

Prolapse of the apical compartment. Surgical techniques that preserve the uterus. The benefits of the Saba Nahedd technique

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Abstract

The prolapse of the apical compartment is defined as the herniation of the vaginal apex below the plane of the hymen and it is most often associated with an anterior and/or posterior vaginal wall prolapse. The vaginal apex is formed by the uterus or cervix and/or the vaginal cuff in women who received a subtotal or total hysterectomy respectively. The etiology of the apical prolapse is connected to the integrity of the connective tissue which is contained in the uterosacral, cardinal ligaments and the endopelvic fascia. The changes in the life style and beliefs, the current tendency towards a less invasive surgery which involves reduced surgical risk and lower costs have determined more women with genital prolapse to opt for surgical methods that preserve the uterus. These methods include abdominal, vaginal or laparoscopic routes, the chose depending on the local situation and the experience of the surgeon. One of the vaginal techniques which have showed very good results in terms of postoperative morbidity, rate of recurrence and life quality is the “Saba Nahedd” procedure which uses a special kit consisting of an isthmic and a suburethral strip and special clamps for the suspension of the uterus. The aim of this paper is to present the current data on the surgical options that preserve the uterus in women with uterine prolapse, especially, grade II and III with focus on the transvaginal approach using the S.N. method compared with other transvaginal techniques that preserve the uterus.

Keywords: uterine prolapse, mesh, transvaginal

Introduction

The deterioration of the connective tissue that supports the vaginal apex is the most important factor that causes a prolapse of the apical compartment⁽¹⁾. This can be induced by an increased (i.e. more than 3) number of vaginal births and surgical interventions, most commonly - hysterectomy⁽²⁾. This women will have a 3.2 fold risk to develop a cystocele and/or rectocele which require surgical repair⁽³⁾. Moreover, if the hysterectomy has been done for a pelvic floor defect the risk increases up to 8%⁽⁴⁾. Other studies report a risk of 13% for developing an apical prolapse in women who underwent a hysterectomy for an advanced pelvic organe prolapse (POP)⁽⁵⁾.

The presence of the symptomatology - pelvic pressure, bulge symptoms, the sensation that something comes out from the vagina, represent the most common indication for surgery. Other candidates are those who had no benefited from the vaginal pessary of the pelvic floor muscles or who cannot tolerate the non-surgical options⁽⁶⁾. Generally, the patients reclaim severe symptoms when the apex of the vaginal falls beyond the introitus⁽⁷⁾. Due to the current trend towards therapeutic approaches that minimize the surgical associated risk, complications and costs and that emphasize on the preference of the patients with regard to their life-quality and body-image

perceptions, it has been noted an increased tendency for uterus preservation in pelvic floor pathology⁽⁸⁾. A uterus-sparing technique can be made using a transvaginal, an abdominal or minimally invasive-laparoscopic- approach and is definitely superior to the methods that remove the uterus⁽⁹⁾. In this regard, it appears that a vaginal hysterectomy for POP is associated with a higher risk of apical prolapse mainly because the cause that induced the defect of the pelvic support has not been eliminated⁽¹⁰⁾. Among the vaginal approaches we want to present the Saba Nahed technique for apical prolapse which suspend the isthmus of the uterus with a strip at the rectus abdominis muscle and concomitantly resolves an associated cystocele using a special suburethral strip⁽¹¹⁾. The results on intra-and post-operative complications, rate of recurrence and life quality are superior compared to other transvaginal methods which also conserve the uterus. Before deciding for a uterus-sparing, either with a transvaginal, abdominal or laparoscopic/robotic approach, the absence of cervical and endometrial pathologies should be confirmed⁽¹²⁾.

Reasons to Preserve the Uterus

The preference for preservation the uterus in case of an apical prolapse has been initially showed in two

studies conducted by Frick and Korbly^(12,13) and published in 2013 who have reported a 36% up to 60% women who would opt for a uterine sparing technique instead of a hysterectomy. Women with a history of uterine bleeding, cervical dysplasia or other risks factors for a cervical and/or endometrial malignancy have been excluded from this study. Although there is enough data in the literature⁽¹⁴⁾ which shows an increased risk for a pelvic floor defect after a hysterectomy, comparative studies between hysterectomy and hysteropexy did not revealed convincing results as they did not delimitate between isolated apical prolapse and combined apical and anterior and/or posterior vaginal wall prolapse as well as between pre- and post-menopausal women or between a vaginal and an abdominal route⁽¹⁵⁾. Moreover, there is no data on the number of women who required a hysterectomy after undergoing a hysteropexy^(14,15). However, there are some results that definitely plead for a hysteropexy. In this regard, Gutman & Maher⁽¹⁶⁾ published a systematic review on uterine-sparing surgery and showed that the suspension of the uterus at the sacrospinous ligament has been associated with a better intra- and post-operative morbidity rate, a reduced length of the hospital admission and better results in the post-operative satisfaction surveys completed by the women. Similar results have been reported by patients who were supposed to vaginal hysterectomy with simultaneously repair of the apical compartment with a mesh.

When it comes to the minimal invasive approaches namely the laparoscopic approaches, only 2.8% of 500 women reported an apical prolapse recurrence 10 years after a laparoscopic mesh sacrohysteropexy⁽¹⁷⁾. Other study reported an improvement in the symptomatology after a laparoscopic mesh sacrohysteropexy in up to 81% of 43 patients while 70% of them reclaimed no symptoms with better sexual and daily activities⁽¹⁵⁾. The benefits of this method result also from the laparoscopic approach which allows a better visualization of the anatomy, reduced intra-operative complications, especially the lesion of the ureter, and a rapid post-operative recovery⁽¹⁵⁾.

The same method - sacrohysteropexy with mesh but performed on the abdominal route showed to be similarly effective to the vaginal hysterectomy with suspension of the vaginal cuff at the uterosacral ligaments in terms of intra-operative complications, post-operative pain, and daily activities although a higher recurrence rate of the prolapse has been observed after the open sacrohysteropexy with mesh⁽¹⁸⁾. The vaginal and laparoscopic routes proved to be superior to the abdominal techniques, the vaginal mesh hysteropexy and the laparoscopic sacrospinous-hysteropexy allowing a faster recovery, shorter hospitalization and better satisfaction as the normal anatomy of the vagina is not impaired⁽¹⁹⁾. Moreover, the laparoscopic suspension at the sacrotuberous ligaments has been reported to be the one of the most effective technique that spares the uterus in POP pathology with a 98% of 511 of women reporting

a 0.5% recurrence rate and an improved life quality⁽²⁰⁾. Similar rates can be seen in studies on transvaginal method that uses meshes to suspend the uterus and namely a recurrence rate of less than 5%⁽²¹⁾. However, the complications associated with the material of the mesh, and namely erosion and consequently reject is reported to be of approximately 4%⁽²¹⁾.

“Saba Nahedd” Procedure Compared to other Transvaginal Methods

The S.N method is aimed for women with an advanced uterus prolapse and associated cystocele. The principle is to suspend the isthmus of the uterus at the rectus abdominis muscle. For this technique a special kit has been developed⁽¹¹⁾. This includes: an isthmus strip of polypropylene with a 1.2 cm width. At each end of the strip there is fixed an unresorbable thread. At one of the ends of the strips is attached another polypropylene strip so that the isthmus strip has a “Y” form.

The suburethral strip is also of polypropylene made and is 10 cm long and 1.2 cm wide and, similarly to the isthmus strip, unresorbable threads are attached to its terminations. For the anchorage of the uterus the author uses a special clamp which has two welded arms and two holes on the bottom. It also has a ring on one of the end. The arms are 2.5 cm long and have a light angulation which helps for a better fixation of the suburethral strip⁽²²⁾.

The principle of the Saba technique is to anchor the isthmus strip on the lateral and posterior parts of the isthmus while one of its free arms, namely one of the “Y” arms is attached on the anterior part of the isthmus in order to prevent a possible uterus prolapse. This method of fixation suspends the weight of uterus as in an hammock. The suburethral strip is fixed at the level of the urethral junction. The next step is the performance of a suprapubic transversal 5 cm long incision. The ends of the suburethral strip are fixed in the superior hole of the SN clamp while the ends of the isthmus strip are fixed in the inferior hole of the clamps. The ends attached on the holes of the clamp are then passed through two retroperitoneal tunnels (i.e. which are created in the third step after the dissection of vesical mucosa from the anterior vaginal wall and from the cervix) in the abdomen at the level of the rectus abdominis muscle. The threads from the suburethral strip are attached to the fascia of the rectus abdominis muscle simultaneously to the catheterization of the urethra which allows an elongation of the urethra with 1.5 cm. The usually colpocystectomy and colpoperineorrhaphy is followed by the medial anchorage of the threads from the isthmus strip at the same fascia. The threads from the free part of the isthmus strip are also tightening. The last steps are the suture of the suprapubic sutures and posterior colpoperineorrhaphy and myorrhaphy of the levator muscle^(15,22).

The main benefit of this new method is that it conserves the normal anatomy of the vagina and uterus as it brings the uterus in its normal position.

Consequently, the recto-vaginal space is narrowed so that the risk of an enterocele is reduced. Women with associated uterine incontinence have also reclaimed no more urinary symptoms due to the use of the suburethral strip. The reported rates of rejection or erosion of the material were very low (under 1%) while the currently reported recurrence rate is reported to be 0%^(22,23). Moreover, the procedure uses only the transvaginally route thus avoiding the complications associated to an open surgery. Compared to other surgical techniques that involve a transvaginally approach, the S.N technique proved to be superior in terms of recurrence rates, intra-operative complications - more ureteral lesions associated to the transvaginal uterosacral plication^(19,24), post-operative pain, quality of life - more patients reporting dyspareunia, dysmenorrhea and infertility after the Manchester technique^(19,25). Better results have been reported after transvaginally fixation of the cervix and uterosacral ligaments at the right sacrospinous

ligament with an intraoperative morbidity rate of 10-15%⁽²⁶⁾ though higher compared to the Saba technique. Similarly to the S.N method the recurrence rate was very low.

Conclusions

In addition to the well known benefits of a less invasive surgical technique that preserves the uterus, the S.N method has the advantage of not affecting the anatomy of the vagina thus reducing dramatically the reappearance of a pelvic wall defect as well as permitting the repositioning of the entire uterus in its normal position and suspending it in a "hammock" which is attached on the fascia of the rectus abdominis muscle. It has showed better results compared to the old techniques- the Manchester operation, colpocleisis utero-sacral and sacrospinous ligament fixations. However, its main disadvantage would be the difficulty to screen for cervical pathology or assess uterine bleeding as the two strips may create technical problems when sampling the cervix or the endometrium. ■

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