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Original Research Paper

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TOTAL ABDOMINAL HYSTERECTOMY VERSUS LAPAROSCOPIC HYSTERECTOMY – A PROSPECTIVE STUDY OF OUTCOME MEASURES

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ABSTRACT

OBJECTIVE: The aim of this study is to evaluate and compare the intra and post operative results of total abdominal hysterectomy (TAH) and total laparoscopic hysterectomy (TLH) performed in our hospital. **MATERIALS AND METHODS:** We conducted a prospective study at Kamineni Hospital, Narketpalle in the Department of Obstetrics and Gynecology between January 2019 and December 2019, 30 patients who underwent TAH (Group 1) and 20 patients who underwent TLH (Group 2), were included. The mean age of the cases, body mass index (BMI), duration of operation, the amount of blood loss, post operative hospital stay and rates of complications were compared for the two groups. **RESULTS:** There were no statistically significant differences between the two groups regarding age, body mass index (BMI) and pre-operative hemoglobin values. The mean time of operation was significantly longer in group 2 than in group 1 (218 ± 46.8 vs 127 ± 31.6 min, p - < 0.00001). Blood loss was significant between TAH and TLH groups (350 ± 137.8 versus 210 ± 99.5 ml, p - 0.00042). The mean post-operative hemoglobin value was significantly higher in group 2 than group 1 (10.5 ± 0.9 vs. 9.5 ± 0.9 g%, p = 0.01). The mean duration of hospital stay was statistically longer in group 1 compared to group 2 (14 ± 8.1 vs. 9 ± 2 days, p = 0.00246). **CONCLUSION:** Total laparoscopic hysterectomy is safe and a feasible method for benign gynecological diseases when performed by an experienced surgeon. TLH may offer specific benefits for properly selected patients. Its advantages are lower peri-operative morbidity, improvement of quality of life, shorter hospital stay and faster return to activity.

KEYWORDS :

INTRODUCTION

Gynecological surgical laparoscopy started to be used by Palmer at the end of 1950s. [1]

Since the introduction of laparoscopic hysterectomy by Reich in 1989, it has become a widely accepted technique worldwide. Laparoscopic hysterectomy was reported to have lower post op morbidity, improved quality of life, less hospital stay, less blood loss when compared to laparotomy. [2][3]

Due to these factors laparoscopic hysterectomy started to be used progressively as an alternative to abdominal hysterectomy. Laparotomy is still a preferable technique by most of the surgeons.

Laparoscopic approach may not be feasible in patients with history of multiple abdominal surgeries, dense pelvic/ bowel adhesions and large fibroids and in morbid obesity where laparotomy takes the lead.

The aim of this study is to evaluate and compare the intra and post-operative results of Total Abdominal Hysterectomy (TAH) and Total Laparoscopic Hysterectomy (TLH) which were performed in our Hospital.

MATERIALS AND METHODS

A prospective study of fifty patients who underwent hysterectomy operation for benign gynaecological diseases were included in this study. The study was carried out from January 2019 to December 2019 (12 months) at Kamineni Hospital, Narketpalle, Department of Obstetrics and Gynecology. Malignancy was excluded from the study.

According to the surgical procedure performed, patients were divided into two groups. Group 1 had 30 patients who had undergone TAH operation while Group 2 had 20 patients who had undergone TLH operation. All of the patients had pre-operative endometrial biopsy performed.

Operative Technique

Both the TAH and TLH were performed by the gynecologists. Patients were generally admitted one day prior to surgery for bowel preparation. Intravenous antacids and metoclopramide 5mg was given as premedication to each patient half hour before operation. TAH and TLH were performed under spinal anaesthesia and general anaesthesia respectively. Supine position was used for TAH, whereas Trendelenburg position was used for TLH. In TAH, a Pfannensteil incision was made to proceed to hysterectomy.

TLH - The procedure was performed same as LAVH above the uterine artery level.

After laparoscopic dissection of the bladder flap and resection of the broad ligament, the uterine artery was coagulated by bipolar coagulation and was separated from the uterine sidewalls. Then bilateral coagulation and transection of the cardinal-uterosacral ligament complex were performed carefully. The cervicovaginal junction was confirmed with vaginal tube through the vagina. Circular colpotomy was then performed close to the cervix. The uterus was removed through the vagina and sent for histological examination. Endosutures were placed on the vaginal cuff.

The duration of operation was calculated from the first skin incision in TAH or incision for the Veress needle insertion in TLH to the last suture of the skin incision.Blood loss was calculated from aspiration and pad soakage. Postoperative medication was administered intravenously for analgesia and all of the patients received postoperative antibiotic prophylaxis.

Duration of hospital stay was calculated from the day of surgery to the day of discharge.

Patients were discharged when they were afebrile and after complete suture removal.

Outcome measures included; operating time, EBL, intraoperative and postoperative complications, postoperative analgesia requirements and length of hospital stay.

Intraoperative complications included bladder, bowel and ureteric injury and blood loss greater than 500ml.

Postoperative complications were subdivided into minor and major complications.

Minor complications included urinary tract infections (UTI), postoperative ileus, wound infection, postoperative pyrexia >38°C and vault haematomas conservatively managed.

Major postoperative complications included significant bleeding requiring return to theatre, vault/wound dehiscence and vault.

STATISTICAL ANALYSIS

Data was registered as mean ± standard deviation and percentage. Data analysis was done with chi square and student-t tests of SPSS (version 22) program. Descriptive statistical testing was utilised and a comparison of data made using the Mann-Whitney U test for continuous data and x^2 analysis for nominal data. P values of <0.05 were considered statistically significant.

RESULTS

TABLE 1 Distribution of baseline characteristics of patients

	TAH (n=30)	TLH (n=20)	p VALUE
AGE	44.25 ± 7.44	44.46 ± 7.74	0.92
BMI	25.4 ± 5.6	26.6 ± 4.7	0.43

Mean age and body mass index (BMI) of both of these two groups were similar and there was no statistically significant difference. Patients' baseline characteristics are shown on Table 1.

TABLE 2 Indications for surgery

	TAH (n=30)	TLH (n=20)	TOTAL (n=50)
FIBROID	13 (43.3%)	8 (40%)	21 (42%)
ADENOMYOSIS	2 (6.7%)	1 (5%)	3 (6%)
NON-ATYPICAL ENDOMETRIAL HYPERPLASIA	8 (26.7%)	6 (30%)	14 (28%)
ATYPICAL ENDOMETRIAL HYPERPLASIA	5 (16.6%)	4 (20%)	9 (18%)
OVARIAN CYST	2 (6.7%)	1 (5%)	3 (6%)

There was no significant difference noted between the two groups regarding the indication of surgery. The most common indication for hysterectomy was fibroid uterus. Patients characteristics and operation indications are shown on Table 2.

TABLE 3 Clinical results of patients

	TAH (n=30)	TLH (n=20)	P VALUE
Duration of surgery (min)[a]	127 ± 31.6	218 ± 46.8	< 0.00001
Blood loss (ml)[b]	350 ± 137.8	210 ± 99.5	0.00042
Pre operative Hb value (gm/dL)[a]	11.0 ± 1.1	11.4 ± 0.9	0.08
Post operative Hb value (gm/dL)[a]	9.5 ± 0.9	10.5 ± 0.9	0.01
Hospital stay (days)[a]	14 ± 8.1	9 ± 2	0.00246

The clinical results of patients are shown in Table 3.

In TLH group, the mean duration of surgery was significantly longer than in TAH group (218 ± 46.8 vs 127 ± 31.6 min, P- < 0.00001).

Pre operative haemoglobin values were not found to be significant between the two groups.

Blood loss (350 ± 137.8 versus 210 ± 99.5, P - 0.00042) and postoperative haemoglobin values were significant between TAH and TLH groups.

Mean hospital stay was longer for the TAH group as compared to the TLH group and was found to be significant.

Mean hospitalization time was shorter for patients who had undergone TAH (group 1) than patients who had undergone TLH (group 2) and this was statistically significant (14 ± 8.1 versus 9 ± 2 days, p< 0.00246).

TABLE 4 Comparison of intra operative complications

	TAH (n = 30)	TLH (n = 20)
Bowel Injury	0	0
Bladder Injury	2 (6.7%)	1 (5%)
Ureteric Injury	1 (3.3%)	0
Conversion to laparotomy	0	2 (10%)
No complications	27 (90%)	17 (85%)

- There were two cases of bladder injury in the TAH group compared to only one in the TLH group.
- There was single case of ureteric injury in the TAH group.
- Two cases of TLH were converted into TAH.

TABLE 5 Comparison of post operative complications

	TAH (n=30)	TLH (n=20)
Wound infection	6 (20%)	1 (5%)
Wound gaping + secondary suturing	6 (20%)	0
Blood transfusion	4 (13.3%)	1 (5%)
Post op fever	0	3 (15%)
UTI	1 (3.3%)	0
Vault hematoma	0	0
No complications	13 (43.4%)	15 (75%)

- 6 cases in the TAH group had postoperative wound infection while another 6 had wound gaping and needed secondary suturing.
- Only 1 case in the TLH group had port site infection.
- Postoperative blood transfusion was required for 4 cases in the TAH group compared to only one case in TLH group.
- One case in the TAH group developed UTI post operatively, while 3 cases in the TLH group had post operative fever spikes.

DISCUSSION

- Even though abdominal hysterectomy is the most frequented way of hysterectomy in the world, today we have a lot of techniques for hysterectomy. Uterus may be removed abdominally, vaginally or laparoscopically.
- In a lot of studies which compare abdominal and laparoscopic hysterectomy, because of lower complication incidence and lower postoperative pain, less blood loss, shorter hospitalization period, shorter healing time and earlier return to daily activities, laparoscopic hysterectomy is reported to have more advantages than abdominal hysterectomy [6][7][8][9].
- Laparoscopic surgery needs experience.
- While laparoscopic hysterectomy cases take a long time at the beginning, with progressive experience operation time gets shorter.
- Studies report that laparoscopic hysterectomy take longer operation time than abdominal hysterectomy.
- Olsson et al. and Härkki-Sirén et al. and Çelik et al. reported correspondingly that operation time for TLH is significantly longer than TAH. [10][11][12]
- But Seracchioli et al. reported no statistically significant difference between TLH and TAH operation time at their clinical trial which included 122 women who had a uterus larger than 14 week gestational age uterus [13].
- Similarly, Ribeiro et al. found that the operation time was shorter for vaginal hysterectomy, but no difference between that for TAH and TLH in their randomized prospective study which consisted of 60 patients and compared abdominal, vaginal and laparoscopic hysterectomy [14].

- In our study operation time was longer for patients who underwent TLH compared to the TAH group and it was also found to be statistically significant.
- In a lot of studies intraoperative and perioperative blood loss in laparoscopic hysterectomy was less than abdominal hysterectomy [10] [15][16][17].
- Raju and Auld, Çelik et al., Seracchioli et al. and Ribeiro et al. found no statistically significant difference in intra operative blood loss between TLH and TAH groups [8][12][13][14].
- In our study, there was a significant difference in intraoperative blood loss between the TAH and TLH groups, being much higher in the TAH group.
- When compared with open surgical procedures, laparoscopic surgery has less tissue trauma and less inflammatory response and is associated with less postoperative pain and shorter healing period [7][8][10] [11][15-19].
- Also, studies show that postoperative hospitalization time is shorter in laparoscopy group[10-12][17].
- Like other studies, in our study as well postoperative hospitalization period was statistically significantly shorter in the laparoscopy group.
- Complication rates in laparoscopic hysterectomy is close to other surgical procedures.
- Olsson et al. couldn't find a statistical difference between complication rates of TLH and TAH in their study which compared 71 TLH and 72 TAH cases. [10]
- Çelik et al. also couldn't find a statistically significant difference in their study which compared 47 TLH and 30 TAH cases [10][12].
- In the meta analysis of randomized controlled trials reported by Johnson et al., when compared with abdominal hysterectomy, laparoscopic hysterectomy cases had more urinary tract injuries, but there was no statistically significant difference with other visceral organ injuries[20].
- Garry et al. reported in their trial which included 1380 women, laparoscopic hysterectomy was related with more complications than abdominal hysterectomy[21].
- In our study, intraoperative complications like bladder injuries were seen in 2 TAH cases and one TLH case.
- Ureteric injury was seen in one case of TAH which was picked up intraoperatively and repaired immediately.
- Two cases of TLH were converted into laparotomy intraoperatively.

CONCLUSION

- Laparoscopic hysterectomy is an emerging alternative to abdominal and difficult non descent vaginal hysterectomy.
- Though operating time in TLH is longer, it is more beneficial than the traditional TAH for decreasing the length of postoperative hospital stay and intra operative blood loss with no difference in operative complications, less peri-operative morbidity, better life quality and faster return to activity.
- However, for patients with more complex pathology, the choice between laparoscopic hysterectomy and TAH will depend on the surgeon's experience and expertise.
- In conclusion, laparoscopic hysterectomy is a safe and suitable procedure for chosen patients.

REFERENCES

1. Reich H. New techniques in advanced laparoscopic surgery. Baillieres Clin Ob¬stet Gynaecol 1989;3:655-81.
2. Nezhat, F., Nezhat, C., Gordon, S. and Wilkins, E. (1992) Laparoscopic versus abdominal hysterectomy. J. Reprod. Med. , 37, 247–250.
3. Phipps, J.H., Jhon, M. and Nayak, S. (1993) Comparison of laparoscopically assisted vaginal hysterectomy and bilateral salpingo-oophorectomy with conventional abdominal hysterectomy and bilateral salpingo-oophorectomy. Br. J. Obstet. Gynaecol. , 100, 698–700.
4. Chapron, C., Dubuisson, J.B. and Ansquer, Y. (1996) Hysterectomy for patients without previous vaginal delivery: results and modalities of laparoscopic surgery. *Hum. Reprod.* , 10, 2122–2126.
5. Wattiez, A., Goldchmit, R., Durruty, G. et al. (1999) Minilaparoscopic hysterectomy J. Am. Assoc. Gynecol. Laparosc. , 6, 97–100.
6. Liu CY. Laparoscopic hysterectomy. Report of 215 cases. Gynecol Endosc 1992;1:73-7.
7. Phipps JP, John M, Nayak S. Comparison of laparoscopic assisted vaginal hysterectomy and bilateral salpingo-ophorectomy with conventional abdominal hysterectomy and bilateral salpingo- ophorectomy. Br J Obstet Gynaecol 1993;110:698-700.
8. Raju KS, Auld BJ. A randomized prospective study of laparoscopic vaginal hysterectomy versus abdominal hysterectomy each with bilateral salpingo-oophorectomy. Br J Obstet Gynaecol 1994;101:1068-71.
9. Reich H, Ribeiro SC, Vidali A. Hysterectomy as a treatment for dysfunctional uterine bleeding. Baillier es Best Pract Res Clin Obstet Gynaecol 1999;13:251-69.
10. Olsson JH, Ellstrom M, Hahlin M. A randomized prospective trial comparing laparoscopic and abdominal hysterectomy. Br J Obstet Gynaecol 1996;103:345-50.
11. Härkki-Sirén P, Sjöberg J, Toivonen J, Tiitinen A. Clinical outcome and tissue trauma after laparoscopic and abdominal hysterectomy: a randomized controlled study. Acta Obstet Gynecol Scand 2000;79:866-71.
12. Çelik C, Abali R, Tasdemir N, Aksu E, Çalışkan H, Akkuş D. Total Laparoskopik Histerektomi ve Abdominal Histerektomi Karşılaştırılması; Klinik Sonuçlar. JCAM 2014 Published online. DOI: 10.4328/JCAM.1513.
13. Seracchioli R, Venturoli S, Vianello F, Govoni F, Cantarelli M, Gualerzi B, et al. Total laparoscopic hysterectomy compared with abdominal hysterectomy in the presence of a large uterus. J Am Ass Gynecol Laparosc 2002;9:333-8.
14. Ribeiro SC, Ribeiro RM, Santos NC, Pinotti JA. A randomized study of total abdominal, vaginal and laparoscopic hysterectomy. Int J Gynaecol Obstet 2003;83:37-43.
15. Howard FM, Sanchez R. A comparison of laparoscopic assisted vaginal hysterectomy and abdominal hysterectomy. J Gynecol Surg 1993;9:83-90.
16. Nezhat F, Nezhat C, Gordons S, Wilkins F. Laparoscopic versus abdominal hysterectomy. J Reprod Med 1992;37:247-50.
17. Perino A, Cucinella G, Venezia R, Castelli A, Cittadini E. Total laparoscopic hysterectomy versus total abdominal hysterectomy: an assessment of the learning curve in a prospective randomized study. Hum Reprod 1999;14:2996-9.
18. Ellstrom M, Bengtsson A, Tylman M, Haeger M, Olsson JH, Hahlin M. Evaluation of tissue trauma after laparoscopic and abdominal hysterectomy: measurements of neutrophil activation and release of interleukin-6, cortisol, and C-reactive protein. J Am Coll Surg 1996;182:423-30.
19. Labib M, Palfrey S, Paniagua E, Callender R. The postoperative inflammatory response to injury following laparoscopic assisted vaginal hysterectomy versus abdominal hysterectomy. Ann Clin Biochem 1997;34:543-5.
20. Johnson N, Barlow D, Lethaby A, Tavender E, Curr L, Garry R. Methods of hysterectomy: systematic review and meta-analysis of randomized controlled trials. BMJ 2005;330:1478.
21. Garry R, Fountain J, Mason S, Hawe J, Napp V, Abbott J, Clayton R, Phillips G, Whittaker M, Lilford R, Bridgman S, Brown J. The eVALuate study: two parallel randomised trials, one comparing laparoscopic with abdominal hysterectomy, the other comparing laparoscopic with vaginal hysterectomy. BMJ 2004;328:129.