

## Vaginal Hysterectomy without Uterine Descent: Safe Teaching Technique without Postoperative Vault Prolapse

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### Abstract

**Objective:** The purpose was to study the safety of vaginal hysterectomy in patients without uterine descent and the modification of the technique to avoid unnecessary laparotomy and post-hysterectomy vault prolapse.

**Study Design:** The proposed modified technique of vaginal hysterectomy was applied on 279 women with no uterine descent.

**Material and Method:** All women were subjected to the modified technique (Step Ladder), where the first ligature of uterosacral ligament is fixed to the vaginal angle on both sides. The three pedicles on each side are attached together in a step ladder pattern to give more secure hemostasis and to let all pedicles easily accessible if any bleeding occurred. Complications during and after operation were recorded. Most of these women were followed up for more than 2 years.

**Results:** All operations were completed and there was no shift to abdominal operations in all our cases. Major bleeding during or after the operation was not a problem with our cases. Minor bleeding that improved conservatively (4%), Post operative fever (3%), Urinary tract infection (1%), Stress incontinence (1%). No cases with traumatic injury of other organs and no cases showed post-hysterectomy vault prolapse during the follow up period.

**Conclusion:** The proposed modified technique helps in prevention of post-hysterectomy vaginal vault prolapse as it assists in keeping the vaginal axis in its normal situation parallel to the levator ani. The step above step suturing is important to keep any pedicles in quick reach once it becomes necessary to do so. The technique helps to prevent the tragic abdominovaginal approach; if bleeding pedicle is retracted out of reach and the frustrating post-hysterectomy vaginal vault prolapse. Vaginal hysterectomy is a safe and skilled technique that should be considered during assessment of every patient planned to have hysterectomy.

**Keywords:** Vaginal hysterectomy; Uterine; Vault Prolapse; Post-Hysterectomy

### Introduction

Hysterectomy is one of the most practiced gynecologic operations. In spite of the enthusiasm of laparoscopic and robotic techniques, I feel that vaginal route is the best over the abdominal, laparoscopic and even robotic technique. Training of the technique is simple, add to that it the winner regarding the cost, complications and hospital stay.

Vaginal vault prolapse is one of the most frustrating complications and the saying "prevention is better than cure" is well applicable in that context. Sir victor Bonney said; the possibility of curing a case of prolapse after hysterectomy without narrowing the vagina, preventing sexual relations is about to be non-existent [1]. This explains the surge of papers for correction of such a problem. The index work puts some stress on preventing such a complication by some modifications of the technique of vaginal hysterectomy.

Vaginal vault prolapse is either due to loss of normal pelvic support or to omitting the steps that use these supportive structures during the operation. Post-hysterectomy vaginal vault prolapse could be prevented during hysterectomy [2].

**Material and Methods**

The author have done 279 vaginal hysterectomy. The reasons for performing hysterectomy are shown in table 1. 211 of these were showing no evidence of uterine prolapse and 68 showed 1<sup>st</sup> degree uterine descent but with no cystocele or rectocele.

Indication	Number
Dysfunctional Uterine Bleeding	188
Fibroid	79
Adenomyosis	8
CIN	3
Contraception	1
Total	279

Table 1: Indications of hysterectomy.

These cases were excluded:

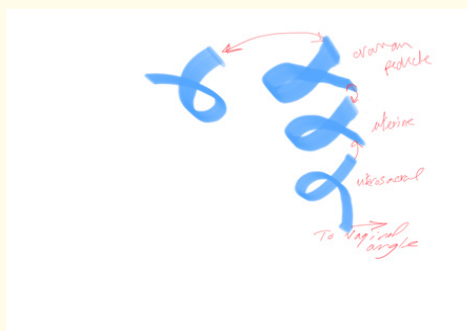
- Uterine size more than 12w gestation.
- Restricted mobility of the uterus, because of possibility of adhesions. That could be assessed by traction on the cervix before the operation.
- Cervical atrophy or nullification of the vaginal cornices.

Average age was 30 - 70 (mean 44), parity ranged from P1 - P10.

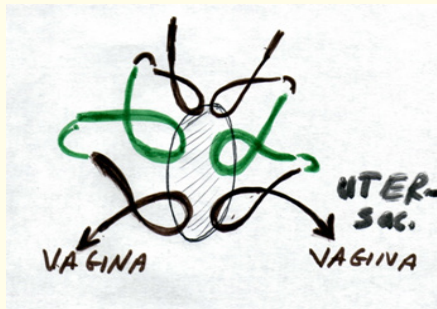
All patients underwent the same broad lines of the technique as described by Howkins and Stallworthy in 1974 [3].

Suture material was Vicryl 0 - 1 throughout the whole procedure. The technique is simplified in the following steps:

1. After pushing up the bladder and opening the Pouch of Douglas (POD), the 1<sup>st</sup> clamp is applied to uterosacral ligament as close to the uterus as possible; confirming that the inside blade is inside the peritoneal cavity to include the small vessels between the peritoneum and the base of the pelvis. Being close to the uterus; you avoid damage to surrounding structures especially the angle of the bladder that might be caught downward and that gives you a good pedicle; we need long pedicle here as the main difficulties to encounter is the lack of mobility of the uterus in the early steps of the operation that make the field tight; good pedicle gives safeguard if the clamp have slipped.
2. First ligatures is left with long threads, one with needle will be used to have a bite in the lateral vaginal angle so:
  - a. Support the vaginal vault by ligating it to the main supporting structures of the pelvis.
  - b. Shares in the hemostasis of that vascular area.



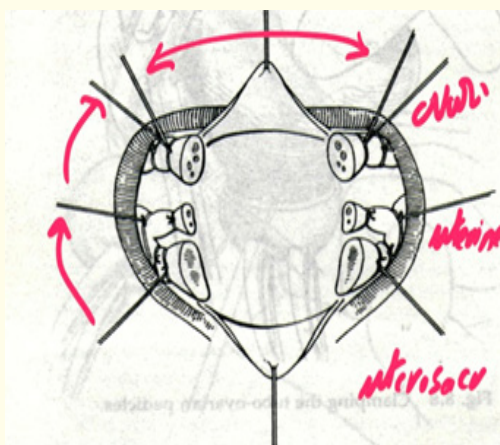
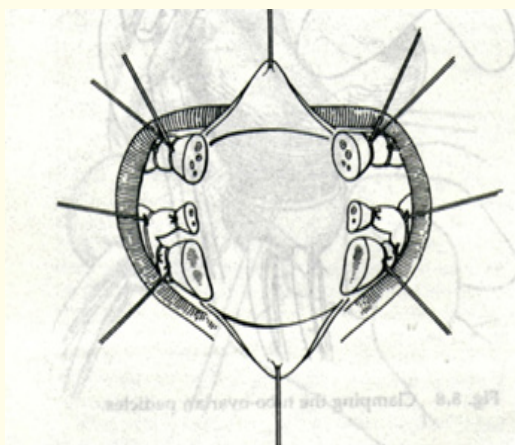
3. One of the threads will be left long and attached to a marker clamp, the other will be tied to one of the threads of the second pedicles to come; uterine pedicle. The marker thread will help to bring the whole suture area down if there is any slippage of the pedicle. So it is used for traction if needed, it will be ligated to the ovarian pedicle.
4. So, at the end of operation we find that the whole three pedicles (uterosacral, uterine and tuboovarian) are ligated together on one side with marked stitch. The two marker stitches were tied together and the long marker thread was used to close the peritoneal vault. So, the whole vault was supported by the uterosacral. In some of my patients peritonisation was almost impossible because of tight vagina or high POD and it was ignored.



**Results**

Complication	Number	%
Post op bleeding	11	4
Post Operative Fever	8	3
UTI	3	1
Stress Incontinence	3	1

Table 2: Complications of the procedure.



### Discussion

The cardinal ligament (Mackenrodt's and uterosacral) arise from the lateral aspect of the vagina rather than from the Uterus. These ligaments afford the main support of the uterus and upper vagina [4]. For that reason the proposed modifications entails suturing of the cardinal ligament and lateral vaginal wall together to create adhesive forces that help holding the vagina. Because post-hysterectomy vaginal vault prolapse occurs after transvaginal and transabdominal hysterectomy, it goes without saying that hysterectomy alone does not cure or prevent genital prolapse. Vaginal route gives the gynecologist the opportunity to visualize and use the pelvic support and attach them to the vaginal vault. The suggested technique calls attention to attaching the cardinal ligament to the vagina that aids in preventing posthysterectomy vaginal vault prolapse or enterocele. While I was practicing that technique, one point intrigued me, that was the fear of bleeding from uterine pedicle when it was used combined with the cardinal ligament for vaginal support. My answer for that was; 1) the brunt of traction was by cardinal ligament, 2) even if both uterine and cardinal ligament pedicles tied together, traction on cardinal ligament (as in ordinary vaginal hysterectomy) is no guarantee it is not going to partially pull on uterine pedicle.

So, as the whole pedicles on one side are attached to the vaginal angle, that helps in:

1. The marker stitch can help in pulling down any part of any pedicle when bleeding pedicle has to be secured.
2. Ligaturing the pedicles together will occlude the small vessels in between and so making good hemostasis.
3. These structures give good support to the vagina preventing post-hysterectomy vaginal vault prolapse.

So, in support we are using cardinal ligament and at the same time we use the round ligament. It is to be mentioned that hysterectomy alone does not take care of the vault prolapse. Precautions during the operation by using the main uterovaginal support help to prevent the occurrence of such complication when some precipitating factors are on the way e.g postmenopausal weakness of the ligament.

It should be noticed that the vagina lies parallel to the levator ani a horizontal position. With increased intrabdominal pressure, the levator ani and cardinal ligament hold the cervix and upper vagina in their proper position. Distortion of vaginal axis due to weak support places the vaginal apex in an unsupported position over the uterovaginal hiatus i.e. the vagina cannot rest upon the levator plate resulting in prolapse. This illustrates the importance of normal; vaginal axis in the integrity of the vaginal support.

In the technique described the round ligament was attached to the cardinal ligament. Some authors used the round ligament as part of vaginal fixation to prevent post-hysterectomy vaginal vault prolapse. I feel that the round ligament in that issue is trivial, however the used technique of attaching the round ligament to the cardinal ligament help to make peritonozation easier. This conclude that vaginal hysterectomy should be taken as an opportunity to prevent post-hysterectomy vaginal vault prolapse by meticulous care of supporting ligaments [5].

That will get us to the conclusion that as long as the technique is safe and easy to train and without the postoperative vault prolapse, it should be considered when hysterectomy is indicated.

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