Keyhole to no hole hysterectomy - A retrospective analysis of NDVH and TLH in a teaching hospital

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Abstract

Introduction: Prior to medical advances in yester years VH was limited to uterine prolapse but in present techno-medical era the techniques and indications of vaginal hysterectomy have changed to give an excellent health care to women cosmetically at a reasonable cost with minimum invasion and maximum safety and satisfaction.

Aims and objective: The aim of the study was to find out the answer of the question, IS REALLY TLH LESS INVASIVE THEN NDVH? By analyzing these two commonly performed procedures to find out the differences to decide whether NDVH is a simpler, less invasive, quicker, cost effective, environment friendly technique then TLH in the similar gynecological indications.

Materials and Methods: A retrospective study was done on 120 randomly selected patient of Hysterectomy for various reasons between March 2016 till September 2017 in Dept. of Ob/Gyn LNMC JKH, Bhopal. Patients' original files and surgery reports of the TLH and VH were analyzed and compared retrospectively for the indication of surgery, patients' age, weight, parity, uterus size, time taken for surgery, blood loss, post-operative analgesia, hospital stay, Intra and post op complications. A stastical analysis of the data was performed using independent t test and p value of less than 0.01 was considered statically significant.

Results: The mean time taken to perform TLH was significantly longer i.e. 184.83 minutes compared with NDVH, i.e. 83.5.minutes ($p<0.004$). Rate of conversion to AH was more with TLH due to haemorrhage in 3 and bladder injury in one of our cases, in comparison two cases in NDVH due to rectal and bladder injury. Blood loss in both the surgery was comparable as mean post op Hb in both group were 9.5 & 9.8 with no significant p value. Mean Pain score measured by VAS after 24 hours of surgery in TLH was 5.4+-2.02 and in NDVH was 3.57 +-1.3 after test of significance the p value was significant[<0.001] Proves that pain was less in NDVH than TLH. Duration of stay in the hospital was almost the same for both groups. Cost of surgery was more with TLH in comparison to NDVH.

Conclusion: NDVH was as less invasive as TLH with the advantages of no visible scar on the abdomen, done under regional anaesthesia with routine instruments, less pain, less medication, less operative time, thus faster recovery so should be the first option whenever minimally invasive scar less hysterectomies is desired for similar indications.

Keyword: NDVH, Key hole, Scarless, Regional anaesthesia, TLH, Minimally invasive, Environment friendly.

Introduction

Hysterectomy a Greek word meaning cutting of uterus, is a technique that had been performed centuries ago and is the commonest performed major gynaecological operation, with a variety of approaches till date. History of hysterectomy dates back to 120 A.D. when Soraneous of Ephesus performed the first vaginal hysterectomy. The first abdominal hysterectomy was performed by Charles Clay in Manchester, England in 1843. In 1930, Richardson introduced the total abdominal hysterectomy to avoid serosanguinous discharge from the cervical remnant and the risk of cervical carcinoma developing in the stump. Johanns Pfannensteil in the 1920s introduced more cosmetic transverse incision. NDVH was pioneered by Haene in 1934.[1] Over the time many changes have occurred in the modes of hysterectomy but in the present scenario where patients desire to get scar less surgery at an affordable cost, vaginal route will prove its worth by being the most satisfying, cost effective and safe method of hysterectomy as compared to other routes both for the surgeon and the patient. Hence there is need for expanding the indications of performing hysterectomy via vaginal non laparoscopic method, instead of confining it to the conventional uterine descent.[2] TLH the minimal invasive abdominal route has its own place, but should be taken as mode of surgery only in selected cases as it is rightly observed by Neelam N. et al in her study that TLH is not cost effective as it requires costly set up, delicate expensive instruments, trained and expert team, major intra-operative complications long operation time thus more cost, hence not within the reach of majority of patients in Indian scenario. So here stands the place of NDVH where no scar at all, not even the scar of ports. It requires less operative time, less intra operative bleeding, less post-operative morbidity, with regular infrastructural setup as observed by Shibara Chattopadhyay et al also in his study.[3,4]

Even in case of scarred abdomen cervico fundal sign to feel dimpling to asses the feasibility of ndvh, as well as lateral surgical window approach makes NDVH less difficult and more safe in cases of previous abdominal surgery.[5] For uterus of 14 weeks and more debulking procidure like morcelation or coring can be done after securing uterine artery. Proper evaluation of

patient on the basis of broad pubic arch, mobility, size, and shape of the uterus, adequacy of vagina helps a surgeon to opt for a minimally invasive route in women for hysterectomy.[6]

Material and Method

A retrospective analytical study of 120 patients of hysterectomy was done between March 2016 till september 2017 at LNMC JKH Bhopal. These patient underwent hysterectomy for various benign reasons. We randomly selected 60 patient who has undergone TLH and 60 patient who has under gone NDVH Where the mean age, socio- economic status, indications were matched. Any degree of uterine descent, uterine size >14 weeks, restricted mobility of uterus and narrow sub pubic angle were excluded from the study. Patients' original files and surgery reports of the TLH and VH were analyzed for the indication of surgery, patient's age, weight, parity, uterus size, time taken for surgery, equipments required, blood loss, Intra and post op complication. post-operative need of analgesics, hospital stay, recovery and economics of the surgery were noted. Independent t test was applied for data analysis and level of significance was noted.

Result and Discussion

In this study we retrospectively analysed the data of randomly selected 120 patients who underwent NDVH and TLH out of total 568 hysterectomy performed during the study period and found AH(49.87%) on top of the list followed by VH(21.15%) and NDVH (16.55%) lastly TLH (12.43%) In 27 cases of NDVH salpingo-opharectomy was also done. Our analysis showed the following results:

Table 1 The mean operative time of NDVH was 83.5+-6.45minutes and that of TLH 184.83+-23min. After applying the test of significance p value came out to be less than 0.001 which was statistically significant. Thus it is concluded that NDVH is more time saving procedure as compared to TLH for benign uterus. Similar results were obtained in the audit done by P.L. leung.[7] Cochrane database systemic review 2009 also conclude that TLH increases OT time, OT occupancy and complication rate.[8]

Table 1: Showing mean operative time of surgery in NDVH and TLH group

Type of surgery	Duration of operation in minutes(Mean+-SD)	Significance level (p Value)
NDVH	83.5+-6.45	<0.001
TLH	184.83+-23.4	

Table 2 We analysed the various complications developed during two types of surgeries and observed that in case of NDVH group in one patient rectal injury and in another bladder injury led to convertion to abdominal route while in TLH group two patients were converted to open surgery due to excessive haemorrhage and another two due to bladder injury.

Table 2: Showing conversion rate due to intra operative complications

	NDVH(n=60)	TLH(n=60)
Intraop Complications	02(6.66%)	04(12.66%)

Similarly P.L. leung found the incidence of complications for vaginal hysterectomy(17.0%) was lower than that for both abdominal(26.4%) and laparoscopic hysterectomy(23.9%).[7] in many other studies it has been observed that vaginal hysterectomy has a lower incidence of complications. As Cochrane review rightly concluded that vaginal hysterectomy should be performed in preference to abdominal hysterectomy where possible. Where vaginal hysterectomy is not possible, a laparoscopic approach may avoid the need for an abdominal hysterectomy.[8] Thus we infer that the complication of TLH are many fold contributing to general anesthesia, trochar entry,energy source and position of the patient.

Hur H.C.et al observed in their study that the incidence of vaginal cuff dehiscence after total laparoscopic hysterectomy was 0.75% (95% CI 0.09-1.4), which was highest among all modes of hysterectomy. LAVH was 0.46% (95% CI O.O-1.10), total abdominal hysterectomy was 0.38% (95% CI 0.16-0.61) and total vaginal hystrectomy was 0.11%(95% CI 0.0-0.32).[9] in contrast Donez presented a series of 3190 LH from 1990-2006 at one centre one team and found that LH a safe procedures with complication rates of just 1.59% (95% CI 0.01–3.1), compared with 1.10% (95% CI 0.013–1.2) and 1.22% (95% CI 0.16–2.3), respectively, after vaginal and abdominal hysterectomy. Hence no statistically significant difference in complication rates when surgery is performed by the same team using reproducible surgical techniques so expertise in laparoscopic procedures and adherence to the safety rules are nevertheless paramount to avoid any serious complications that may occur.[10]

Table 3 We analysed the data regarding pain in patients of both surgeries after 24 hours by VAS scoring system, we concluded that the mean pain score of patient with NDVH was 3.57+-1.3 and that of TLH was 5.4+-2.04.

Table 3: Showing mean pain score of both the patients

Type of surgery	Pain score based on VAS on 1st post op day (mean+-sd)	Significance level (p value)
NDVH	3.57+-1.30	<0.001
TLH	5.4+-2.04	

In contrast to the study done by chattopadhyay et al[4] in our study less pain was experienced by patient of NDVH group as compared to TLH group may be due to no incision on the abdomen as rectus sheath was neither opened nor sutured, bowel was not handled at all, peritoneal opening was minimal, gaseous distension was not required and no throat discomfort due to endotracheal intubation. Rather more pain in TLH was observed in our study which may be contributed to multiple incision on abdomen, gaseous distension, bowel handling and long operating time.

Table 4 while analysing the mean duration of stay of patients in both surgeries In case of NDVH stay was 2.76 days and that in TLH group it was 2.73 days. The test of significance applied showed p value to be 0.926 which denoted no statistical difference in both groups. Similarly study done by Zakaria et al[11] in 1162 cases of NDVH 96% patients discharged on the same day regardless of previous abdominal surgery or nulliparity and concluded that Vaginal hysterectomy can be successfully adopted as a same-day discharge procedure.

Table 4: Showing mean duration of stay of patients in both the group

Type of surgery	Duration of hospital stay in days(Mean+-sd)	Significance level (p value)
NDVH	5.76	
		0.929
TLH	5.73	

The blood loss during both the surgeries were evaluated by determining post op Hb of patients on day 3 of surgery. The mean Hb in both the group were 9.5 and 9.3gm% and the p value was not statistically significant. This observation was supported by similar studies done by Muller A.et al, Anuilience R et al where mean blood loss was comparable in both the surgeries.[12,13]

While analyzing the cost effectiveness of both routes of surgery we came to the inference that NDVH required no expensive instrument, no specially trained staff, catered to less OT occupancy which makes it more cost effective technique of surgery. Exact data of expenses incurred in our study can not be assesed due to policy reasons of the hospital but TLH appears to be expensive due to costly instruments, heavy maintenance cost, large no of trained staff and long OT occupancy as has been verified in similar study done by Dayaratne S.[14] K. K. Roy compared the three techniques of hysterectomy in his study- and came to the conclusion that non descent vaginal hysterectomy may be a preferred technique over laparoscopic hysterectomy for benign diseases of uterus where extensive pelvic dissection is not required. Vaginal hysterectomy should remain "no.1"in the domain of the gynaecological surgeon and LAVH should be considered as an specific approach with its own distinctive indication. VH should be incorporated in the gynaecological-residency-training apart from training in laparoscopy.[15]

With the emphasis on minimally invasive surgery and increased desire for stitch less surgery,rapid recovery and cost effective health care, has led to the revival of vaginal route for various indications other than the conventional prolapsed uteri. NDVH has led to the advantage of natural entrance, direct approach to the cervix and uterosacral ligaments and it requires no hole on the abdomen, no parietal pain, wound infection, or hernia formation, so more advantage over abdominal or laparoscopic surgery as they leave multiple scars and takes longer to recover from thus more safe in obese as well as patients with medical disorders.[16,17]

More than this vaginal route also gives us an opportunity to take better care of supporting ligaments to prevent post hysterectomy vault prolaps, cosmetic genital reconstruction and management of posterior compartment defect at the same time in non-prolapsed cases as well. Thus there are many reasons for vaginal hysterectomy to be considered as the gold standard in minimally invasive approaches of hysterectomy as it was found to be cost effective and cosmetically appealing among all routes as observed by Krishna avatar et al.[18] NDVH a natural, original orifice surgery with these distinct and undisputed evidences, still appears to be poorly accepted both among surgeons and patients so physician have an obligation to make patient aware of the advantages and disadvantages of available surgeries so together they can select the best option.[19] Dr. Thomas Julian in 2008 has written a wonderful and prescient commentary about this paradox, entitled 'Vaginal Hysterectomy :An apparent Execption to Evidence Based Decision Making. He discussed some of the reason for its decline, including clever marketing,

the myth that" newer "equals "better" and mostly a lacking of training for current residents and post graduates who more and more feel uncomfortable performing what he consider to be the easiest method of hysterectomy.[20]

Conclusion

Hysterectomy will remain an important and essential armoury of the gynaecological surgeries and while considering minimal invasive surgery, safety and economics NDVH should top the list in all possible indications of hysterectomies as it is safe, satisfying, cosmetically adorning, economical, environmental friendly procedure reduces associated health related problems and recuperation time as It is done with simplest of instruments via natural orifice with no hole/scar on the abdomen thus improves the well being and quality of life of a women.[21,22]

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