International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622

www.gynaecologyjournal.com
2020; 4(3): 188-191
Received: 01-03-2020
Accepted: 05-04-2020

Dr. Pooja Gupta
Associate Professor, Department of Obstetrics & Gynecology
Dr. RML institute of Medical Sciences, Lucknow, Uttar Pradesh, India

Dr. Subrat Chandra
Professor, Junior Grade, Department of Pathology
Dr. RML institute of Medical Sciences, Lucknow, Uttar Pradesh, India

Dr. Rupita Kulshrestha
Assistant Professor, Department of Obstetrics & Gynecology, Mayo Institute of Medical Sciences, Barabanki, Uttar Pradesh, India

Dr. Manish Raj Kulshrestha
Associate Professor, Department of Biochemistry, Dr. RML institute of Medical Sciences, Lucknow, Uttar Pradesh, India

Dr. Sandali Ghai
Consultant, Obstetrics & Gynecology, Ghai Hospital, Jalandhar, Punjab, India

Corresponding Author:
Dr. Rupita Kulshrestha
Assistant Professor, Department of Obstetrics & Gynecology, Mayo Institute of Medical Sciences, Barabanki, Uttar Pradesh, India

A comparative study between Total Laparoscopic Hysterectomy (TLH) and conventional Total Abdominal Hysterectomy (TAH) in non-neoplastic uterine diseases

Dr. Pooja Gupta, Dr. Subrat Chandra, Dr. Rupita Kulshrestha, Dr. Manish Raj Kulshrestha and Dr. Sandali Ghai

DOI: https://doi.org/10.33545/gynae.2020.v4.i3d.599

Abstract
Introduction: In the past decade, laparoscopic route of surgery has been on an increase especially for non-neoplastic uterine diseases. The present study aims to study and compare between Total Laparoscopic Hysterectomy (TLH) and conventional TAH (Total Abdominal Hysterectomy) in terms of characteristics like blood loss, operative time, intraoperative complications, postoperative pain & mobilisation, analgesic requirements, duration of hospital stay and finally patient satisfaction.
Materials and methods: In this randomized prospective comparative study, 100 consecutive patients of hysterectomy (50 each of total TAH and TLH) at a tertiary care center in western India, were recruited. The present study aims to study and compare between TLH and conventional TAH (Total Abdominal Hysterectomy), in non-neoplastic uterine diseases, in terms of characteristics like blood loss, operative time, intraoperative complications, postoperative pain & mobilisation, analgesic requirements, duration of hospital stay and finally patient satisfaction.
Results: We observed that average blood loss, postoperative pain and analgesic requirement and mean length of hospital stay in TLH was lesser than TAH group ($p< 0.001$). An average time taken for TLH as well as patient satisfaction level was more ($p< 0.001$) than that in TAH group. Intraoperative complications were comparable and not significantly different among the two procedures. Mobilization after the procedure was quicker in laparoscopic hysterectomy.
Mobilization of patients during postoperative period was significantly earlier ($p< 0.0001$) in TLH group (12.2 hours) while in TAH (22.3 hours. Patient satisfaction level was 90% in patients in TLH group while only 60% for patients in TAH group.
Conclusion: TLH is a safe and effective method of doing hysterectomy and it is a good alternative of conventional abdominal hysterectomy, especially after good training to standardized the procedure, proper case selection, day to day practice of the technique and application of sound surgical principles.

Keywords: Total laparoscopic hysterectomy (TLH), total abdominal hysterectomy (TAH), comparative study

Introduction
Hysterectomy is the most common major gynaecological procedure [1]. Earlier, the routes of doing hysterectomy were only abdominal and non-descent vaginal for uterine myoma and adenomyosis but diversification started from abdominal to laparoscopy assisted vaginal further to total laparoscopic routes since Reich *et al*. reported laparoscopic hysterectomy in 1989 [2].
In the past decade, laparoscopic route of hysterectomy has been on an increase especially for non-neoplastic uterine diseases. The reduction in morbidity associated with Total Laparoscopic Hysterectomy (TLH) has resulted in explosive increase in number of these procedures performed on women in the reproductive age group. Minimal invasive surgery, like TLH, avoids the need for traditional surgical incision, which is a major cause of postoperative pain, morbidity and prolonged recovery time. The present study aims to study and compare between Total Laparoscopic Hysterectomy (TLH) and conventional Total Abdominal Hysterectomy (TAH), in non-neoplastic uterine diseases, in terms of characteristics like blood loss, operative time, intraoperative complications, postoperative pain & mobilisation, analgesic requirements, duration of hospital stay and finally patient satisfaction. This will enable us to define a comparison about safety, acceptance and other implications between both the surgical procedures.

Materials and Methods

In this randomized prospective comparative study, 100 consecutive patients of hysterectomy (50 each of TAH and TLH) at a tertiary care center in western India, were recruited. Only the hysterectomies done for non-neoplastic conditions of uterus were included.

Preoperative evaluation with informed consent was done to select appropriate candidates. All procedures were done by the same team of surgeons. Routine standard protocols such as prophylactic antibiotics, thromboprophylaxis and attention to surgical technique were followed to provide optimal outcome in all the cases.

Exclusion criteria for laparoscopic approach were uterine size >14 weeks, previous three or more abdominal surgeries, presence of coexisting adnexal masses and patients with cardiorespiratory compromise who are not fit for general anaesthesia.

Details of each surgery in terms of duration of procedure (time interval between from making skin incision till placement of last skin suture over abdomen), assessment of blood loss during the procedure (measured as amount of blood in suction aspirator in both procedure and adding amount of blood soaked in surgical mops of standard size 5x7 inches, full soaked mop= 100 ml and half soaked mop = 50 ml, in cases of abdominal hysterectomy), occurrence of intraoperative complications, assessment of postoperative pain and subsequent analgesic requirement (based on visual analogue scale, more than 50% pain required analgesics), and patient satisfaction level (questionnaire based assessment done at the time of first follow up visit after discharge for stitch removal at the hospital) in both the procedures were properly recorded.

All specimens were sent for histopathological analysis and final diagnosis of the cases were taken as per the histopathology report. All details were tabulated and analyzed on SPSS 20 software.

Results

In our study, patient characteristics in both the groups were comparable (Table 1). Uterine myoma was the most common final diagnosis in both the groups followed by adenomyosis and endometrial hyperplasia (Table 2).

We observed that average blood loss in TLH was 237 ml i.e. 61 ml lesser ($p< 0.001$) than TAH group where it was 298 ml. An average time taken for TLH (151.2 minutes) was 22 minutes longer ($p< 0.001$) than that in TAH group (129.2 minutes). For intraoperative complications, in TLH there was one case of inferior epigastric vessel injury and one case of previous two LSCS had to be converted to abdominal hysterectomy due to presence of dense pelvic adhesions which made laparoscopic surgery very unsafe. Furthermore, there were no urinary tract related injury during laparoscopic procedures while in TAH there was one case of urinary bladder injury which occurred during its dissection over cervix.

Postoperative pain and analgesic requirement were lower in the TLH group as compared to TAH group; analgesic requirement (judged as ≥ 50% on visual analogue scaling for pain) for TAH patients were 80%, 40%, 16% on first, second and third postoperative days while the similar figures for TLH were 40%, 8% and 0% (none) respectively which is statistically significant ($p< 0.001$) (Table-1)

Mobilization of patients during postoperative period was significantly earlier ($p< 0.0001$) in TLH group (12.2 hours) while in TAH (22.3 hours). Mean length of hospital stay was significantly lower ($p< 0.001$) in TLH group (3.84 days) than that in TAH group (5.6 days). Patient satisfaction level was 90% in patients in TLH group while only 60% for patients in TAH group.

Discussion

According to a survey by the Japan Society for Endoscopic Surgery, the number of laparoscopic surgery for benign gynecological diseases increased by approximately 8 times from 2000 to 2017, and the number of TLH increased by approximately 1.7 times from 2014 to 2016 [3]. This upsurge in minimal invasive surgeries in comparison with abdominal route could be explained as TLH has the advantages of lesser blood loss, longer operative time, shorter hospital stay, decreased postoperative pain and better cosmesis [4-7, 12-16].

The total operative time in TLH was significantly longer than TAH. This is due to the smaller field of vision and being technically advanced method of surgery requiring more experience on the part of surgeon as dealing with the anatomy in the pelvis during TLH is difficult, thereby increasing the procedure time and requiring more attention to complications, such as intraoperative bladder & ureteral injury, than TAH [8, 9]. Also, careful maintenance of hemostasis using an enlarged visual field and that of the transvaginal uterine manipulations are time consuming [12]. Authors opine that operation time can be shortened along with improvement of the technique of the operator. Meanwhile, Taniguchi F et.al have reported that in TLH minor complications have decreased while serious complications have increased [9]. Komatsu *et al*. have reported that the procedures that greatly affect the operation time are ureteral identification and uterine artery processing on the learning curve of TLH [11].

H. Nagata *et al*. also reported findings, similar to our study, that intraoperative blood loss and the duration of hospital stay in TLH is less than in TAH [12]. The probable reason they explained was that having an enlarged visual field can easily check for bleeding points & microvessels and also it may be with the use of powered devices, like bipolar diathermy and ultrasonic coagulation cutting devices etc. [12, 13] The reason for better postoperative comfort in TLH was that it requires only a small skin incision, thereby resulting in reduced postoperative pain and minimal blood loss; consequently, patients can quickly resume the postoperative activities of daily living.

As such proper case selection matters the successful outcome of any surgical procedure. TLH is often selected for cases such as cervical dysplasia and endometrial hyperplasia, with lesser uterine size in preoperative evaluation, and this procedure may contribute to a reduction in complications and blood loss. The frequency of perioperative complications between the two groups was not found significantly different on our study, and TLH could contribute to patients' quality of life, as also observed by H. Nagata *et al*. [12]. Oksuzoglu A *et al*. studied the Comparison of tissue trauma after abdominal, vaginal and total laparoscopic hysterectomy using measurement of interleukin-6 (IL-6) and creatine phosphokinase (CPK) during pre-, intra-operatively and 2, 6 and 24 h after surgery by doing this they concluded that TAH causes more tissue trauma as compared to VH and TLH. Due to the fact that TLH is associated with less tissue trauma and offers significant clinical benefits, including less blood loss and shorter hospital stay it should be considered in women with benign gynecologic conditions, especially in

experienced centers [14]. In the present study though we have not studied the inflammatory cytokines levels but the final outcome regarding blood loss, postoperative clinical condition and duration of hospital stay is similar to that of their study.

Kongwattanakul K and associate studied comparison of laparoscopically assisted vaginal hysterectomy and abdominal hysterectomy on 50 thai patients and concluded that The LAVH has advantages that there is less intraoperative blood loss, less postoperative morphine requirement, and a shorter duration of postoperative hospital stays as compared to TAH [15]. this is also similar to our study owing to the fact that LAVH is a preliminary stage of TLH in the learning curve.

However, in this study we did not observed any serious complication in laparoscopic procedure like urinary tract injury. there was one bladder injury in abdominal procedure. Complication rate was not significantly different among the two procedures. Further large studies may be required to give even more elaborated results over other aspects of these procedures.

Conflict of interest: none

Conclusion

The present study concludes that TLH is a safe and effective method of doing hysterectomy and it is a good alternative of conventional abdominal hysterectomy, especially after good training to standardized the procedure, proper case selection and application of sound surgical principles

TLH is definitely a better procedure owing to lesser tissue trauma [14], better cosmesis, reduced hospitalization duration, less postoperative pain & analgesic requirement [15] and early ambulation as compared to TAH. Though the procedure is lengthier than conventional surgery and has slightly higher rate of complications, but technique has to be mastered and curve of learning has to be elevated by more day to day practice of the technique [16].

To conclude, TLH is an effective surgery with better postoperative comfort and patient satisfaction especially if case selection is meticulous.

Observations

Table 1: Study group characteristics

Characteristics	TLH	TAH	P value
Age (years)	47(40-58)	44(38-60)	0.27
Body mass index (BMI)	26.4 (22.5-32.3)	27.8(23.1 – 35.3)	0.94
Previous abdominal surgeries (percentage)	36%	40%	0.78

Table 2: Details of characteristics studied in both hysterectomy groups

Characteristics studied (average)	TLH (n= 50)	TAH (n=50)	P value
Blood loss (ml)	237	298	< 0.001
Operating time (minutes)	151.2	129.2	< 0.001
Intraoperative complications	4%	2%	0.659
Postoperative pain (≥ 50% pain, requiring analgesia) on day 1*	40%	80%	< 0.001
Postoperative pain (≥ 50% pain, requiring analgesia) on day 2*	8%	40%	< 0.001
Postoperative pain (≥ 50% pain, requiring analgesia) on day 3*	00%	16%	< 0.001
Hospital stay (days)	3.8	5.6	< 0.0001
Postoperative mobility (hrs)	12.2	22.3	< 0.0001
Patient satisfaction	90%	65%	< 0.001

*Based on Visual Analogue Scale

Table 3: Postoperative diagnosis in both hysterectomy groups as per the histopathology report.

Postoperative diagnosis	TLH	TAH
Uterine myoma	18 (38%)	21 (42%)
Adenomyosis	14 (28%)	5 (30%)
Endometrial hyperplasia	06 (12%)	04 (08%)
Chronic pelvic infection	01 (02%)	02 (02%)
Cervical dysplasia	04 (08%)	01 (02%)
Endometriosis	7 (14%)	06 (12%)
Total	50 (100%)	50 (100%)

Table 4: Intraoperative complications in both hysterectomy groups.

Intraoperative complications	TLH (%)	TAH (%)
Urinary bladder injury	-	1(2%)
Inferior epigastric vessel injury	1(2%)	-
Conversion to laparotomy	1(2%)	-
Total	2(4%)	1(2%)

References

1. Moen M. Hysterectomy for Benign Conditions of the Uterus: Total Abdominal Hysterectomy.
2. Obstet Gynecol Clin North Am. 2016; 43(3):431-40. doi: 10.1016/j.ogc.2016.04.003.
3. Reich H, DeCaprio J, McGlynn F. Laparoscopic hysterectomy. J Gynecol Surg, 2009, 5. DOI: 10.1089/gyn.1989.5.213

4. Japan society for endoscopic surgery. 14th Nationwide Survey of Endoscopic Surgery in Japan. Journal of Japan Society for Endoscopic Surgery. 2018; 23:839-49. DOI: 10.11477/mf.4426200633
5. Schindlbeck C, Klauser K, Dian D, Janni W, Friese K. Comparison of total laparoscopic, vaginal and abdominal hysterectomy. Arch Gynecol Obstet. 2008; 277:331-7. PMID: 17938945, DOI: 10.1007/s00404-007-0481-7
6. Protopapas A, Jardon K, Bourdel N, Botchorishvili R, Rabischong B, Mage G *et al*. Total laparoscopic radical hysterectomy in the treatment of early cervical cancer. Int J Gynecol Cancer. 2009; 19:712-22. PMID: 19509577, DOI: 10.1111/IGC.0b013e3181a3e2be
7. Istre O, Snejbjerg D. Complication Rate of Laparoscopic Hysterectomies in Denmark, 2011–2016. JSLS. 2018; 22:e2017.00078. PMID: 29551880, DOI: 10.4293/ JSLS.2017.00078
8. Janda M, Gebski V, Brand A, Hogg R, Jobling TW, Land R *et al*. Quality of life after total laparoscopic hysterectomy versus total abdominal hysterectomy for stage I endometrial cancer (LACE): a randomised trial. Lancet Oncol. 2010; 11:772-80. PMID: 20638899, DOI: 10.1016/S1470-2045(10)70145-5
9. Benson CR, Thompson S, Li G, Asafu-Adjei D, Brandes SB. Bladder and ureteral injuries during benign hysterectomy: an observational cohort analysis in New York State. World J Urol. 2018, 1-6. PMID: 30406476, DOI: 10.1007/s00345-0182541-y
10. Taniguchi F, Wada-Hiraike O, Hirata T, Tajima H, Masuda H, Kitade M, *et al*.; Surgical Outcome Research Committee in Japan Society of Gynecologic and Obstetric Endoscopy and Minimally Invasive Therapy (JSGOE). A nationwide survey on gynecologic endoscopic surgery in Japan, 2014-2016. J Obstet Gynaecol Res. 2018; 44:2067-76. PMID: 30125428, DOI: 10.1111/jog.13774
11. Yi Y, Zhang W, Zhou Q, Guo W, Su Y. Laparoscopic-assisted vaginal hysterectomy vs abdominal hysterectomy for benign disease: a meta-analysis of randomized controlled trials. Eur J Obstet Gynecol Reprod Biol. 2011; 159:1-18. PMID: 21664034, DOI: 10.1016/j.ejogrb.2011.03.033
12. Komatsu H, Taniguchi F, Nagata H, Nakaso T, Nagaya Y, Tsukihara S. Retrospective evaluation of the crucial factor in total laparoscopic hysterectomy by using video review. Laparosc Surg. 2019, 3(23). DOI: 10.21037/ls.2019.05.05
13. Nagata H *et al*. Comparison of Total Laparoscopic Hysterectomy with Abdominal Total Hysterectomy in Patients with Benign Disease: A Retrospective Cohort Study Yonago Acta Medica 2019; 62(4):273–277 Doi: 10.33160/yam.2019.11.002
14. Nieboer TE, Steller CJ, Hinoul P, Maxson AJ, Schwiers ML, Miller CE *et al*. Clinical utility of a novel ultrasonic vessel sealing device in transecting and sealing large vessels during laparoscopic hysterectomy using advanced hemostasis mode. Eur J Obstet Gynecol Reprod Biol. 2016; 201:135-9. PMID: 27124666, DOI: 10.1016/j.ejogrb.2016.03.035
15. Oksuzoglu A, Seckin B, Turkcapar AF, Ozcan S, Gungor T. Comparison of tissue trauma after abdominal, vaginal and total laparoscopic hysterectomy. Ginekol Pol. 2015; 86(4):268-73.
16. Kongwattanakul K, Khampitak K. Comparison of laparoscopically assisted vaginal hysterectomy and abdominal hysterectomy: a randomized controlled trial. J Minim Invasive Gynecol. 2012; 19(1):89-94. doi: 10.1016/j.jmig.2011.10.003. Epub 2011 Nov 30.
17. Agarwal P, Bindal N, Yadav R. Risks and Benefits of Total Laparoscopic Hysterectomy and the Effect of Learning Curve on Them J Obstet Gynaecol India. 2016; 66(5):379-84. doi: 10.1007/s13224-015-0706-9. Epub 2015 Jun 11.