood loss, less tendency of infection and less minor complications. This review aims to compare abdominal total hysterectomy and total laparoscopic hysterectomy in terms of recovery and complications.

Keywords: Hysterectomy; laparoscopic; surgery; complications; tumor; uterus.

1. INTRODUCTION

With 570,000 instances performed in 2006, hysterectomy is one of the most prevalent surgical procedures in the United States. Vaginal hysterectomies have been successfully performed for nearly two centuries, and Reich and colleagues just presented the laparoscopic hysterectomy. Despite the introduction of these minimally invasive methods, abdominal hysterectomy remains the most prevalent surgical strategy, with laparotomies accounting for well over half of all hysterectomies [1].

Palmer began using gynaecological laparoscopy surgery at the end of the 1950s. While adhesiolysis, cyst aspiration, and ovarian biopsy were initially performed, Reich et al. described the first laparoscopic assisted vaginal hysterectomy case in 1989. opposed to abdominal hysterectomy, laparoscopic hysterectomy has been increasingly adopted as an alternative to abdominal hysterectomy due to lower morbidity and a shorter recovery time. However, due to the need for rigorous surgical education and equipment, many gynaecologists still prefer abdominal surgery [2].

Total abdominal hysterectomy (TAH) with salpingo-oophorectomy is the standard treatment for uterine hyperplasia, carcinoma, or sarcoma. and lymph node biopsy is undertaken when the pathologic stage is greater than IB or the tumour grade is 3. For clinical stage I endometrial cancer patients, laparoscopic-assisted vaginal hysterectomy (LAVH) with appropriate node dissection was described in 1993 as an alternative to TAH [3,4,5]. LAVH has also been demonstrated to be an effective treatment for endometrial cancer in women over the age of 75, with similar blood loss, node counts that are equal to or greater than TAH, longer operating times, shorter hospital stays, and less pain. Similar total consequences, less blood loss, longer operating periods, less transfusions, less discomfort, and shorter

hospital stay and impairment were observed in randomised trials comparing TAH versus LAVH for benign reasons [3,6-12].

When compared to the traditional laparotomy approach for early stage endometrial cancer, laparoscopy is a less intrusive procedure. The laparoscopic technique has been proved to be an effective and safe alternative to the open operation in several retrospective and prospective investigations. When compared to laparotomy, the majority of these studies reveal a considerable reduction in treatment-related morbidity, with shorter hospital stays, less discomfort, and faster return to normal activities [13- 23].

While TAH is a well-accepted and efficient treatment, it is also quite invasive, leaves a visible scar, and is associated with morbidity. The same operation can be performed by laparoscopy as an alternative treatment [13].

In this review we will be looking into comparing the two methods when it come to procedure, usage, outcomes, and the overall advantages and disadvantages of them.

2. ABDOMINAL TOTAL HYSTERECTOMY

TAH is a basic operation that gynaecologists must master. It involves removing the uterus together with the outer wall of the uterus. Ureteral injury, intestinal damage, and bladder injury are all possible side effects of TAH [24]. In the United Kingdom and the United States, hysterectomy is the most common major gynecologic operation. Other therapies for dysfunctional uterine haemorrhage are associated with lower patient satisfaction rates. However, because hysterectomy affects local nerve supply and anatomical linkages, it's possible that general pelvic organ function will suffer [25].

The uterus is removed through an incision in the abdominal wall during an abdominal

hysterectomy. abdominal hysterectomy was first performed, When vaginal hysterectomy was needed to address uterine prolapse or inversion in 1843. later In 1989, laparoscopic assistance was approved to help with minimally invasive hysterectomy, and the robotic-assisted procedure was approved in 2005. Hysterectomy is now performed using abdominal, vaginal, laparoscopic, robot-assisted, and a combination of vaginal and laparoscopic procedures. The surgical technique to hysterectomy is determined by the clinical indication, the surgeon's technical skill, the resources available, the patient's overall health, and the patient's preference [26].

Large uterine size has been cited as a common cause for choosing the abdominal hysterectomy procedure, as it is anticipated that a bigger uterus may require greater sight and exposure due to higher risks of blood loss, harm to nearby viscera, and longer operating periods [26].

TAH is indicated in the following conditions: (1) uterine fibroids, (2) uterine adenomyosis, (3) cervical cancer (to stage Ia), (4) endometrial cancer, (5) uterine sarcoma, (6) ovarian cancer, (7) choriocarcinoma of the uterus, and (8) patients with postpartum severe bleeding that does not stop (e.g., placenta previa, atonic bleeding, uterine rupture) [24].

3. TOTAL LAPAROSCOPIC HYSTERECTOMY

When compared to abdominal hysterectomies, laparoscopic hysterectomies have been linked to less blood loss, a shorter hospital stay, a faster return to regular activities, and fewer abdominal wall infections [1].

In Comparison also to laparotomy, laparoscopy has several significant advantages. Laparoscopic instruments' magnification allows for simple access to the uterine arteries, ureter, rectum, and vagina. Laparoscopy has advanced considerably in the last 30 years, thanks to advancements in video camera and electrical surgery technologies. For many gynaecological illnesses, including benign conditions and endometrial cancer, traditional laparoscopy with three or four tiny incisions has become the gold standard [27].

Only a few surgeons who perform total laparoscopic hysterectomy have shared their methods and outcomes. Different surgeons utilise different terminology and techniques for

total laparoscopic hysterectomy, such as energy sources, the use of uterine manipulators, vaginal tubes, uterine artery ligation, and vault closure. This makes it difficult to compare the literature, procedures, and complication rates objectively [28].

Urinary tract injury is still the key worry in TLH, In a 2006 meta-analysis that included 3643 patients in 27 studies, Johnson et al. found that the risk of urinary tract injuries was higher in LH than it was during abdominal-incision hysterectomy (AH), but no significant difference in the rate of damage when LH was compared to vaginal hysterectomy (VH) [27]. VH was also found to be preferred to AH in a metaanalysis, and LH was indicated as an option where VH was not possible, such as in situations of larger uterus or small pelvic arch. During LH, Garry et al. observed ureter and bladder damage of up to 11.1 percent. Other study, on the other hand, found that LH was not linked to a high rate of significant problems, especially in the hands of skilled practitioners [27].

Despite technological advancements, uterine size remains a relative contraindication. Other relative contraindications could include any technical issues with abdominal entrance and a high BMI. Abdominal entry would be challenging in women who had previous caesarean sections or laparotomies, especially with a midline incision, which has a 50% likelihood of organ adhesion. When compared to women with a lower BMI, the rate of significant intra-operative problems is higher in obese patients (body mass index greater than 30). The challenges associated with anaesthesia and the formation of pneumoperitoneum in obese women are discussed in many researches [29,30,31].

Total laparoscopic hysterectomy has become a well-tolerated and efficient procedure thanks to recent advancements in technology, surgical procedures, and training. Because of the benefits to patients and surgeons, it is becoming more widely used around the world [28].

4. STUDIES COMPARING THE TWO METHODS

4.1 In a Study that Looked Up into the Surgery Results of the Patients Undergoing Hysterectomy for Uterine Neoplasia

There were 105 patients in the research, 29 with TAH and 76 with TLH. TAH patients were in their

later years (68 vs. 61). When age was taken into account, the surgery time was similar (152 minutes). TAH had a higher average blood loss (504 vs. 138 mL). Patients with TAH stayed in the hospital for substantially longer than those with TLH (5.4 vs. 1.8 days). In the TAH group, myometrial invasion was more severe (48 percent outer half vs. 17 percent). The TAH group had more patients with Stage II or higher illness (35 percent vs. 17 percent). Node dissection was required for more TAH patients (79 percent vs. 28 percent). In this limited sample, total and reoperative complications from TAH versus TLH were not significantly different (14.3 vs. 5.2 percent total, NS; 10.3 vs. 2.6 percent reoperative) [3].

In a meta-analysis compared the two methods for endometrial cancer, Nine randomized trials with a total of 1,263 participants were included in the study for early-stage endometrial cancer. TLH was linked to a decreased risk of significant complications, overall complications, and postoperative complications in meta-analyses. There were no discernible differences in the risks of intraoperative complications or mortality. Finally, the findings show that TLH is superior than TAH in terms of significant complications, overall problems, and postoperative complications in patients with endometrial cancer [32].

In another study for 10 women who underwent total abdominal hysterectomy and 10 women who underwent laparoscopically assisted vaginal hysterectomy, the perioperative and postoperative courses of hysterectomy with or without bilateral salpingo-oophorectomy were compared. Although the laparoscopic hysterectomy took longer (160 versus 102 minutes), the women who underwent it spent less time in the hospital (2.4 versus 4.4 days), recovered faster (3 versus 5 weeks), and experienced fewer problems [33].

Total laparoscopic hysterectomy patients had a considerably longer operation time. The total laparoscopic hysterectomy groups had significantly less blood loss. In favour of total laparoscopic hysterectomy, there was a non-significant tendency toward shorter hospital stays (two RCTs) [34].

In another comparative study looked at age, BMI, previous abdominal surgery, uterine weight, first postoperative day haemoglobin drop, blood transfusion, and major or minor complications

rate, there were no statistically significant differences between the two groups. Laparoscopic hysterectomy took much longer than abdominal hysterectomy (156+/-40 and 91.2+/-33 minutes, respectively), but the hospital stay was significantly shorter (3.9 and 6.55 days, respectively) [35].

4.2 In Comparison between Different Methods of Hysterectomy

Abdominal hysterectomy (AH; 10 days) had the longest hospital stay, followed by vaginal hysterectomy (VH; 7.8 days) and laparoscopy-assisted vaginal hysterectomy (LVH; 7.8 days) (LAVH; 7.2 days). LASH (5.9 days) and complete laparoscopic hysterectomy had the shortest hospital stays (TLH; 5.7 days). VH had the shortest operational duration (87 minutes) while LAVH had the longest (122 min). LASH (1.38 g/dL) and TLH (1.51 g/dL) had the lowest blood loss rates. After AH, there was the highest risk of postoperative problems (8.9 percent). In terms of postoperative satisfaction or surgery for prolapse or incontinence, no differences were discovered [36].

After looking into different studies when compare the two methods as follows:

- **Operation Duration:** most studies indicate that the average operation time for Total Laparoscopic Hysterectomy is higher than Abdominal total Hysterectomy
- **Recovery time:** recovery time seems to be in favor of Total Laparoscopic Hysterectomy, as patients underwent the procedure spend less time at the hospital
- **Blood loss:** Due to Total Laparoscopic Hysterectomy being less invasive it tends to cause less blood loss than Abdominal total Hysterectomy
- **Complications:** it's seems that so far there's no strong evidence suggest that Total Laparoscopic Hysterectomy causes less major complications than Abdominal total Hysterectomy, however when it comes to minor complications TLH has the upper hand

5. DISCUSSION

Total abdominal hysterectomy (TAH) is the conventional treatment for early-stage

endometrial cancer, however total laparoscopic hysterectomy (TLH) is less invasive and is thought to be associated with lower morbidity.

A perioperative complication was considerably less common in patients who had a total laparoscopic hysterectomy. There was no difference in major complication rates between complete laparoscopic hysterectomy and total abdominal hysterectomy patients when minor versus major issues were evaluated, while total laparoscopic hysterectomy patients had significantly fewer minor difficulties. In total laparoscopic hysterectomy patients, there was a non-significant tendency toward less haematoma. Total laparoscopic hysterectomy patients had a considerably longer operation time. The total laparoscopic hysterectomy groups had significantly less blood loss). In favour of total laparoscopic hysterectomy, there was a non-significant tendency toward shorter hospital stays (two RCTs) [34].

For patients with endometrial cancer, previous prospective controlled studies demonstrated that TLH was a successful, less invasive, and safe alternative to TAH [32].

Despite the availability of evidence-based studies, gynecologic surgery specialists have been slow to incorporate both laparoscopic and vaginal hysterectomy into their practises. This tendency is likely to continue in the foreseeable future. Laparoscopic linked hysterectomy has been reluctant to catch on [37].

For many women, hysterectomy alternatives can deliver great treatment outcomes. In general, these options are underutilised. Alternative treatments are ineffective for some women, and hysterectomy is the best option. The laparoscopic technique of hysterectomy offers women less postoperative discomfort, a shorter hospital stay, and a faster recovery time. There have been few large-scale randomised prospective studies comparing the risks and benefits of this method to traditional hysterectomy. Furthermore, evidence on the effectiveness of the procedure, which is performed by a big number of gynaecologists, is still lacking [38].

Total laparoscopic hysterectomy will gradually take over justifications for total abdominal hysterectomy as more surgeons become skilled in sophisticated laparoscopic surgery. Surgeons must continue to share their knowledge and disclose their techniques, outcomes, and

complications. Before undergoing a total laparoscopic hysterectomy, advanced laparoscopic training and monitoring are essential to avoid problems [28].

6. CONCLUSION

Different studies that we looked at doesn't show strong correlation for Total Laparoscopic Hysterectomy and less major complication than Abdominal total Hysterectomy, and for that reason and for other reasons such as the lack of experience and training of surgeons performing TLH, the method has been not adopted yet by many surgeons. Depending on the surgeon experience, the patient condition should the suitable method be used.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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