

Vault prolapse occurrence after total laparoscopic hysterectomy and total abdominal hysterectomy performed for benign indications, is there a difference? A systematic review of the literature

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Summary

Aim: To systematically review published data on vault prolapse occurrence after total laparoscopic hysterectomy versus abdominal hysterectomy for benign uterine pathology. **Materials and Methods:** Medline and PubMed were searched for clinical studies reporting on vault prolapse occurrence after laparoscopic or abdominal hysterectomy. The studies included were randomized and non-randomized clinical trials reporting on the occurrence of vaginal vault prolapse as a long term complication of either abdominal or laparoscopic hysterectomy for nonmalignant conditions. **Results:** The search yielded only one study reporting on vaginal cuff prolapse after laparoscopic assisted vaginal hysterectomy (LAVH) or total abdominal hysterectomy (TAH). The additional articles that were retrieved using the 'search for related articles' function as well as from references of eligible studies were 581. Of these, 473 studies were excluded by title, 45 by abstract, 32 by full text, seven for which the full text could not be retrieved, and 24 by language. For this study two groups of women were followed up after LAVH (n=150) and TAH (n=146). No statistically significant difference in the likelihood of vault prolapse was revealed between the two groups ($p = 0.592$). **Conclusion:** In the literature, various measures are recommended to avoid vaginal vault prolapse such as the suspension of the vaginal apex to the cardinal and uterosacral ligament or to the sacrospinous ligaments at the time of hysterectomy. More studies are needed with a greater number of cases and longer follow up to assess whether abdominal or laparoscopic hysterectomy is more appropriate to prevent vaginal vault prolapse.

Key words: Prolapse; Laparoscopy; Total hysterectomy; Abdominal hysterectomy.

Introduction

Total hysterectomy is one of the most common gynecological surgical operations. The indications for the procedure are in general divided into malignant or benign conditions, the latter including menorrhagia, fibroids, adenomyosis, dysmenorrhea, chronic pelvic pain, non-suspecting adnexal mass and uterine prolapse, concerning the vast majority of the operations performed [1-4].

The classical surgical approach for hysterectomy is either the abdominal or the vaginal one. Laparoscopic hysterectomy was first described in 1989 by Dr. H. Reich [5] and since then it became more and more popular mainly because of its advantages compared to the traditional abdominal hysterectomy [2, 6, 7]. Laparoscopy as a less invasive technique offers less patient discomfort, less blood loss, faster recovery, fewer wound infections, shorter length of hospitalization, and improved quality of life indicators in the short term [7-9]. On the other hand laparoscopic hysterectomies tend to have longer duration [10] and a greater

rate of bladder or ureter damage [8, 9, 11].

One long-term complication for both abdominal and laparoscopic hysterectomy is vault prolapse. The International Continence Society has defined vaginal vault prolapse as descent of the vaginal cuff below a point that is 2 cm less than the total vaginal length above the plane of the hymen [12]. The etiology is multifactorial and includes advanced patient age [13, 14], genetic predisposition [15, 16], multiparity [17], preexisting pelvic floor defect [18, 19], previous surgery [14], lifestyle, and chronic diseases that increase intra-abdominal pressure [19]. Another factor probably affecting the vaginal vault prolapse is the surgeon's training on the various techniques of hysterectomy as well as his knowledge concerning the supporting mechanism of the uterus and vagina [20].

In this study the authors attempted to systematically review published data on vault prolapse occurrence after total laparoscopic hysterectomy versus abdominal hysterectomy for benign uterine pathology.

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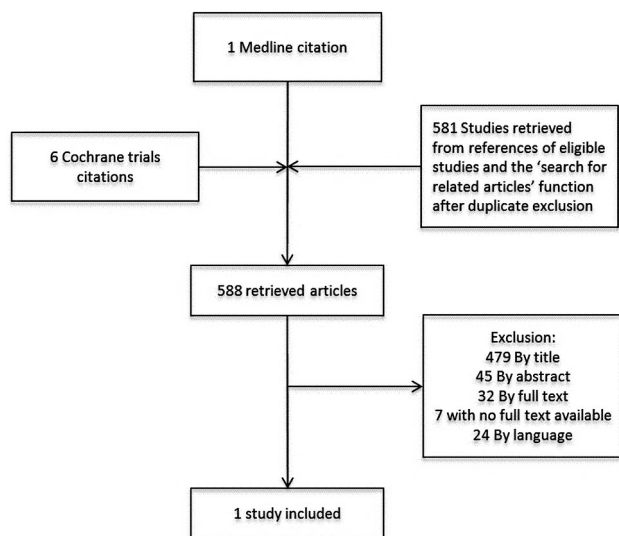


Figure 1. — Flowchart of the study selection process.

Materials and Methods

The literature was searched (last update May 2015 with no limitation for the starting date) for clinical studies reporting on vault prolapse occurrence after laparoscopic or abdominal hysterectomy. Medline and PubMed searches were performed using the terms ‘laparoscopic hysterectomy vs. abdominal hysterectomy’ or ‘laparoscopic hysterectomy’ and ‘abdominal hysterectomy’ and ‘vault prolapse’ or ‘vaginal vault prolapse’. The ‘search for related articles’ function of PubMed was also used and reference list of retrieved articles were screened. All studies were carefully compared by four independent authors to avoid duplicate reports or overlapping data. The study selection process along with the reference retrieval is represented in Figure 1.

The studies included were randomized and non-randomized clinical trials reporting on the occurrence of vaginal vault prolapse as a long term complication of either abdominal or laparoscopic hysterectomy. The participants were women that were subjected to hysterectomy for nonmalignant conditions. Exclusion criteria were trials referring to hysterectomies performed with the indication of malignant disease and language other than in English.

Results

The search initially yielded one article. The additional articles that were retrieved using the ‘search for related articles’ function as well as from references of eligible studies were 581. Of these, 473 studies were excluded by title, 45 by abstract, 32 by full text, seven for which the full text could not be retrieved, and 24 by language. Therefore, only one study reporting on vaginal cuff prolapse after LAVH or TAH was included [21]. For this study two groups of women were followed up after LAVH (n=150) and TAH (n=146). Two cases of vaginal vault prolapse of different grades were reported for the first group whereas the respective number of cases from the second group was one.

No statistically significant difference in the likelihood of vault prolapse was revealed between the two groups ($p = 0.592$) (Table 1).

Discussion

Vaginal vault prolapse is a long-term complication of total hysterectomy which, although not life-threatening, can have a negative impact on the quality of life due to various reasons, such as the fact that it could be associated to or co-exist with cystocele or rectocele [22] sometimes accompanied by urinary and gastrointestinal symptoms. Moreover, it could cause sexual dysfunction, according of course to the grade of the condition, due to obvious reasons and as a consequence of psychological burden (stress) [23].

It is known that vaginal vault prolapse has a great range of etiopathogenetic factors like inherited qualities of patients, external factors, and incorrect surgical technique. The knowledge of pelvic anatomy and supportive tissues, anatomy, and the understanding of pathophysiology and mechanism of vaginal vault prolapse can lead to the prevention of this condition. Therefore, every surgeon should acquire proper training on abdominal as well as vaginal and laparoscopic hysterectomy, and should be able to offer the patient the most appropriate technique according to her medical history and indication in order to achieve for better short as well as long term results.

In the study included in this review [21], the surgeon followed similar technique during the procedure both for the LAVH and the TAH group. The only difference was that in TAH, the vaginal cuff was suspended to the round ligament in order to enhance vaginal support. However, no statistically significant difference in the likelihood of vault prolapse was revealed between the two groups and the author supports the idea that this is due to the limited number of cases, the limited monitoring time or perhaps because the suturing between vaginal vault and round ligament might be not enough to prevent the prolapse.

In the literature, other measures are recommended to avoid vaginal vault prolapse such as the suspension of the vaginal apex to the cardinal and uterosacral ligaments [24, 25] or to the sacrospinous ligaments at the time of hysterectomy [15, 26, 27]. All these adjunctive procedures could be useful to prevent vault prolapse.

More studies are needed with a greater number of cases and longer follow up to assess whether abdominal or laparoscopic hysterectomy is more appropriate to prevent vaginal vault prolapse.

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Table 1. — Study included after the selection process.

Studies	Type	Description	Vaginal prolapse occurrence (n/N) – LAVH group	Vaginal prolapse occurrence (n/N) – TAH group
Shen, 2003	Retrospective cohort study	Comparison of short-term and long-term follow-up of LAVH* (n=150) and TAH** (n=146).	2/150	1/146

*Laparoscopically assisted vaginal hysterectomy **Total abdominal hysterectomy.

- laparoscopic hysterectomy in women with benign uterine disease". *Eur. J. Obstet. Gynecol. Reprod. Biol.*, 2010, 148, 172.
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