

Abdominal hysterectomy versus non-descent vaginal hysterectomy- A comparative clinico-pathological study

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Abstract

Introduction: Hysterectomy is the commonest major operation performed by gynaecologist through various approaches and techniques including vaginal, abdominal, laparoscopic and robotic hysterectomy. Vaginal hysterectomy offers lesser complications during intra and post-operative period in comparison to abdominal hysterectomy. The past years have seen growing indications for vaginal hysterectomy and with the help of debulking techniques hysterectomy through vaginal approach become easier in large size uterus and now has been preferred over abdominal hysterectomy.

Objectives: The objectives of the study are to compare intra and post-operative complications, efficacy of abdominal hysterectomy with vaginal hysterectomy.

Methodology: A total of 170 cases with an indication of hysterectomy were selected of which 85 underwent Non descent vaginal hysterectomy and rest 85 underwent abdominal hysterectomy. These patients were further evaluated and statically analysed for various factors including age, parity, operative time, blood loss and intra and post-operative complications. Collected data were analysed.

Results: No significant association was found between age, parity and selection of procedure. Fibroid was the most common indication for hysterectomy in both the groups. Patients of NDVH group were operated with minimal blood loss, in lesser duration in comparison to patients operated by abdominal hysterectomy. Significant association was found for above two factors which highly influence the selection of procedure. 7.1% cases of NDVH required debulking procedure. Blood transfusion (17.6%), difficulty in opening the anterior pouch (24.7%), difficulty in delivery of the uterus (15.3%) was more in control group as compared to study group. post-operative complications were more in control group as compared to the study group like resuturing (4.7%), wound infection (9.4%), gastro-intestinal discomfort (15.3%), fever (17.6%) and abdominal distension (14.1%) which was significant. Faster recovery was observed in group of NDVH. Follow-up complications like vaginal discharge/UTI were almost equal in both the groups.

Conclusion: Non descend vaginal hysterectomy offers several benefits over abdominal surgery in terms of Less intra-operative blood loss, less febrile morbidity, low postoperative complications, faster recovery, less hospital stay, thus demonstrating that the vaginal route should be the choice of operation for non-descent cases.

Keywords: Hysterectomy, Vaginal hysterectomy, Abdominal hysterectomy

Introduction

Hysterectomy is the most common operation performed by the gynaecologist. There are many indications for hysterectomy, and uterus can be removed using any of a variety of techniques and approaches, including abdominal, vaginal route or laparoscopic.⁽¹⁾

Now day's laparoscopic surgeries are becoming popular due to less morbidity, lesser hospital stay, early resumption of physical activities, more cosmetic, less post operative pain but at the same time costly, not available at all the centres, longer operative time, requires skilled personnel and more associated complications.⁽²⁾

Vaginal hysterectomy being the oldest approach, is the signature operation of the gynaecologic profession. It is usually performed for prolapsed uterus but with the advancement and expertise in techniques vaginal route has also been used for the removal of non-descended uterus (known as non-descent vaginal hysterectomy).⁽³⁾ Criteria such as the uterine size, mobility, accessibility and the pathology confined to the uterus are mostly the incorporating

factors for non-descent vaginal hysterectomy.⁽⁴⁾ Vaginal hysterectomy in large fixed uterus can be facilitated by bisection, myomectomy, debulking, coring and clamp less approach.⁽⁵⁾ This procedure has less operative time, early recovery, less pain, scar less, less morbidity and early resumption of activity.⁽⁶⁾

A gynaecologist should have the ability to perform both procedures irrespective of the chosen route. NDVH is the procedure of choice over abdominal hysterectomy due to its advantages especially in obese and high risk patient. This study was done to support the above statement.

Objectives

The objectives of present study are to compare the operative feasibility, intra and post-operative complications, advantages and efficacy of vaginal hysterectomy with that of abdominal hysterectomy in non-descent uteri.

Materials and Method

Present study was a longitudinal prospective observational study done in the gynaecology department of Index Medical College and Research Centre, Indore (M.P). The study was performed over a period of one year from January 2015 to January 2016 on the women's admitted in the gynaecology ward that had an indication for hysterectomy. Simple random sampling technique was used for selection of desired samples according to inclusion criteria. A total of 170 cases were enrolled for hysterectomy after taking informed consent that were equally divided into two groups of equal size and randomly assigned to a specified group, study(NDVH) and control (Abdominal hysterectomy).

Inclusion criteria were patients requiring hysterectomy for benign gynaecological disorders without prolapsed, uterine size not exceeding 16 wks of gravid uterus, adequate vaginal access, and no associated medical and surgical disease. Women with prolapsed of any degree, with restricted uterine mobility, complex adnexal mass, suspicion of malignancy, vaginal inaccessibility (defined by an extremely tight introitus), cervical fibroid were excluded from the present study.

Patient's age, parity, weight, menstrual history and presenting complaints were noted. A complete general, physical and pelvic examination was performed. Required preoperative investigations were done. A pre-operative ultrasonography was done to access the size of the fibroid and any adnexal pathology. All patients were counselled about the disease and surgical procedure they had to undergo. Data regarding duration of operation, estimated blood loss, need of blood transfusion, complications, length of hospital stay and follow-up were collected.

Observations

Most of the patients in study and control group (44.7% and 42.4%) belonged to age group of 41-50 years and second highest age group was 46-50 years, 20 (23.5%) in study group while 25 (29.4%) subjects were in control group as depicted in Fig. 1. The association between age factor and type of operation was found to be not significant (p value > 0.05).

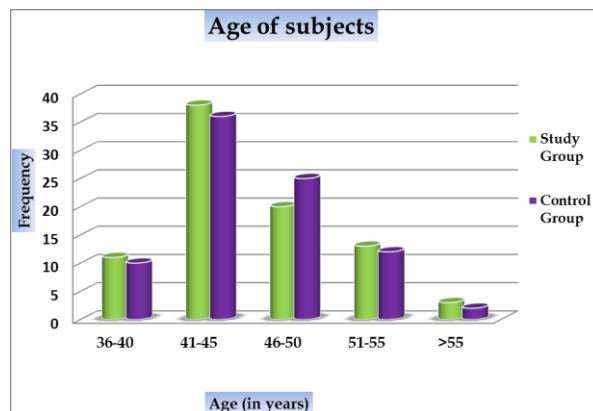


Fig. 1: Comparison of age between both groups

The most of the patients were multi parous as depicted in Fig. 2. 54.1% and 44.7% were identified as Para 3 and Para 4 women in study and control group respectively. The association was found to be not significant (p value > 0.05).

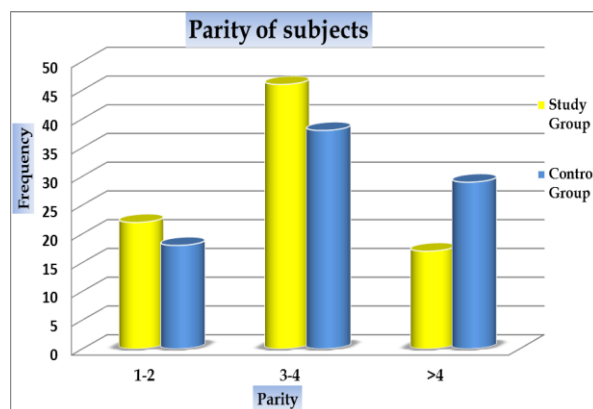


Fig. 2: showing comparison of parity between both the groups

Table 1: Indication for Hysterectomy

Indication	Study Group No. (%)	Control Group No. (%)
DUB	23(27%)	20(23.5%)
Fibroid	34 (40.0%)	35 (41.2%)
Pelvic Inflammatory Diseases (PID)	19 (22.4%)	22 (25.9%)
Adenomyosis	3 (3.5%)	2 (2.4%)
Endometriosis	1 (1.2%)	2 (2.4%)
Endometrial Polyp	5 (5.9%)	4 (4.7%)
Total	85	85

As depicted in Table 1, most of the subjects in study group (34, 40.0%) and control group (35, 41.2%) were operated for Fibroid followed by dysfunctional uterine bleeding in study group 23 (27.1%) and 20 (23.5%) in control group. PID was reported in 19 (22.4%) subjects in study group while only two cases were operated in

control group. Only one and two cases were operated for Endometriosis in study and control group respectively while Endometrial Polyp operated in 5 (5.9%) and 4 (4.7%) respectively.

Table 2: Comparison of Operative period in both Groups

Duration (in minutes)	Study Group N	Control Group N	Chi ² value	LOS
< 60	63 (74.1%)	24 (28.2%)	44.22	p<0.001 *
60-90	22 (25.9%)	39 (45.9%)		
>90	0 (0.0%)	22 (25.9%)		
Total	85 (100.0%)	85 (100.0%)		
Mean ± SD	45.64±13.16	70.24±21.90	8.88	p<0.001 **
$\chi^2 = 44.22$ [p<0.001; Two-Tailed] Highly Significant				

* The association is highly significant for 2 d. f. at the 0.001 level. The figures in parenthesis denote corresponding %. ** The mean difference is highly significant for 168 d. f. at the 0.001 level. [LOS-Level of Significance]

When duration of operation was measured, it was observed that approximately three-fourth of the subjects were operated in less than one hour in study group, 63 women (74.1%) while in control only 24 (28.2%), which was significant. It was also observed that more than one and half hour was taken for operation in 25.9% cases in control group while maximum up to one and half hour was taken for operation in study group.

Non-Descent Vaginal Hysterectomy (NDVH) while 3.5% women needed morcellation and only 1 case of multiple myoma needs myomectomy.

Table 3: Comparison of Blood Loss in both groups

Blood Loss (in ml)	Study Group N	Control Group N	p-value	LOS
< 100	60 (70.6%)	37 (43.5%)	13.64	p<0.001 *
100-200	23 (27.1%)	40 (47.1%)		
>200	2 (2.4%)	8 (9.4%)		
Total	85 (100.0%)	85 (100.0%)		
Mean ± SD	87.29±51.49	121.06±73.34	3.47	p<0.001 **
$\chi^2 = 13.64$ [p<0.001; Two-Tailed] Highly Significant				

* The association is highly significant for 2 d. f. at the 0.001 level. ** The mean difference is highly significant for 168 d. f. at the 0.001 level. The figures in parenthesis denote corresponding %. [LOS-Level of Significance]

As seen in Table 3, less than 100 ml of blood loss were measured in approximately three-fourth of the subjects in study group (60, 70.6%). It was also observed that in 9.4% of cases, operated through abdominal hysterectomy, more than 200 ml of blood loss occur during operation. The association between blood loss and type of surgery was found to be significant as clearly seen in Table 3.

As seen in Fig. 3, 7.1% cases with large uterus required debulking during conduction of operation by

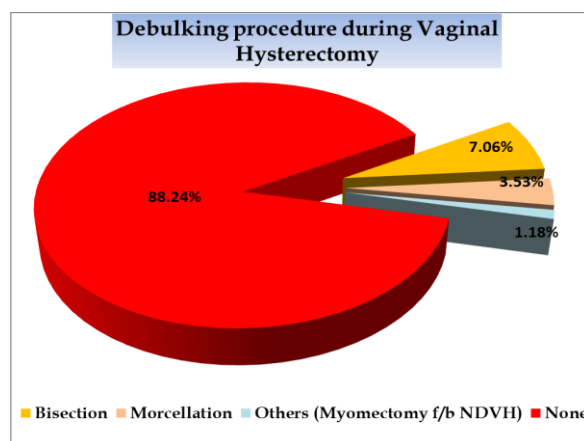


Fig. 3

More than three-fourth (78.8%) of the cases in study group were anaesthetized by Spinal anaesthesia as seen in Fig. 4. Very few, 10 (11.76%) cases were operated after administering GA.

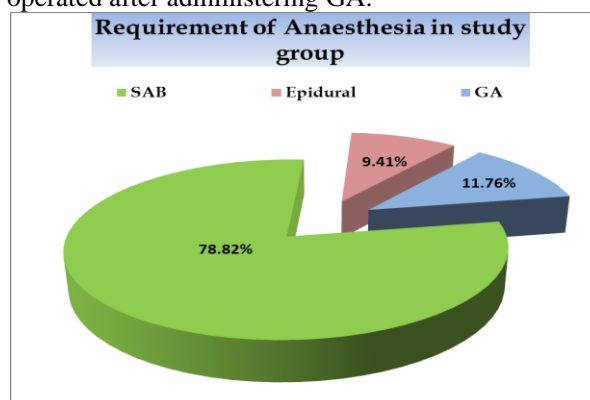


Fig. 4: Pie diagram showing requirement of Anaesthesia in study group

Table 4: Intra operative and post-operative comparison of study and control group

Complications		Study Group	Control Group	p-value	LOS
Blood Transfusion	Yes	6 (7.1%)	15 (17.6%)	4.40	p<0.05 *
	No	79 (92.9%)	70 (82.4%)		
Difficulty in opening anterior pouch	Yes	10 (11.8%)	21 (24.7%)	4.77	p<0.03 *
	No	75 (88.2%)	64 (75.3%)		
Difficulty in delivering uterus	Yes	8 (9.4%)	13 (15.3%)	1.36	p>0.05 **
	No	77 (90.6%)	72 (84.7%)		
Ureteric/ Bladder injury	Yes	1 (1.2%)	3 (3.5%)	1.02	p>0.05 **
	No	84 (98.8%)	82 (96.5%)		
Pain	Yes	20 (23.5%)	36 (42.4%)	6.82	p<0.001 ***
	No	65 (76.5%)	49 (57.6%)		
Fever	Yes	6 (7.1%)	15 (17.6%)	4.40	p<0.05 **
	No	79 (92.9%)	70 (82.4%)		
Abdominal Distension	Yes	4 (4.7%)	12 (14.1%)	4.42	p<0.05 **
	No	81 (95.3%)	73 (85.9%)		
Nausea/Vomiting	Yes	5 (5.9%)	13 (15.3%)	3.98	p<0.05 **
	No	80 (94.1%)	49 (57.6%)		
Wound Infection	Yes	2 (2.4%)	8 (9.4%)	3.83	p<0.05 **
	No	83 (97.6%)	77 (90.5%)		
Resuturing	Yes	0 (0.0%)	4 (4.7%)	4.10	p<0.05 **
	No	85 (100.0%)	81 (95.3%)		
Need for reopening	Yes	0 (0.0%)	1 (1.4%)	1.01	p>0.05 *
	No	85 (100.0%)	84 (98.8%)		

* The association isn't (Insignificant) significant for 2 d. f. at the 0.05 level. ** The association is significant for 2 d. f. at the 0.05 level. *** The association is highly significant for 2 d. f. at the 0.001 level. The figures in parenthesis denote corresponding %. [LOS-Level of Significance]

We observed that blood transfusion (17.6%), difficulty in opening the anterior pouch (24.7%), difficulty in delivery of the uterus (15.3%) was more in control group as compared to study group (Table 4). Moreover, it was statistically interpreted that blood transfusion and difficulty in opening anterior pouch were the important factors which was determined by significant associations (p value <0.05 and p value <0.03) and influenced the selection of the procedure. The association of difficulty in delivering the uterus and ureteric/bladder injury with the type of the procedure showed an insignificant association (p value > 0.05). It can be easily observed from Table 4; post-operative complications were more in control group as compared to the study group like resuturing, wound infection, gastro-intestinal discomfort, fever, abdominal distension which is significant.

Few other factors were also compared between both groups as shown in Table 5 which are significant.

Table 5: Other factors compared between study and control group

Parameter	Method	Mean	Std. Dev.	Ranges	p-value	LOS
Ambulation	NDVH	1.75	0.43	1-2 day	7.43	p<0.001 * *
	TAH	2.25	0.43	2-3 day		
Need of analgesic doses (Post-Operative)	NDVH	2.80	0.72	1-4 doses	20.35	p<0.001 * *
	TAH	5.11	0.76	3-6 doses		
Resumption of bowel/bladder activity	NDVH	8.62	2.87	3-16 hours	19.91	p<0.001 * *
	TAH	18.74	3.70	9-26 hours		
Hospital stay	NDVH	4.44	0.78	2-5 days	19.05	p<0.001 * *
	TAH	6.96	0.94	5-9 days		

* * The mean difference is highly significant at the 0.001 level for 168 degrees of freedom. [LOS-Level of Significance]

Table 6: Complications during follow-up of both the groups

Characteristic		Study Group	Control Group	p-value	LOS
Vaginal discharge/UTI	UTI	4 (4.7%)	4 (4.7%)	4.10	p>0.05 *
	VD	4 (4.7%)	0 (0.0%)		
	No	77 (90.6%)	81 (95.3%)		
Re-Hospitalization	Yes	2 (2.4%)	5 (5.9%)	1.31	p>0.05 *
	No	83 (97.6%)	80 (94.1%)		

* The association isn't (Insignificant) significant for 1 and 2 d. f. at the 0.05 level. The figures in parenthesis denote corresponding %. [LOS-Level of Significance]

In present study, follow-up complications like vaginal discharge/UTI were almost equal in both the groups. During follow-up, only 2 (2.4%) subjects that had undergone Non-descent vaginal hysterectomy needed re-hospitalization while 5 (5.9%) subjects who had undergone TAH needed re-hospitalization.

Discussion

It is a well-known fact that 70-80% of the hysterectomies done for benign conditions are performed abdominally while vaginal hysterectomy is usually performed for the uterine prolapsed.⁽⁷⁾ The reason being inadequate technical skills, presence of uterine enlargement and less vaginal space. But with the newer techniques like bisection, morcellation and myomectomy, vaginal hysterectomy has become easy to perform even in enlarged uterus.

In the present study, no significant association was found between age, parity and type of selected procedure as similarly observed by Deshpande et al.⁽⁸⁾ and L Benassi et al.⁽⁹⁾ Similar study by Rupali D et al.⁽¹⁰⁾ included 50 cases of NDVH out of which 54% of the patients were in the age group of 41 to 45 years and 46% patients who had undergone NDVH were para3. Though higher parity and advancing age are the favourable factors for vaginal hysterectomy but no statically significant association was found.

It was observed that most common indication for hysterectomy in study group (40%) and control group (41.2%) was fibroid, followed by dysfunctional uterine bleeding, pelvic inflammatory diseases, endometrial polyp, adenomyosis and endometriosis which is comparable to the study conducted by Neerja G et al.,⁽¹¹⁾ showed maximum cases of NDVH were operated for fibroid uterus (47%), DUB (19%), adenomyosis (5%) and endometrial hyperplasia (4%). A similar study performed by Rupali D et al. showed fibroid as the most common indication for NDVH (68%). Singh A and colleagues found, fibroid as a most common indication for hysterectomy in both the groups.⁽¹²⁾

When duration of surgery was analysed it was found that approximately three-fourth of the patients in study group (74.1%) was operated in less than one hour whereas only 28.8% in control group. It was also observed that more than one and half hour was taken for performing the surgery in 25.9% cases in control group while up to a maximum of one and half hour was taken for NDVH. The mean difference for duration of operation in study and control group was highly significant (p value <0.001) which indicates that the time used for operation by NDVH and TAH methods were different and influences the selection of the procedure. Henceforth, the technique of Non-Descent Vaginal Hysterectomy (NDVH) is better than

conventional abdominal hysterectomy when duration of operation is considered. In the Study performed by Sanita Kayastha and colleagues,⁽¹³⁾ the mean duration of surgery of TAH was 96.8 min and that of VH was 89 min (p value=0.0192). Another study by Sunanda Bharatnur,⁽¹⁴⁾ in majority of cases (72%) the maximum operating time was between 60-120min in abdominal hysterectomy group where as in NDVH Group (68%) the time taken was 60min.

It was observed that during surgery there was a minimal blood loss in NDVH as compared to abdominal hysterectomy. Furthermore, it was statistically interpreted that blood loss during operation is one of the important factor which influenced the selection of the procedure. In the study by Despande et al, mean blood loss was significantly less amongst non-descent vaginal hysterectomy cases as compared to total abdominal hysterectomy. Bing Chen, Dong-Ping Ren, Jing-Xuan Li, Chun-Dong Li who compared outcomes of vaginal and abdominal hysterectomy procedures in women also concurred with their results showing intraoperative blood loss was significantly less in the Vaginal Hysterectomy (Mean 30.4 ml) group compared with the abdominal hysterectomy (Mean 70.3 ml) group.⁽¹⁵⁾ Similar results were also observed in the study by Sanita Kayastha and Singh A.

7.1% cases identified with large uterus required debulking during surgery by Non-Descent Vaginal Hysterectomy (NDVH), 3.5% women required morcellation and only 1 case of multiple myoma needed myomectomy. In the study by Neerja G et al. debulking procedure was done in 41% of cases in which bisection was the most common technique (31 cases) followed by myomectomy(24 cases), morcellation(5 cases). Another study done by Kumar Sushil and colleagues, also performed NDVH successfully by using various debulking procedure, out of which most common was bisection of the uterus.⁽¹⁶⁾ A study by Rupali D et al. also showed the usefulness of these debulking surgeries in cases of NDVH as 42 cases needed debulking procedures in her study.

In the present study intra operative complications while performing non descent vaginal hysterectomy were less as compared to the conventional method. Moreover, it was statistically interpreted that blood transfusion and difficulty in opening the anterior pouch were the important factors, determined by significant associations (p value <0.05 and p value <0.03) influenced the selection of the procedure while difficulty in delivering uterus and ureteric/bladder injury showed an insignificant association (p value >0.05). Similarly, post-operative complications were more after abdominal hysterectomy in comparison to the other group. Majority of the patients in after abdominal hysterectomy complained of pain (42.4%), fever (17.6%) while 23.5%, 7.1% respectively, in study group. Abdominal distension and wound infection were

observed three-time and four-time less in study groups in comparison to control group. 4.7% and 1.4% subjects respectively needed resuturing and reopening in control group while none in the study group. Furthermore, it was statistically interpreted that intensity of pain in post-operative period and above discussed factors are most important factor which influences the selection of the procedure. Henceforth, the technique of Non-Descent Vaginal Hysterectomy (NDVH) which showed less intra and post-operative complications and morbidity is considered better than conventional abdominal hysterectomy. A study by Neerja G et al and Singh A showed that no major postoperative complications were encountered in any of the cases operated through vaginal route.

In the present study significant association was observed between NDVH and early resumption of physical activities, required less analgesic, early resumption of bowel and bladder activities and less period of hospital stay. Similar results were encountered by Rupali D et al and S Kayastha et al.

It was extracted from above; that the intervention by Non-descent vaginal hysterectomy is better than Abdominal Hysterectomy and Vaginal approach should not be restricted to women with genital tract prolapsed alone.

Conclusion

Vaginal hysterectomy in women with non-descent and moderately enlarged uteri is safe although sometimes debulking techniques is often needed and the surgeon needs to be familiar with them but with experience operative time, blood loss and complications can be reduced considerably and this scar less approach should be chosen as a preferred method of hysterectomy. Thus, we conclude that Non-descent vaginal hysterectomy should be the technique of choice in routine practice for management of patients with non-descent benign diseases of the uterus whereas abdominal approach should be left for those cases where vaginal hysterectomy is either contraindicated or intraoperative conversion to abdominal route becomes mandatory due to complications.

References

1. Telinde's Operative Gynaecology, Abdominal hysterectomy, Tenth Edition John A. Rock, Horward W. Jones 3.
2. Chavhan RP, Arora G, Pajai S. Comparative study between vaginal and abdominal hysterectomy in non-descent cases. *Int J Sci Rep.* 2016 Mar;2(3):48-52.
3. Mehta ST, Trivedi YN, Bhalodia P. Role of non-descent vaginal hysterectomy in advancing gynaecological practice. *NHL Journal of Medical Sciences.* 2014 Jan;3(1):55-58.
4. Kovac SR. Decision-directed hysterectomy: a possible approach to improve medical and economic outcomes. *Int J Gynaecol Obstet.* 2000;71:159-69.

5. Unger JB. Vaginal hysterectomy for the woman with moderately enlarged uterus weighing 200 to 700 grams. *Am J Obstet Gynecol.* 1999;180:1337-44.
6. Bhadra B, Choudhury AP, Tolasaria A, Nandi. Non Descent Vaginal Hysterectomy (NDVH): Personal Experience in 158 Cases. *Al Ame en J Med Sci* 2011;4(1):23-27.
7. Thomas G. Stovall. Hysterectomy. Berek & Novak's Gynecology 14th Edition. 2007;22(c):805.
8. Deshpande H, Burute S, Malik R. A comparative study of abdominal hysterectomy versus non descent vaginal hysterectomy. *International Journal of Contemporary Medical sciences.* 2016 Apr;3(4):1153-1156.
9. L. Benassi et al. Abdominal or vaginal hysterectomy for enlarged uteri: A randomized clinical trial. *AJOG* December 2002;187:1561-1565.
10. Dewan R, Agarwal S, Minocha B, Sen SK. Non-descent vaginal hysterectomy—an experience. *J Obstet Gynaecol India.* 2004;54(4):376-378.
11. Goel N, Rajaram S, Mehta S. State of the art- vaginal surgery. *JP Medical LTD,* 2013 Jan.
12. Singh A, Bansal S. Vaginal hysterectomy for non-prolapsed uterus. *J Obstet Gynecol India.* 2006 Mar/Apr;56(2):152-155.
13. Kayastha S, Tuladhar H. Vaginal hysterectomy versus abdominal hysterectomy. *Nepal Med Coll J.* 2006 Dec;8(4):259-262.
14. S. Bharatnur: Comparative Study of Abdominal Versus Vaginal Hysterectomy in Non- Descent Cases. *The Internet Journal of Gynaecology and Obstetrics.* 2011;15(2).
15. Chen B, Ren DP, Li JX, Li CD. Comparison of vaginal and abdominal hysterectomy: A prospective non-randomized trial. *Pak J Med Sci.* 2014;30:875-879.
16. Sushil K, Antony ZK. Vaginal hysterectomy for benign non prolapsed uterus-Initial Experience. *J Obstet Gynaecol Ind.* 2004;54(1):60-63.