Comparative study of total abdominal hysterectomy, vaginal hysterectomy and laparoscopic assisted vaginal hysterectomy

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Abstract:

Background: In 1934, Heaney 1st reported vaginal hysterectomy with few modifications and this method is favoured commonly in the preset days. In the early decades of 20th century, hysterectomy began to be used more often in the treatment of gynecologic disease and symptom. As the surgery became safer, skillfull gynecologists concentrated on developing newer surgical procedures to help the patients. Note worthy contributors were more to the techniques of gynecologic surgery by Sims, Wertheins, Schauta, Kelly, Clarke, Mayo, Meigs and many others.

Objective: To compare total abdominal hysterectomy, vaginal hysterectomy and laparoscopic assisted vaginal hysterectomy.

Methods: In this study, 90 cases of hysterectomy were analyzed over a period of two years for comparison between abdominal, vaginal and laparoscopic assisted vaginal hysterectomies. Of which 30 were abdominal, 30 were simple vaginal and remaining were LAVH.

Results: LAVH took longer operative time i.e. around 120 minutes when compared to TAH and VH. TAH & VH took almost same operative time without much difference. In the present study associated intra operative problems were observed in 7.7% of cases. In the present study, 6.6% of cases were associated with cystic ovaries and among them most of them underwent TAH. We found that 6.6% of women had hemorrhage in TAH and 3.3% in VH. The incidence of bladder injury was 1.1% in the present study. Parker RB et al found bladder injury in 0.67%. One patient had bowel injury due to multiple adhesions which is recognized on 3rd post operative day and laparotomy was done.

Conclusion: Among all three methods of hysterectomies the preferable method of choice is vaginal hysterectomy and LAVH is the second method of choice and the abdominal route is last choice.

Key words: Abdominal hysterectomy, vaginal hysterectomy, laparoscopic hysterectomy

INTRODUCTION:

In 1934, Heaney 1st reported vaginal hysterectomy with few modifications and this method is favoured commonly in the preset days. In the early decades of 20th century, hysterectomy began to be used more often in the treatment of gynecologic disease and symptom. As the surgery became safer, skillfull gynecologists concentrated on developing newer surgical procedures to help the patients. Note worthy contributors were more to the techniques of gynecologic surgery by Sims, Wertheins, Schauta, Kelly, Clarke, Mayo, Meigs and many others. The development of new accessories and improved technology has enabled gynecologists to perform hysterectomy by laparoscopy. Reich and colleagues described the technique of laparoscopic hysterectomy for the first time in 1989. Since then laparoscopic techniques have evolved. Laparoscopic techniques and more recently robotic surgical techniques, are being used more and more frequently. Reich and associates published the first case of laparoscopy assisted vaginal hysterectomy (LAVH) in 1989 for the treatment of a patient with endometriosis and leiomyomata. From 1990 to 1997, the preparation of hysterectomies performed in UK increased by 30 fold from 0.3 to 9.9%.
A study compared surgical approach to hysterectomy for benign gynecological disease in contracted trials. They found the improved outcomes in vaginal hysterectomy (VH) compared to trans abdominal hysterectomy (TAH). They also stated that where VH is not possible, laparoscopic hysterectomy (LH) may avoid the need for TAH.

Another study concluded that VH can be proposed as safe and effective and acceptable method of choice to women, it is cost effective and has convensional postoperative management. Garry R et al observed that LH is safe procedure with complication rate of 1.36% compared with 1.22% with TAH and 1.1% with VH. Shirish Seth reported that vaginal route was indicated for well differentiated endometrial adenocarcinoma, obese, hypertensive and diabetic women with compromised cardiopulmonary status. VH is minimally invasive and provide adequate vaginal cuff, less morbidity and disease free survival.

Kovac SR in 2004 had given the rationale surgical approach. He stated that transvaginal hysterectomy (TVH) is both feasible and optimum for types patients who have long been considered inappropiate candidates for the vaginal route, the new instruments facilitates the vaginal approach and contributes to improved hemostasis and decreased operative time. Ribeiro SC et al performed a randomized study of TAH, VH and LAVH and evaluated operative time, blood loss and other complications. They concluded that LAVVH should be considered a better approach for a larger uterus in view of relatively shorter operative time and less blood loss, whereas, TVH is preferable for small uterus, for not only short operative time and minimal wound and lower cost. Dane et al studied 103 women undergoing VH for benign cases other than prolapsed and concluded that in choosing a hysterectomy technique in women with benign gynecological conditions, without prolapsed, there is no doubt that the vaginal route is safest, least invasive, economical, cosmetic and natural route.

With this background and view, present study was conducted to compare total abdominal hysterectomy, vaginal hysterectomy and laparoscopic assisted vaginal hysterectomy.

**MATERIAL AND METHODS**

In this study, 90 cases of hysterectomy were analyzed over a period of two years for comparison between abdominal, vaginal and laparoscopic assisted vaginal hysterectomies. Of which 30 were abdominal, 30 were simple vaginal and remaining were LAVH.

Indications were fibroid uterus, dysfunctional uterine bleeding, UV prolapsed, adenomyosis, chronic cervicitis, post menopausal bleeding, pelvic inflammatory disease and associated ovarian cyst.

Institutional Ethics committee permission was obtained. After taking informed consent, demographic data was recorded. Chief complaints, menstrual history, medical history, history of previous treatment, past history, history of any previous surgeries, family history, obstetric history and any other relevant history was noted. Investigations like complete blood picture, blood grouping and Rh typing, blood sugar, HIV, HBsAg, prothrombin time, blood urea, serum creatinine, serum bilirubin, liver function tests, complete urine examination, ESR, Thyroid function tests, chest X ray, ECG, USG abdomen and pelvis, pap smear cytology, echo, urine culture and sensitivity, CT scan and if required MRI was done.

All patients were prepared pre operatively.

Total abdominal, vaginal and LAVH were done as per the standard protocol. Post operatively noted point were any complications, post operative pain, requirement for analgesics, ambulation, bowel sounds, parenteral fluid and requirements, oral fluid and diet.

At the time of discharge, advice about HRT was given if the ovaries were removed and all the patients were asked to come for follow up at out patient department after six weeks.

**RESULTS & DISCUSSION:**

We studied the intra operative complications. Hemorrhage was seen in 4 cases of TAH and 2 cases of VH due to oozing at vault. It was not seen in LAVH. One case of bladder injury was observed in TAH due to adhesions and one case of bowel injury in LAVH due to thermal injury by cautery. One case of LAVH had late recovery from general anesthesia. Intra operative blood transfusion was given in 2 cases of TAH and one case of VH and not in LAVH. There were three cases of VH which were converted to TAH for big fibroid uterus.

<table>
<thead>
<tr>
<th>Type of hysterectomy</th>
<th>Duration of surgery (minute)</th>
<th>Mean time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal</td>
<td>60-80</td>
<td>70</td>
</tr>
<tr>
<td>Vaginal</td>
<td>60-70</td>
<td>65</td>
</tr>
<tr>
<td>LAVH</td>
<td>110-130</td>
<td>120</td>
</tr>
</tbody>
</table>

LAVH took longer operative time i.e. around 120 minutes when compared to TAH and VH. TAH & VH took almost same operative time without much difference.

<table>
<thead>
<tr>
<th>Type of hysterectomy</th>
<th>Duration of hospital stay (days)</th>
<th>Mean duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal</td>
<td>7-9</td>
<td>8</td>
</tr>
<tr>
<td>Vaginal</td>
<td>4-7</td>
<td>5.5</td>
</tr>
<tr>
<td>LAVH</td>
<td>3-7</td>
<td>5</td>
</tr>
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</table>

Among the three types of surgeries, TAH needed long duration of stay in the hospital i.e. 7-9 days in VH. But only the case with bladder injury, patient kept and catheterized for 2 weeks.
In the present study associated intra operative problems were observed in 7.7% of cases. In the present study, 6.6% of cases were associated with cystic ovaries and among them most of them underwent TAH. We found that 6.6% of women had hemorrhage in TAH and 3.3% in VH. The incidence of bladder injury was 1.1% in the present study. Parker RB et al found bladder injury in 0.67%. One patient had bowel injury due to multiple adhesions which is recognized on 3rd post operative day and laparotomy was done.

In the present study because of pre operative anemia and excessive hemorrhage during surgery, patients received post operative blood transfusions. Among these 2 had TAH, 2 had VH and 4 were operated by LAVH. The Cochrane database of systematic reviews 2011 published by John Wiley and sons, shows fewer febrile episodes or unspecified infections in VH and shorter duration of hospital stay compared to TAH.

In the present study, the incidence of febrile episodes was 3.3% in VH compared to 10% in TAH and none in LAVH. In a study of Donnez et al 2006, it was shown that the complication rate for AH is 70% higher than that for VH and wound infection is unlikely after VH. In the present study, the complication rate in TAH was 53.3% more compared to VH (10%) and LAVH (10%). Bharatnur S et al 8 found 2 cases of TAH needed secondary suturing and discharged after 30 days.

Table 3: Comparison of duration of hospital stay with different approaches and with the various other studies (time in days)

<table>
<thead>
<tr>
<th>Author</th>
<th>TAH</th>
<th>VH</th>
<th>LAVH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prinsen AK</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Tariq 10</td>
<td>5</td>
<td>3.6</td>
<td>6</td>
</tr>
<tr>
<td>Bharatnur S et al</td>
<td>11</td>
<td>9.6</td>
<td>4-6</td>
</tr>
<tr>
<td>Present study</td>
<td>8.5</td>
<td>5.5</td>
<td>5</td>
</tr>
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</table>

CONCLUSION:
Among all three methods of hysterectomies the preferable method of choice is vaginal hysterectomy and LAVH is the second method of choice and the abdominal route is last choice.

REFERENCES: