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Avoidance of the vaginal incision site for mesh placement in vaginal wall prolapse surgery: A prospective study

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ABSTRACT

Objective: To evaluate efficacy of a minimal surface area, vaginally-installed polypropylene tape (VPT), avoiding insertion on the incision line to treat an anterior, posterior or anteroposterior vaginal wall prolapse.
Study design: Patients with an anterior, posterior or anteroposterior vaginal wall prolapse waiting for surgical treatment were included in the study. Primary outcome was the incidence of prolapse recurrence reported with combined outcome measures and was reported with Kaplan-Meier cumulative incidence. Secondary outcomes were operative complications, adverse events, urinary, colorectal and sexual functions as well as quality of life. Participation in the study involved up to 8 visits over 5 years. At each visit, patients used a self-reported questionnaire to report symptoms related to pain, urinary, colorectal, sexual functions, and quality of life. A physical examination was also performed. Paired *t*-tests were used to investigate change in POP-Q and quality of life measurements since baseline.
Results: 71 patients underwent the procedure and were followed-up for an average (standard deviation) of 32.5 (18.7) months. Only 2 (2.8%) women experienced a recurrence of their pelvic organ prolapse. Only one case of erosion and no case of persistent pain have been recorded up to 5 years post-surgery. Quality of life was improved and then sustained throughout the follow-up period ($p < 0.01$).
Conclusion: This VPT surgical procedure is safe and has a high level of efficacy to treat anterior, posterior or anteroposterior vaginal wall prolapse. It is also associated with improvements in quality of life of patients which are sustained for many years.

Introduction

Synthetic mesh kits used for pelvic organ prolapse (POP) repair are associated with substantially less POP recurrence rates than the native tissue [1–5]. However they are also related to serious operation and post-operation complications, including mesh complications [6], pain in the pelvis and during sexual intercourse [1,7].

The rate of mesh complications, also named erosion and presenting as prominence, exposure, or extrusion of the mesh, has been estimated to be around 10–11% after 12–24 months follow-up after vaginal POP repair using polypropylene mesh kits [8,9]. A recent study on transvaginal mesh repair of POP reported 23% exposure rate after 7 years follow-up, most of the occurrences being of late onset [10].

Pain and discomfort from mesh erosion after POP repair can lead to subsequent surgeries and patients dissatisfaction. Therefore, surgical procedure improvements or modifications are needed to both benefit from the curative advantages of mesh use for POP repair and to decrease some of the associated complications.

Debodinance et al. reviewed synthetic material tolerance after gynecological surgery and concluded that mesh rejection phenomena are proportional to the surface area of the synthetic tissue and the proximity of the vaginal scar [11]. Interestingly, abdominal sacro colpopexy has shown low rate of erosion (3.2%) when no concomitant vaginal surgery was done [6]. Therefore, we

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developed a new approach utilizing a reduced mesh tape size that does not overlap with the vaginal incision site. We hypothesized that this procedure, while preserving the curative advantage of mesh use for POP repair, can reduce mesh complication rate.

In this paper, we report objective and reported outcomes of women who underwent prolapse repair using a modified vaginally-installed polypropylene tape (VPT). Specifically, we investigated the patients' POP recurrence rate, peri- and post-operative complications such as mesh erosion, and recorded self-evaluation of their quality of life up to five years after POP surgery.

Methods

This pre-post time series study was undertaken with the approval of the Research Ethics Committee of the Vitalité Health Network (CER-2009-01). It included women diagnosed with stage II–IV vaginal prolapse who underwent prolapse repair using a modified VPT from November 2007 to April 2015. Specially, all patients with symptomatic anterior and/or posterior vaginal wall prolapse to the hymen or beyond (Pelvic Organ Prolapse Quantification (POP-Q) point Ba or Bp > -1), with anatomical detachment of the lateral sulci as demonstrated at the time of operation [12] were treated with placement of VPT. Women were identified as symptomatic from prolapse if they complained of at least "heaviness or dragging feeling of the vagina", and "seeing or feeling of a vaginal bulge". Seventy-one women were enrolled in the study. Following recruitment of the first 21 women, it was decided to add a baseline sociodemographic questionnaire. All participants (n = 50) recruited after this amendment filled the questionnaire.

Postoperative follow-up was scheduled at 7 weeks, 6 months, 12 months, and yearly thereafter, for a period of up to five years. All visits consisted in a gynecological evaluation in a lithotomy position done by the gynecological surgeon using POP-Q classification system to follow prolapse involution or recurrence. All visits also included clinical assessment of post-operative complications and the administration of validated self-reported questionnaires on symptoms, quality of life and sexual function. Specifically,

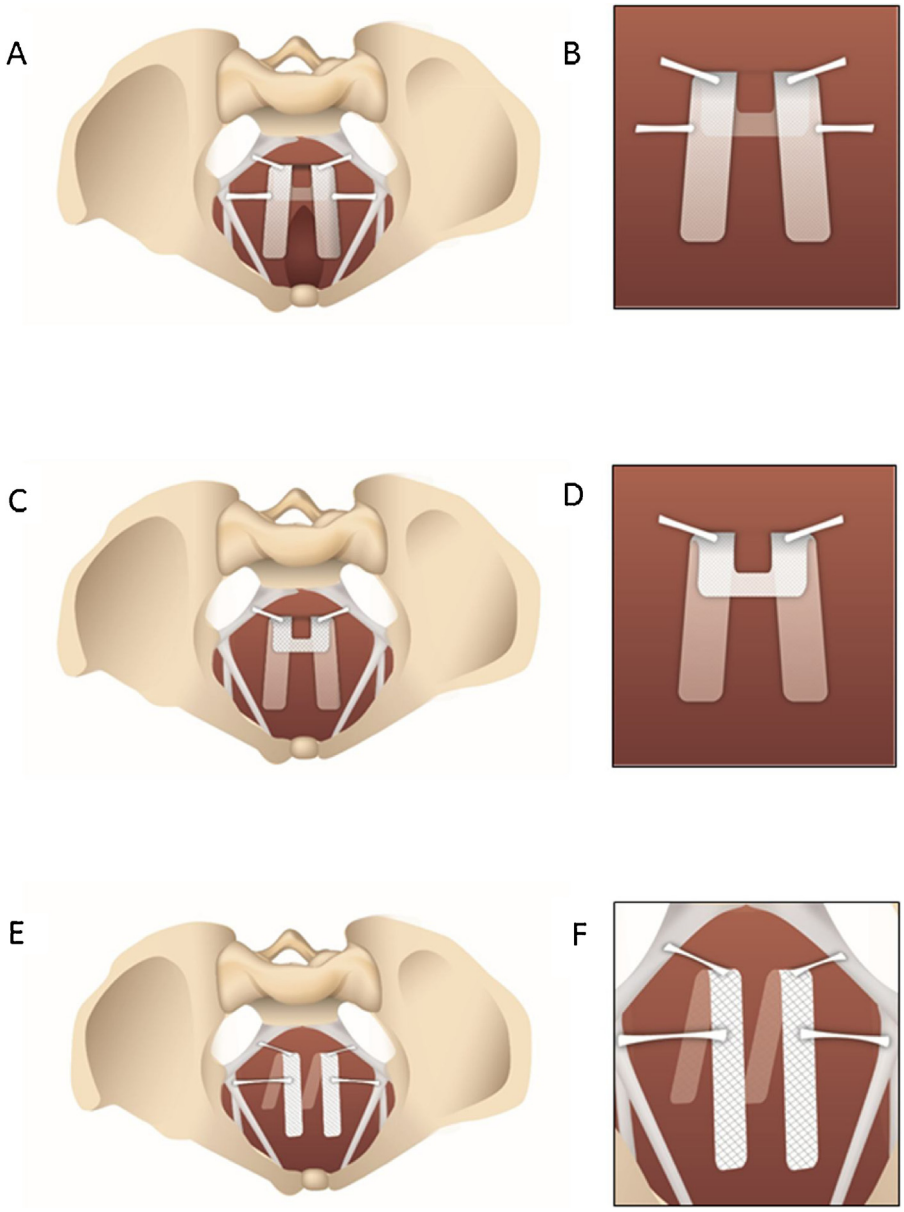

Fig. 1. Placement of polypropylene tape for suspension of anterior (A, B), posterior (C, D), or anteroposterior (E, F) vaginal wall prolapse by vaginal route.