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Comparison of the Demographic Data of Total Laparoscopic Hysterectomy and Vaginal Hysterectomy Cases

Total Laparoskopik Histerektomi ve Vajinal Histerektomi Olgularının Demografik Verilerinin Karşılaştırılması

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ÖZET

Amaç: Bu çalışmada, benign endikasyonlarla opere edilen vakalarda Total Laparoskopik Histerektominin (TLH), Vajinal Histerektomiye (VH) alternatif olup olamayacağı araştırılmıştır.
Yöntem: Benign nedenlerle opere edilen 109 TLH ve 99 VH hastası retrospektif olarak incelenmiştir. Hastaların demografik verileri, cerrahi ve laboratuvar bulguları ile komplikasyonları değerlendirilmiştir. TLH hastaları ayrıca 2D ve 3D olarak iki grupta analiz edilmiştir.
Bulgular: TLH ve VH hasta grupları parite sayıları, post-op Hb/Hct düşüşleri, hastanede yatış süreleri ve intrapostoperatif komplikasyonlar açısından istatistiksel olarak anlamlı bir fark göstermezken ($p>0,05$); yaş, operasyon süreleri ve uterus hacimleri açısından anlamlı farklılık olduğu görüldü ($p<0,05$). TLH grubundaki hastaların yaşlarının VH grubundaki hastalara göre daha genç, uterus hacimlerinin daha büyük ve operasyon sürelerinin ise daha uzun olduğu belirlendi. TLH grubunda en sık histerektomi endikasyonları myoma uteri (% 24,8 / n:27) ve anormal uterin kanama (% 23,9 / n:26) olurken, VH grubunda en sık endikasyonlar desensus (% 67,7 / n:67) ve total prolapsus (% 25,3 / n:25) olarak saptandı.
Sonuç: TLH, deneyimli cerrahlar tarafından uygulandığında güvenli ve etkilidir. VH halen benign histerektomi için altın standart olsa da, TLH'nin daha az komplikasyon ve kısa yatış süresi gibi avantajları, gelecekte bu yöntemin VH'ye güçlü bir alternatif olabileceğini göstermektedir.

Anahtar Kelimeler: Total laporoskopik histerektomi, vajinal histrektomi, benign histerektomi

ABSTRACT

Objective: This study investigates whether Total Laparoscopic Hysterectomy (TLH) can be an alternative to Vaginal Hysterectomy (VH) in cases operated for benign indications.
Methods: A retrospective analysis was performed on 109 TLH and 99 VH patients. Demographic data, surgical and laboratory findings, and complications were evaluated. TLH cases were also divided into two groups based on 2D and 3D methods.
Results: While there were no statistically significant differences between the TLH and VH patient groups in terms of parity numbers, postoperative Hb/Hct decreases, hospitalization durations, and intrapostoperative complications ($p>0.05$), there were significant differences in terms of age, operative times and uterine volumes ($p<0.05$). The most common hysterectomy indications in the TLH group were myoma uteri, while the most common indications in the VH group were descensus.
Conclusion: TLH is a safe and effective procedure when performed by experienced surgeons. Although VH remains the gold standard for benign hysterectomy, TLH may become a strong alternative in the future due to its lower numerical rates of complications and shorter hospital stay.

Key words: Total laparoscopic hysterectomy, vaginal hysterectomy, benign hysterectomy

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INTRODUCTION

Hysterectomy entered the gynecology agenda in the 1800s and has maintained its importance since then. Today, hysterectomy is the most frequently performed operation in gynecology after cesarean section (1).

According to recent studies, the hysterectomy rate per 1000 women of all ages varies between 6.1 and 8.6. The largest portion of women undergoing this procedure are women between the ages of 20 and 49. 75% of all hysterectomies are performed on women between the ages of 20 and 49. Hysterectomy, which has such a wide range of applications, is also a highly controversial issue because hysterectomy rates, indications, and average ages vary greatly between countries and even between different regions of the same country. Differences of up to six-fold are observed between the USA, which has the highest hysterectomy rate, and Norway, Sweden, and England, which have the lowest hysterectomy rates.

Although vaginal hysterectomy is known to be more advantageous than others, total abdominal hysterectomy is applied in cases that do not meet the requirements of vaginal hysterectomy (VH). Laparoscopic-assisted vaginal hysterectomy is shown as an alternative method to abdominal hysterectomy by some surgeons due to the advantages of the vaginal route. However, there are limited prospective studies in the literature on this subject. Harry Reich et al. first applied it in 1988 at the Pennsylvania William Nesbitt Memorial Hospital and published in 1989, "Laparoscopic Hysterectomy", which almost revolutionized the field of surgical approach to hysterectomy. Afterward, the laparoscopic method was applied more and more each passing day, and it gained an important place in hysterectomy rates.

The aim of this study is to show the applicability, advantages, and disadvantages of TLH operation and to compare TLH cases performed in our clinic with VH cases.

MATERIAL AND METHOD

This study included patients who underwent TLH and VH in the Bağcılar Training and Research Hospital Gynaecology and Obstetrics Clinic between 2010 and 2012. The ethics committee was established at Bağcılar Training and Research Hospital with the decision numbered 2012/93. During these dates, 177,916 patients were examined in our gynecology clinics and a total of 716 of these patients underwent hysterectomy for various indications. Of these hysterectomy cases, 402 had Total abdominal hysterectomy (TAH), 114 had TLH, 110 had VH, and 90 patients also underwent debulking surgery due to malignancy. The operations was performed by the same surgical team. Operation indications were grouped among themselves, and patients who underwent hysterectomy due to malignancy or who were diagnosed with malignancy during the operation were excluded from the study. Only 209 patients who underwent hysterectomy for benign reasons were included in the study. Of these, 109 (52.4%) had TLH and 99 (47.6%) had VH.

Patients' age, preoperative hysterectomy indication, pre-and postoperative hematocrit and hemoglobin values, operation time, uterine volume, operation time, hospital stay, complications during or after the operation, parity, and postoperative pathology results were recorded. In addition, these criteria for TLH were evaluated in two groups as 2D and 3D.

The operations were divided into TLH and VH. 109 patients who underwent TLH and 99 patients who underwent VH were included in the study. Of the 109 patients in the TLH group, 68 (62.4%) were operated with 2D and 41 (37.6%) with 3D method. No age restriction was applied to the patients included in the study. Hysterectomy indications were grouped. The operation time was started from the first trocar entry for TLH and the first incision for VH, and the time when the last suture was tied was recorded as the end time in both procedures. Hematocrit values were measured 1 day before the preoperative period and at the 12th hour postoperatively. The days from the date of the operation to the day of discharge were accepted as the hospital stay.

SPSS 21.0 programs were used in the analysis of data. Chi-square and Fisher's exact tests were used in the evaluation of nonparametric data. The significance limit for P values was accepted as $p<0.05$. Student's t-test and ANOVA post-hoc tests were used in the analysis of parametric values.

RESULTS

The mean age of the patients in the TLH group was 51.7 (±7.9), while the mean age of the patients in the VH group was 59.8 (±10.7). The parity numbers were 3.8 (±2.1) in the TLH group and 4.2 (±2.3) in the VH group. The operation durations were 113.6 min (±39.5) in the TLH group and 71.2 min (±14.0) in the VH group. Uterine volumes were 364.6 cm^3 (±255.6) in the TLH group and 166.3 cm^3 (±119.8) in the VH group (Table 1).

Demographic data of patients operated with TLH and VH methods are presented in Table 2. It was determined that the patients in the TLH group were younger, and had larger uterine volumes and longer operation times than those

Table 1. Comparison of age, operation duration, and uterine duration of patients operated with TLH and VH methods

	Age	Operation duration (min)	Uterus Volume (cm^3)
TLH	51,66	113,64	364,59
VH	59,76	71,16	166,28

Table 2. Comparison of the demographic data of patients operated with TLH and VH methods

	Pre-op Hb (gr/dl)	Pre-op Hct (%)	Hct Decrease (%)	Hb Decrease (gr/dl)	Parity	Hospitalization Duration (days)
TLH	11,89	36,56	-4,92	-1,76	3,83	2,69
VH	12,27	37,01	-5,28	-1,88	4,25	2,74

Table 3. Complications of the VH and TLH patients

	No Complications	Cuff Hematoma	Cuff Dehiscence	Vesicovaginal Fistula	Ureteral Injury	Colon Perf.	Cuff prolapsus
VH	91	6	0	0	0	0	2
	%91,9	%6,1	%0	%0	%0	%0	% 2
TLH	102	0	1	1	3	2	0
	%93,6	%0	%0,9	%0,9	%2,8	%1,8	%0

Table 4. Comparison of the complications of patients who underwent TLH with 2D and 3D methods

	No Complications	Cuff Dehiscence	Vesicovaginal Fistula	Ureteral Injury	Colon Perforation	Total
2D (Dimension) TLH	64	1	1	2	0	68
	%94.1	%1.5	%1.5	%2.9	%0	%100
3D (Dimension) TLH	38	0	0	1	2	41
	%92.7	%0	%0	%2.4	%4,9	%100

in the VH group. While the patient groups showed similar characteristics in terms of parity, pre-op Hb/Hct values, post-op Hb/Hct decreases, parity numbers, and hospitalization times ($p>0.05$), there were significant differences in terms of age, operation durations, and uterine volumes ($p<0.05$).

In the TLH group, the most common reasons were myoma uteri (24.8%) (n=27), AUB (23.9%) (n=26), treatment-resistant bleeding (10.1%) (n=11), simple hyperplasia without atypia (7.3%). In the VH group, the most common reasons were descensus (67%) (n=67), and prolapsus (25.3%) (n=25). When examined according to postoperative pathology results, myoma uteri was detected in 36.9% (n=40) of the patients in the TLH group, normal pathological findings were detected in 27.5% (n=30), and the endometrial polyp was detected in 11% (n=12). In the VH group, normal pathological findings were detected in 58.5% (n=58), myoma uteri was detected in 26.2% (n=26), and the endometrial polyp was detected in 9.1% (n=9). The most frequently reported pathological diagnosis in both groups was myoma uteri. Complication rates are summarized in Table 3. No late or early complications developed in 93.6% (n=102) of the patients in the TLH group and 91.9% (n=91) of the patients in the VH group.

When the patient groups that underwent TLH with 2D and 3D methods were examined among themselves; 68 (62.4%) of the 109 patients in the TLH group were operated with 2D and 41 (37.6%) with 3D method. No statistically significant difference was found between the two groups in terms of operation duration, uterine volumes, hospitalization durations, Hb/Hct decrease levels, patient parities, and complications ($p>0.05$). The distribution of complications in the TLH group between the 2D and 3D groups is summarized in Table 4.

DISCUSSION AND CONCLUSION

Hysterectomy is one of the most frequently performed major operations in gynecological practice. While the indications for this frequently performed operation vary widely, there has been an increase in the methods used in recent years. Hysterectomy can be performed by abdominal, vaginal, or laparoscopic methods today (1-4). In our study, we included laparoscopic (TLH) and vaginal hysterectomy (VH) cases performed for benign reasons in our clinic. The fact that a large portion of TLH cases performed in our clinic are performed by the same operator eliminates the disadvantage of operator differences, especially in terms of results in the TLH group. The VH group had a larger number of different operators.

The mean age of patients who underwent TLH was 51.7 (±7.9), while the mean age of patients in the VH group was 59.8 (±10.7). This age difference was also statistically

significant ($p<0.05$). This is because the age and indication range of TLH cases performed in our clinic is wider, whereas the indications in VH cases are mostly pelvic organ prolapsus, which is more common with advancing age. The three most common hysterectomy indications in the TLH group were myoma uteri (24.8%) (n=27), AUB (23.9%) (n=26), and TDK (10.1%) (n=11), respectively; while the most common indications in the VH group were descensus (67.7%) (n=67), prolapsus (25.3%) (n=25), and descensus+AUB (4%) (n=4). The most common indications in both groups are similar to other literature studies, but the order of frequency of less common indications is different (3). American College of Obstetrics and Gynecology (ACOG), the patient's anatomy and the surgeon's experience are of great importance in choosing the type of hysterectomy. A vaginal hysterectomy is generally recommended in cases where the uterus is mobile and weighs less than 280 g (4). Despite the advantages of the vaginal route, most surgeons avoid performing VH in cases where the uterus is enlarged, there is previous pelvic surgery, a history of pelvic inflammatory disease, severe endometriosis, an adnexal mass or cyst, and in cases where there is no uterine descensus. Although VH has many advantages, laparoscopic hysterectomy is increasingly being performed in cases where vaginal hysterectomy cannot be performed due to the reasons we have mentioned.

When the uterine volumes in our study were examined, it was calculated as 364.6 ± 255.6 cm^3 in the TLH group, while it was 166.3 ±119.8 cm^3 in the VH group, and a significant difference was found between the groups. The uterine volumes in the TLH group were significantly greater ($p<0.05$). In support of this finding, a study by Mc Cracken et al. found that the uterine weights of patients who underwent laparoscopic hysterectomy were significantly greater than those of patients who underwent VH (5). However, in a prospective study by Makinen et al., the mean uterine weight in patients who underwent VH was 108.7 g, while this rate was found to be 195.0 g in the laparoscopic approach, but no statistical difference was obtained (6). In studies conducted in the literature, VH was found to be significantly shorter than TLH (7). In our study, in addition to the shorter duration of the VH operation, we observed that the duration in the TLH group gradually shortened over 2 years. This situation led us to think that the duration of TLH operation may be shortened with increasing experience. The length of stay of the patients in our study was calculated as 2.7 ±1.4 days in the TLH group and 2.7 ±1.0 in the VH group. No significant difference was found between the groups ($p>0.05$). In the studies conducted in the literature, the length of postoperative hospital stay was found to be shorter in patients who underwent laparoscopic surgery (8). The reason why the length of stay in the hospital of patients who underwent VH in our study was not similar to the TLH group is probably due to the prolonged length of stay of patients who had cuff hematoma or who were deemed appropriate to be followed up in the hospital for a while due to this suspicion (9-12).

No late or early complications developed in 93.6% (n=102) of the patients in the TLH group and 91.9% (n=91) of the patients in the VH group. Complication rates were 6.4% (n=7) in the TLH group and 8.1% (n=8) in the VH group, and no statistically significant difference was found between the groups ($p>0.05$). Although no statistically significant difference was found between the two groups, complications in the TLH group led to more negative outcomes in terms of morbidity and mortality than in the VH group. While the treatment of complications in the VH group mostly resulted in follow-up, interventional procedures were applied for the treatment of patients in the TLH group. While many complications in TLH have the chance to be detected and treated intraoperatively, this is not the case in VH.

It was found that TLH and VH groups showed similar characteristics in terms of pre-operative Hb/Hct values and post-operative Hb/Hct decreases ($p>0.05$). Studies in the literature also found no difference between the two groups in terms of pre-and postoperative hematocrit levels (9).

In our study, 68 (62.4%) of the 109 patients who underwent TLH were operated with 2D and 41 (37.6%) with 3D. No statistically significant difference was found between the two groups in terms of operation durations, uterine volumes, hospitalization times, Hb/Hct decrease levels, patient parities, and complications ($p>0.05$). Although there was no statistically significant difference between the 2D and 3D TLH methods among the comparison criteria in our study, we think that this difference is due to the insufficient number of patients and that laparoscopic procedures performed with the 3D method are superior to the classical 2D method based on our clinical experience. Laparoscopy performed with the 3D method offers more advantages to the surgeon compared to the 2D method in terms of depth perception and more advanced visual content. We believe that performing more difficult and complex surgeries with the 3D method will be more beneficial for both the surgeon and the patient. However, many new clinical studies are needed to make more definitive evaluations.

Although the operative results are comparable to TAH and VH operations, VH still maintains its place as the gold standard procedure for hysterectomy. However, in more complex pathologies, the choice between these procedures varies according to the surgeon's experience. Although the laparoscopic method seems more costly than other procedures when looked at first, it is clear that the laparoscopic method is a preferable option when all the benefits and advantages are considered for both the patient and the surgeon.

Limitations

This study has several limitations. First, it has a retrospective design, which may introduce selection bias. Second, the subgroup sample sizes in the 2D and 3D TLH groups were relatively limited, which may have affected the ability to detect statistically significant differences. Future prospective studies with larger sample sizes are needed to validate these findings.

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