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Research Article

Comparative study of abdominal, vaginal and laparoscopic assisted vaginal hysterectomies with special reference to immediate sequel, late sequel and complications

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ABSTRACT

Background: Hysterectomy can be performed by abdominal, vaginal or laparoscopic assisted procedure. Each procedure has its own indications, contraindications, complications, advantages and disadvantages. The objective was to compare abdominal, vaginal and laparoscopic assisted vaginal hysterectomies, with special reference to immediate and late sequel and complications.
Methods: Hospital based cross sectional study was carried out for a period of two years among selected 60 women who underwent hysterectomy. Detailed history, complete clinical, obstetric examination, and all necessary investigations were carried out. Comparison in relation to complications, duration of surgery etc for the three types of hysterectomy was done.
Results: The vaginal hysterectomy was found to be more advantageous in cases with uterus less than 12 weeks size and without gross adnexal pathology and laparoscopic hysterectomy is advantageous for the cases with large fibroid, ovarian pathology, endometriosis, adenomyosis or adhesions.
Conclusions: Preference for laparoscopic assisted vaginal hysterectomy or vaginal hysterectomy depends on expertise of doctor and selections of patients.

Keywords: Vaginal hysterectomy, Complications, Sequel

INTRODUCTION

Hysterectomy is most common major operation after Caesarean Section.[1] Abdominal hysterectomy accounted for 63% of all hysterectomies in the United States in 1997 whereas vaginal hysterectomy accounted for 9.9% of the total hysterectomies.[2] In the United States one third of the women can be expected to have a hysterectomy by age 60.[3]

The advantages of abdominal hysterectomy are that it provides surgeon good visibility and easy access to the pelvic organs, enables removal of a very large uterus and large areas of endometriosis, adenomyosis, and scar tissue, cervix can be removed or left in space, required less time under anesthesia and in surgery than laparoscopic hysterectomy.[4] At the same time the disadvantages are painful abdominal incision, longer hospital stay and recovery time, a large scar, longer convalescence, costs more than vaginal hysterectomy.[5]

The advantages of vaginal hysterectomy are that it enables removal of normal to slightly larger than normal uterus and small uterine fibroids, less pain, does not cause scars, less manipulation of intestines, morbidity associated with abdominal incision is avoided, reduces the depth and height of anesthesia, need for nursing care is reduced etc.[6] The disadvantages are don't allow free access to the pelvic organs.[7]

In view of advantages and disadvantages of abdominal and vaginal hysterectomy, recently used laparoscopic assisted vaginal hysterectomy (LAVH) is considered to be safer but it also carries some complications.

Hence present study was undertaken to compare these techniques with special reference to immediate and late sequel and complications following these operations.

METHODS

Study type

Hospital based cross sectional comparative study.

Study place

Department of Obstetrics and Gynecology, Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar

Study period

Two years

Ethical considerations

Institutional Ethics committee permission was taken prior to the study. Informed consent was taken from each and every patient.

Sample size

60 cases of hysterectomy of which 20 were abdominal, 20 were simple vaginal and remaining 20 were LAVH.

Inclusion criteria

Patients with

1. Dysfunctional Uterine Bleeding,
2. Uterine fibroid cervical dysplasia,
3. Endometriosis and
4. Adenomyosis,

Complete history, detailed clinical, gynecological examination was carried out. All necessary investigations were performed.

Details about the operation like, duration of surgery, type of anesthesia, findings at operation, complications during operation and history any intra-operative blood transfusion are noted. Postoperatively the following points are noted:

1. Any complications
2. postoperative pain and requirement for analgesics
3. Ambulation
4. Bowel sounds
5. Parenteral fluid requirements

At the time of discharge advice about HRT is given if the ovaries are removed and all the patients were asked to come for follow up at OPD after 6 weeks.

RESULTS

Table 1: Comparison of duration of the surgery.

Type of hysterectomy	Duration of surgery
Abdominal	45-55 mins
Vaginal	40-50 mins
LAVH	60-120 mins

Technical difficulties were encountered with 2 cases of LAVH. In these cases cautery did not work during the procedure and hence duration of surgery was very much prolonged.

Table 2: Comparison of intra operative complications in different types of hysterectomies.

Complication	Abdominal	Vaginal	LAVH	%
Hemorrhage	2	3	0	8.3%
Bladder injury	0	0	0	0.0%
Anaesthesia related	0	0	1	1.0%
Bowel injury	0	0	0	0.0%

Hemorrhage was not observed in patients who underwent LAVH. 1 case of LAVH had late recovery from anesthesia. Intra operative blood transfusion was given to 2 cases of abdominal hysterectomy, 2 case of vaginal hysterectomy and nil for LAVH cases.

Table 3: Comparison of postoperative ambulation among different types of hysterectomies.

Post operative day	AH	VH	LAVH
1st	13 (65%)	18 (90%)	20 (100%)
2nd	4 (20%)	2 (10%)	0
3rd	3 (15%)	0	0

X^2=11.53, p=0.02122, S

Table 4: Comparison of post operative requirement of analgesics.

Post operative day	AH	VH	LAVH
1st	20 (100%)	20 (100%)	20 (100%)
2nd	18 (90%)	10 (50%)	5 (25%)
3rd	15 (75%)	3 (15%)	0

X^2 = 16.97; p=0.001962, S

Of the patients who underwent abdominal hysterectomy only 65% of patients ambulated on 1st postoperative day.

20% of them were ambulatory on 2nd postoperative day. Remaining were ambulatory on 3rd postoperative day. It was observed that 90% of vaginal hysterectomy patients were ambulatory on 1st postoperative day itself. Only 10% were ambulatory on 2nd postoperative day. Ambulation was observed earliest in patients who underwent LAVH. All of the patients in this group were ambulatory on 1st postoperative day.

Postoperative pain and requirement for analgesics was greatest with patients who underwent abdominal hysterectomy and least with patients who underwent LAVH.

Table 5: Comparison of post operative return of bowel sounds.

Post operative day	AH	VH	LAVH
1st	0	20 (100%)	20 (100%)
2nd	18 (90%)	0	5 (25%)
3rd	2 (10%)	0	0

X^2=60; p=0.0000001, NS

In majority of patients who underwent abdominal hysterectomy bowel sounds returned on 2nd postoperative day. Bowel sounds returned on 1st postoperative day in patients who underwent vaginal hysterectomy and LAVH. In only 30% of them bowel sounds returned back on 1st postoperative day in the evening.

Table 6: Comparison of early post operative complications.

Type of complication	Abdominal	Vaginal	LAVH	%
Hemorrhage	0	0	0	0.0 %
Pyrexia	5	3	0	0.13.3 %
Anaesthesia complications	1	2	0	5.0 %
Peritonitis	0	0	0	0.0 %
Wound sepsis	3	0	0	5.0 %
Partial dehiscence	1	0	0	1.6 %
Total dehiscence	0	0	0	0.0 %
Pulmonary problems	0	0	0	0.0 %
Burst abdomen	0	0	0	0.0 %
Urinary problems	6	4	1	16 %
GI T upset	4	2	0	10.0 %

Pyrexia was most commonly seen in patients who underwent abdominal hysterectomy. 40% of these patients underwent abdominal hysterectomy and 20% underwent vaginal hysterectomy. None of the patients of LAVH had pyrexia. Post spinal headache was observed in 1 case of abdominal hysterectomy and 2 cases of vaginal hysterectomy. Diarrhea and G I T upset was observed in 4 cases of abdominal against 2 cases of vaginal and nil in LAVH cases. In the abdominal cases majority had urinary retention and needed catheterization. Of vaginal hysterectomy cases 9 cases had urinary tract infection. 3 cases of abdominal hysterectomy had wound sepsis. None of the vaginal hysterectomy or LAVH cases had any wound infection in this study. Partial dehiscence not involving the rectus sheath was found in 1 case of abdominal hysterectomy.

Table 7: Comparison of Late post operative complications.

Type of complications	Abdominal	Vaginal	LAVH	%
Vault granulation	1	1	0	3.3 %
Hemorrhage	0	0	0	0.0 %
Pyrexia	0	0	0	0.0 %
Incisional hernia	0	0	0	0.0 %
Prolapse of fimbrial end	0	0	0	0.0 %
Omental prolapse	0	0	0	0.0 %
Port site hernia	0	0	0	0.0 %
Urinary problems	2	1	0	5.0 %
Psychological	0	0	0	0.0 %

Vault granulation was seen in 1 case of abdominal hysterectomy and one case of vaginal hysterectomy and nil in LAVH cases. 2 cases of abdominal hysterectomy and 1 case of vaginal hysterectomy had complications of burning micturition.

DISCUSSION

In this study emphasis is laid on the comparative aspects of different types of hysterectomies in 60 randomly selected cases. 20 cases were taken for abdominal hysterectomy, 20 cases were vaginal hysterectomy and 20 cases were LAVH. In order to get proper results, similar cases were selected for comparison.

In our series, we had carefully evaluated clinically and excluded descended uterus and adnexal pathology .We have included only abnormal uterine bleeding, fibroids, endometriosis, adenomyosis, and cervical dysplasias in our study.

Our primary aim was to evaluate and compare preoperative, Intraoperative and postoperative complications in these three types of hysterectomies.

Studies by Summit, Ottosen, Hwang, Garry et al, Rosita A et al.[8-11]

2007, found that in their studies shows that there is least blood loss in the laparoscopic assisted vaginal hysterectomy.[12] Though there is no much difference

between these three groups in amount loss, hemostasis is more easily obtained at laparoscopic assisted vaginal hysterectomy because of magnification, close inspection, routine use of suction irrigation and bipolar cautery. In the present study 5 cases had excessive blood of which 2 cases underwent abdominal hysterectomy and 3 cases underwent vaginal hysterectomy. Among these 5 cases, 2 cases had borderline anaemia preoperatively.

Ottosen, Ribiero, and Garry et al in their studies showed that the bladder injuries are more in laparoscopic assisted vaginal hysterectomy followed by vaginal hysterectomy. Meikle SF, Nugent EW, Orleans M in found greater incidence of bladder injury 1.8% in LAVH cases compared to abdominal hysterectomy where it was only 0.4%.[9,11,13,14] In Present study none of the patients had this complication.

Studies done by Ottosen, Ribiero, and Garry et al in their studies showed that there was no significant difference between abdominal and laparoscopic assisted vaginal hysterectomy in ureter injuries during surgery.[9,11,13] Present study shows no ureter injury.

Studies by Ottosen, Garry et al and G. McCracken et al shows that post operative ambulation is early in laparoscopic assisted vaginal hysterectomy followed by vaginal hysterectomy.[9,11,15] Ambulation is delayed in abdominal hysterectomy. Present study shows the similar findings.

Studies by Ottosen, Garry et al and G. McCracken et al shows that the post operative requirement of analgesics is more in the abdominal hysterectomy followed by vaginal hysterectomy.[9,11,15] Requirement of analgesics is least in laparoscopic assisted vaginal hysterectomy. Present study shows the similar findings.

Studies by Ottosen, Garry et al and G. McCracken et al shows that the post operative return of bowel sounds is early in the laparoscopic assisted vaginal hysterectomy followed by vaginal hysterectomy and delayed in abdominal hysterectomy.[9,11,15] Present shows similar findings.

Studies by Ottosen, Garry et al and G. McCracken et al shows that the post operative requirement of parenteral fluids is more in the abdominal hysterectomy followed by vaginal hysterectomy and least in laparoscopic assisted vaginal hysterectomy.[9,11,15]

Post spinal headache was observed in 1 case of abdominal hysterectomy and 2 cases of vaginal hysterectomy.

Ferrari, Schutz, Garry, Muzii and Kulviers studies showed that laparoscopic assisted vaginal hysterectomy is generally associated with less post operative pain and less need for analgesics when compared to abdominal hysterectomy.[11,16-19]

Present study shows that one patient who underwent abdominal hysterectomy had partial gapping and required resuturing. Amirika and Evans in found partial gapping of wound as high as 10.4% and vault infection was 4.6%.[20]

Present study shows urinary tract infection in 10% of abdominal hysterectomy, 15% of vaginal hysterectomy and 1.6% of laparoscopic assisted vaginal hysterectomy. In all the cases urine was sent for culture and sensitivity and treated accordingly. Meikle SF, Ottosen, Hwang G.[14,9,10] McCracken et al observed that urinary tract infections are more common in vaginal hysterectomy followed by abdominal hysterectomy and then in laparoscopic assisted vaginal hysterectomy.[15]

In the present study vault granulation was seen in only 2 cases (3.3%) which were treated with chemical cautery. Ottosen found 2 cases with vault granulations, one in vaginal hysterectomy and one in LAVH.[9] These studies show that risk of vault granulation is similar in abdominal, vaginal and laparoscopic assisted vaginal hysterectomies.

Ottosen observed secondary hemorrhage in 2 cases, one in abdominal hysterectomy and one in LAVH.[9] Garry et al observed secondary hemorrhage in 2 cases, one in abdominal hysterectomy and one in vaginal hysterectomy.[11] G. McCracken et al observed secondary hemorrhage in 1 case that underwent abdominal hysterectomy.[15] These studies show that secondary hemorrhage occurs more in abdominal hysterectomy and least in LAVH. Present study shows no such complication.

Ottosen, Hwang, and Garry et al observed that pyrexia as a late complication is more in cases who underwent abdominal hysterectomy than in vaginal hysterectomy and LAVH.[9-11] Present shows no such complication.

Summit et al, Ribiero, Garry et al found bladder is more common with LAVH than vaginal hysterectomy. No bladder injuries are found in our study.[8,11,13]

Ribiero, Garry et al observed that ureteric injuries are more common with LAVH than abdominal and vaginal hysterectomy. No ureteric injuries are found in our study.[11,13]

Ottosen observed bowel injury in 1 case that underwent LAVH and Garry et al [11] observed bowel injury in 2 cases, one is with abdominal hysterectomy and one is with LAVH.[9] These studies show that bowel injuries are common in LAVH followed by abdominal hysterectomy and less in vaginal hysterectomy. Present study had no bowel injuries.

Ottosen, Ribiero, Garry et al observed fistula in vaginal and laparoscopic assisted vaginal hysterectomies.[9,11,13] These studies show those fistulas are common in vaginal

hysterectomy and LAVH than in abdominal hysterectomy. Present study shows no fistula formation.

Ottosen, Hwang, Ribiero, Garry et al and G. McCracken et al observed 20 % of their patients with depression, sexual dysfunction, backache and dyspaurenia.[9-11,15] Such observation has not been done in this aspect in this series as most of the patients do not come out with proper marital history.

CONCLUSIONS

In conclusion the vaginal hysterectomy is found to be more advantageous in cases with uterus less than 12 weeks size and without gross adnexal pathology and laparoscopic hysterectomy is advantageous for the cases with large fibroid, ovarian pathology, endometriosis, adenomyosis or adhesions. Hence preference for laparoscopic assisted vaginal hysterectomy or vaginal hysterectomy depends on expertise of doctor and selections of patients.

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