COMPARATIVE STUDY ON TOTAL ABDOMINAL HYSTERECTOMY VERSUS TOTAL LAPAROSCOPIC HYSTERECTOMY IN PATIENTS WITH UTERINE WEIGHT LESS THAN 500 GMS

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ABSTRACT

BACKGROUND

Removal of uterus for benign conditions has got 2 options presently worldwide namely TAH and TLH. The pros and cons of utilizing either of the procedures are debated worldwide with newer studies coming up advocating the superiority of each procedure. The present study aims at comparing the two modalities on various aspects with referable outcomes. This study was conducted in a tertiary level healthcare facility where a comparison was made between two modes of hysterectomy namely abdominal and laparoscopic in benign cases requiring removal of uterus and adnexa to find out the benefits of procedures with regard to various parameters like time of operation, time of recovery, blood loss etc.

MATERIALS AND METHODS

An open label comparative study done to compare functional and clinical outcome in TAH and TLH for benign diseases in patients with uterine weight less than 500 gms. among all eligible patients for hysterectomy for a duration of 6 months. For each patient for TLH the next eligible consenting patient was opted for TAH. 25 patients were opted for each arm.

RESULTS

Operative time was marginally longer for TLH than for TAH; however, estimated volume of blood loss & length of hospital stay, were significantly less for patients in the TLH group than for those in the TAH group. Mean post-operative haemoglobin drop was less in TLH group and Mean VAS (Visual Analogue Scale) score for pain postoperatively for TLH group was significantly less for first 3 post-operative days. TLH appears to offer benefits to women requiring total hysterectomy for benign indications compared to TAH, particularly regarding blood loss, hospital stay and early resumption of work.

CONCLUSION

Total laparoscopic hysterectomy may be preferable to abdominal hysterectomy considering it offers early discharge and resumption of normal life along with factors such as less blood loss and less post-operative pain.

KEYWORDS

Duration of Hospital Stay, Haemoglobin Drop, Total Abdominal Hysterectomy (TAH), Total Laparoscopic Hysterectomy (TLH), Visual Analogue Score (VAS).

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BACKGROUND

Hysterectomy is the most common gynaecological operation. It is only second to caesarean section.[1] The different approaches of removing the uterus are:

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Abdominal route (open)/Laparoscopic and Vaginal route.

Total Abdominal Hysterectomy (TAH) involves removal of the uterus through an incision on the lower abdomen. Vaginal hysterectomy involves removal of the uterus via the vagina, with no abdominal incision. Laparoscopic hysterectomy involves 'keyhole surgery' with small incisions on the abdomen. In laparoscopic hysterectomy, the uterus is removed with the aid of a laparoscope inserted through the umbilicus and instruments inserted through two or three further smaller laparoscopic ports.

Total Laparoscopic Hysterectomy (TLH) represents one of the most advanced gynaecological minimal access procedures. It has the potential of benefitting many patients

who otherwise would have had an open abdominal hysterectomy. The overall advantage would be less painful postoperative recovery, shorter hospital stay and early resumption of domestic function and sexual activity. However, there is still controversy as to whether all efforts put into achieving a laparoscopic approach is worthwhile, given the longer anaesthetic time required even with a skilled team of surgeons. But again, laparoscopic hysterectomy is a highly specialized technique, better view of all adnexa and pelvic anatomy and less handling of internal organs.

At present, laparoscopy has become a major diagnostic and therapeutic tool in the practice of gynaecology, still more studies are required to establish the fact that newer micro invasive laparoscopic technique is better than conventional open abdominal technique. This study was aimed to validate this fact.

Aims and Objectives

An open label comparative design was used to compare the functional and clinical outcome and patient satisfaction in cases having uterine weight less than 500 grams undergoing either TAH or TLH,

Parameters considered were, Operating time, Intraoperative blood loss and drop in haemoglobin (Hb) level, Intraoperative injury, Visual Analogue Scale (VAS) score for Pain on first 3 consecutive post-operative days and duration of hospital stay

MATERIALS AND METHODS

The study was conducted in Jagannath Gupta medical college and hospital, a tertiary care medical college in west Bengal. 25 patients were taken in each group (TAH & TLH) and duration of study was from March 2018 to August 2018. Cases meeting eligibility criteria (of uterine size less than 14 weeks of gravid uterus, were given option for TLH. For every consenting patient an alternate patient opting for TAH was selected for the other arm of the trial. Formal consent was obtained for all patients for participation in the study.

Assessment was carried out with history, Systemic, speculum and pelvic examination was done. Haematological, biochemical investigations and pelvic ultrasonography was routinely done. Then either TAH or TLH was done as per selection and option. Postoperatively the specimen of uterus was weighed and if the weight was more than 500 gm, those cases were excluded.

Statistical Analysis

The findings were duly noted, and data entered in Microsoft Excel chart and the Mean and the Standard Deviation of the different variables were calculated.

Using this software, basic cross-tabulation and frequency distributions were prepared. T test, Fishers test were used for statistical analysis as appropriate.

RESULTS

25 patients of each group of TAH and TLH were compared for the clinical and functional outcomes as per study protocol.

The mean age of the patients who underwent TAH was 45.12±5.06 years and TLH was 44.4±4.57 years. Most patients had complaints of menorrhagia in both groups. Proportion of patients having Normal Vaginal Delivery (NVD) was significantly higher in TLH group and proportion of patients having Lower Segment Caesarean Section (LSCS) was significantly higher in TAH group.

Proportion of patients having uterine fibroid was higher in both groups around 52% of cases in TAH group and 44% of cases in TLH group. In TAH group the mean uterine weight was 198 ± 111.19 gm and in the TLH group it was 191.6 ± 94.4 gm.

Mean duration of operation was 60.44 ± 12.44 mins in TAH group and 72.08 ± 5.87 minutes in TLH group. Adhesions were encountered in thirteen cases in TAH group and 3 cases in TLH group.

Mean intraoperative blood loss was 162.8 ± 5.99 ml in TAH group and 84.8 ± 50.11 ml in TLH group. There was difficulty in attaining haemostasis in one case in TAH group, whereas in 3 cases in TLH group. The mean post-operative Hb drop in TAH group was 1.22 ± 0.83 gm/dl whereas in TLH group was 0.72 ± 0.89 gm/dl (Figure 1). Post-operative Hb drop was significantly higher in TAH compared to TLH ($p<0.05$).

Mean VAS (Visual Analogue scale) score for pain in TAH D1 8.64 ± 0.70, D2 7.00 ± 1.22 and D3 5.24 ± 1.16 respectively and TLH group o D1 7.2 ± 0.96, D2 4.84 ± 1.03 and D3 2.88 ± 0.88 respectively (Figure 2) t-test showed that mean VAS score for pain was significantly higher for TAH in DAY 1 ($p<0.001$), in DAY2 ($p<0.001$) and DAY 3 ($p<0.000$) compared to TLH.

Mean duration of hospital stay was significantly higher for TAH compared to TLH ($p<0.001$) (5.76 ± 1.48 days in TAH group and 3.68 ± 0.80 days in TLH group) (Figure 3).

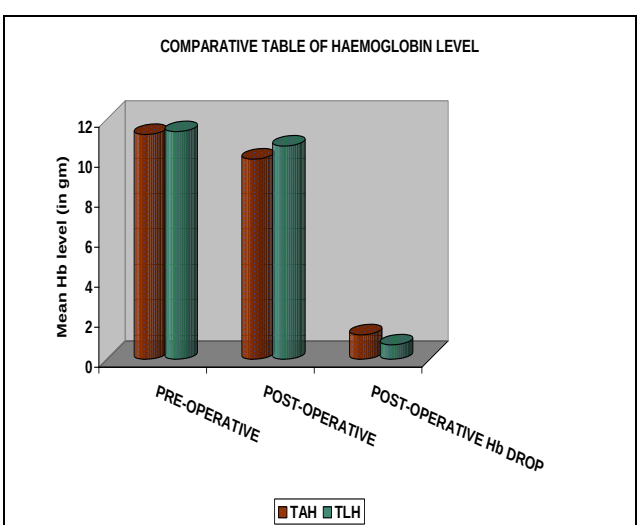

Figure 1. Haemoglobin Drops Postoperatively in Patients Who Underwent TAH And in Patients Who Underwent TLH

Haemoglobin (gm/dl)	TAH	TLH	P
Pre-Operative	11.24 ± 1.27	11.38 ± 1.23	>0.05(NS)
Post-Operative	10.01 ± 1.00	10.66 ± 1.18	<0.05(S)
Post-Operative HB Drop	1.22 ± 0.83	0.72 ± 0.89	<0.05(S)

Table 1

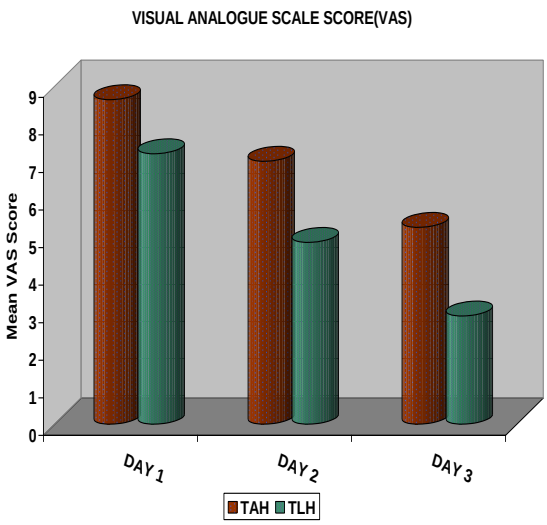

Figure 2. Comparison of Visual Analogue Scale for Pain Score Postoperatively in Patients Who Underwent TAH With Those Who Underwent TLH

VAS Score (Mean ± S.D.)	TAH	TLH	p
Day 1	8.64 ± 0.70	7.2 ± 0.96	<0.001 (S)
Day 2	7.00 ± 1.22	4.84 ±1.03	<0.001 (S)
Day 3	5.24 ± 1.16	2.88 ±0.88	<0.0001(S)

Table 2

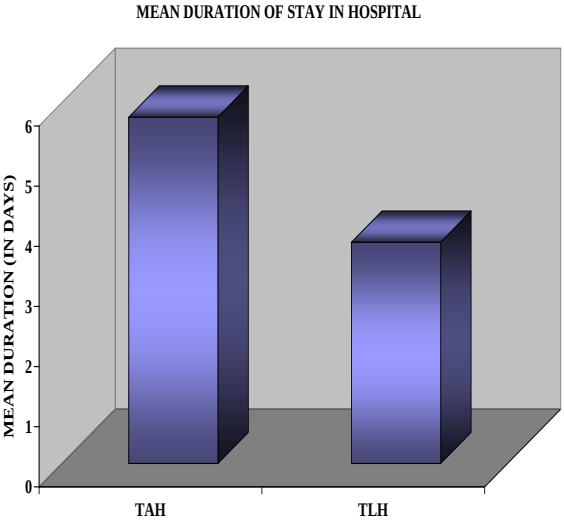

Figure 3. Comparison of Mean Duration of Stay in Hospital in Days in Patients Who Underwent TAH With Those Who Underwent TLH

TAH mean was 5.76 ± 1.48 days and TLH mean stay was 3.68 ± 0 .80 days.

DISCUSSION

On comparison of the various parameters in the study it was seen that most of the patients were in the perimenopausal age group not responding to medical treatment and were diagnosed to have uterine fibroid in both groups (52% in TAH and 44% in TLH). Adenomyosis was present in only some cases in both groups (8% in TAH and 18% in TLH). Only 12% in TAH and 8% in TLH group had dysfunctional uterine bleeding.

Loh FH et al (2002)[2] in their study too similarly found that, the indication was mainly fibroid uterus (57.5% in TAH and 62.5% in TLH) and adenomyosis (27.5% in TAH and 25% in TLH). Study by Seracchioli R et al (2002)[3] & Francesco Â Sesti et al. (2008),[4] the study was however for myoma uterus. Alternately for Janda M, et al (2010),[5] the study was for stage I endometrial cancer (LACE) and Chalermchockchareonkit A(2012),[6] the study was for only pelvic endometriosis.

In the present study, cases were selected according to the uterine weight less than 500 gms. So, the patients who had undergone open abdominal hysterectomy had uterine weight mean of 198 gms, while those undergoing TLH had uterine weight mean as 191 gms. In Loh FH et.al.[2] study, patients with an estimated uterine size of 16 weeks of gestation or below were selected for hysterectomy (mean uterine weight of TAH cases being 281 gms and that of TLH cases being 265 gms). Seracchioli R et al (2002)[3] did a study on estimated uterine size of 14 weeks of gestation (having mean uterine weight 389 gms for TAH cases and that of TLH cases to be 365) or below posted for either abdominal hysterectomy or laparoscopic hysterectomy. In both these studies we find selection criteria was a clinical entity of uterine size whereas in the present study criteria was a finite weight of specimen obtained after operation thus eliminating selection bias.

In this present study the time taken for both TAH and TLH were 60.44 ± 12.44 min in TAH and TLH being 72.08 ± %.87 minutes. The difference in operating time between TLH and TAH was not significant, possibly because human factors governing the procedure which are bettered over time by better learning curve. The surgeons have increased their skills and are more competent in laparoscopic surgeries. The instruments used are of highly improvised technology and are of very good quality, so a lot of time was saved with the use of these instruments and trained assistant. Operating time was less because ligature system was used in these operations and vault was closed vaginally. In other studies, like Loh et al.[2] Perino et al[7] they used bipolar electrocautery and scissors for pedicles in laparoscopic hysterectomy and so they had taken more time.

In Perino et al,[7] some other procedures like Burch colposuspension, appendicectomy, Mc Call's culdoplasty, etc. were done, so the mean operating time definitely was more. In Chalermchockchareonkit A et al. (2012)[6] the mean

operating time was more as the patient selected all had severe pelvic endometriosis.

Earlier studies conducted in 2009 by Budsaba Wiriyasiviraj[8] had mean operating time of 117 min for TAH and 299 min for TLH cases.

In the present study, the mean blood loss was much less for TLH. The comparative figures being 162.8 for TAH cases and 84.8 ml for TLH cases surgeons. On studying findings, we see that surgeons who were competent in laparoscopic surgery had experienced less blood loss during operation and those still in their learning curve had experienced more blood loss. Other factors for increased blood loss was uterine size and adhesions encountered during surgery. Since surgery was performed by different surgeons there was a wide variation in the amount of blood loss and standard deviation was high. In TAH also the blood loss was not much due to the competence of surgeons and the use of cautery. But still we can see that the blood loss in TLH group is much less, as there is more blood loss in TAH group due to excess bleeding on opening the abdomen with a big incision than with entering the abdominal cavity with small incision for port entry. This finding was similar to the other previous studies.

The use of ligature system and bipolar cautery also helped to reduce blood loss.

Bonilla et al (2007)[9] showed more mean estimated blood loss with uterine weight >500 gm. In Chalermchockchareonkit A et al. (2012)[6] mean estimated blood loss was 302.6 ± 255.1 mL versus 760.9 ± 633.2 mL for TLH &TAH respectively due to presence of adhesions.

Study by Kongwattanakul K et[10] al in 2012 had a mean blood loss 250 ml and 120 ml respectively for TAH and TLH cases. Sutasanasuang S[11] similarly had 275 ml and 120 ml mean blood loss for TAH and TLH respectively

The extent of blood loss per operatively is captured by post-operative change of haemoglobin level. In this study it was seen to be a mean change of 1.22± 0.83 in haemoglobin level for TAH cases and 0.72±0.89 in cases of TLH. Study by Perino et al [7] the findings were 1.6± 0.4 and 0.4±0.2 for TAH and TLH cases. A significant change in Hb level indicating blood loss was observed all through TAH cases.

In the present study (2018) there was no significant difference in post-operative short-term complication in both the groups. In the TAH group there had been one case of re-laparotomy for haemoperitoneum, one case of fever (4%), two cases of paralytic ileus (8%) and one case of severe gastritis (4%). In TLH group comparatively less short-term complication, just one case of vault haematoma (4%) and one case of paralytic ileus (4%). This finding was comparable with previous studies.

In Loh FH et al (2002)[2] minor complications like febrile morbidity and wound infection were more in TAH group than TLH group.

In Perino et al (1999)[7] the postoperative complications in abdominal hysterectomy group were two cases of haematoma of the vaginal cuff (blood transfusion was required in one case), and four cases of postoperative fever. In TLH group 1 case had fever and uterovaginal fistula diagnosed 10 days after surgery.

In Christian Schindlbeck et al. (2008)[12] study major complications of TLH included bladder injury (3 cases), and in TAH, post-operative ileus (2 cases) and vesico-vaginal fistula (1 case).

Postoperative requirement of analgesia in case of TLH group was less in compared to TAH group, as the VAS score for pain showed diminished value for the TLH group. In other previous studies like in Kongwattanakul K et al. (2012)[10] showed less postoperative morphine sulphate administration in laparoscopic hysterectomy group.

Budsaba Wiriyasirivaj et al (2009)[8] showed that proportion of postoperative meperidine requirement and mean meperidine use in TLH group were significantly less than those in TAH group. Even the meta-analysis done by Gendy R et al. (2011),[13] Walsh CA et al (2009)[14] and Ferrari MM et al[15] showed decrease requirement of postoperative analgesia for TLH group. So, this outcome between the two groups is similar to the previous studies.

In the present study the duration of stay in hospital of TLH group was much shorter than that for TAH group. This outcome has been similar to other previous comparative studies. Duration of stay in hospital would have been much shorter if patient was not admitted under Mediclaim or insurance as these patients overstayed according to the package provided.

The decision of when to discharge the patient was dependent on several factors including the patient's comfort level and availability of care-takers at home, medical co-morbidities and whether any complications were encountered during operation.

In present study, mean duration of hospital stay was more than some of the above studies because some patients developed paralytic ileus for the first two days, vault discharge, febrile episodes and one underwent re-laparotomy and some got discharged only after stitch removal Review of literature shows that hospital stay in patients undergoing TAH was significantly higher in studies conducted by Kongwattanakul K et al,[10] Chalermchockchareonkit A,[6] Schindlbeck et al[12] among others. TLH appears to be better option in eligible candidates with respect to operative blood loss, duration of hospital stay, pain as perceived by patients with marginal lesser time required for operation procedure. With advent of newer technology and better learning skills the future may look forward to adopting laparoscopic procedure for operations.

CONCLUSION

With the advent of modern techniques, we are often sceptical about adopting the newer methods. However, with extensive use of evidence-based medicine, it is easier to adopt newer technology and also to convince patient in adopting newer treatment methods. Such evidence can be established through repeated studies worldwide. Parameters such as blood loss, post-operative pain, and early recovery laparoscopic methods definitely holds advantage. However,

many more studies need to be done information gathered therein may be collated as a way to move forward.

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