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CLINICAL ARTICLE

Combined sacrospinous hysteropexy and cystopexy using a single anterior incision

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ABSTRACT

Objective: To evaluate the safety, efficacy, and feasibility of a minimally invasive vaginal approach for treating advanced utero-vaginal prolapse. **Methods:** A prospective study enrolled consecutive patients attending the Gynecology and Obstetrics Department, Turin University for treatment of Pelvic Organ Prolapse Quantification (POP-Q) stage III of higher symptomatic utero-vaginal prolapse between February 1, 2013 and November 30, 2014. Participants underwent a combined sacrospinous hysteropexy and cystopexy procedure using a single anterior vaginal incision. Surgical procedures were performed by one of two surgeons, either an experienced senior surgeon or a resident surgeon under supervision. POP-Q staging, patient symptoms, and quality of life were evaluated before and after surgery. **Results:** The present study enrolled 42 patients and 19 (45%) were discharged on the first post-operative day. The mean operating time was 40.5 ± 10.6 minutes and there was no significant difference in operating time between the two surgeons. With an average follow-up duration of 13 months, significant post-surgical improvements were recorded across both POP-Q anterior ($P < 0.001$) and apical ($P < 0.001$) domains, and in both prolapse impact ($P < 0.001$) and urinary impact ($P = 0.001$) quality-of-life measures; one apical recurrence and no major complications were recorded. **Conclusions:** Combined sacrospinous hysteropexy and cystopexy through a single incision appears to be a safe and efficacious procedure that was relatively easy for surgeons to learn and resulted in a fast post-surgical recovery.

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1. Introduction

Ongoing debate centered on the surgical treatment of uterine descensus has included several vaginal and abdominal techniques. In the case of vaginal vault prolapse, sacrospinous ligament fixation has been demonstrated to be efficacious [1], with the classical technique requiring a double incision; one to reach the ligament and one anterior incision for cystopexy (necessary in 70%–90% of cases) [2,3]. However, some modifications to simplify the procedure have been suggested; anterior sacrospinous ligament suspension via the anterior vaginal wall (through the paravesical space), has been proposed as a method that reduces postoperative proximal vaginal narrowing and lateral deviation of the upper vagina, which can occur after posterior suspension [4]. Sacrospinous ligament fixation can also be performed as a primary conservative treatment for uterine prolapse [5]. Several studies have demonstrated that sacrospinous hysteropexy is an efficacious and safe technique, with high levels of patient satisfaction [2,3,5,6]. Advantages of conservative surgeries include preserving the uterus and fertility in

young women, reducing the invasiveness of surgical procedures, improved post-surgical physiological anatomy, and functional restoration of the pelvic floor owing to the maintenance of anatomical connections. Moreover, although not shared by all conservative approaches, there can be a reduced risk of recurrence resulting from stronger cervix anchoring [2,3,6–11]. Traditionally, vaginal hysterectomy followed by vaginal vault suspension was considered the first-line operative treatment for uterine prolapse when no specific uterine disease was present, although there is ongoing debate whether combining hysterectomy with prolapse surgery is necessary to achieve an effective solution for this condition [9]. Vaginal sacrospinous hysteropexy is an alternative conservative surgical approach and its use is well supported in the literature [10]. Currently, conservative surgical approaches are the only option for women who wish to maintain fertility; however, there could be benefits from such approaches that extend to women who do not wish to have children.

In the present study, combining two techniques was proposed, an anterior approach and hysteropexy, with the intention of reducing the surgical impact of sacrospinous ligament fixation.

The aim of the present study was to evaluate the efficacy and safety of combination sacrospinous hysteropexy and cystopexy performed through a single anterior vaginal incision for the treatment of utero-vaginal prolapse. A procedure-feasibility analysis for surgeons with different levels of experience was included.

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2. Materials and methods

A prospective study was performed between February 1, 2013 and November 30, 2014 at the Gynecology and Obstetrics Department of Turin University, Italy. Patients attending the study institution with genital apical prolapse of at least stage III according to the Pelvic Organ Prolapse Quantification (POP-Q) system [12] were considered for eligibility. The inclusion criteria included an associated symptomatic POP-Q stage II or higher anterior prolapse, having expressed a desire for uterine preservation, and having no anomalous results from cervical smear, vaginal ultrasonography examination, and urodynamic testing in the 6 months preceding enrollment. Patients were excluded owing to anomalous uterine size or shape, endometrial thickness above 4 mm, anomalous results of an ovarian ultrasonography examination, any anomalous uterine bleeding pattern, and the presence of clinical and/or urodynamic stress incontinence and/or symptomatic posterior prolapse that required surgery. The study was approved by the Turin University ethics committee and patients provided written informed consent for participation.

Surgeries were performed by two surgeons; one was an experienced senior surgeon (P.P.) and the other was a resident surgeon (M.C.F.T) in their final year of specialization who was taking part in a teaching program at the study institution; the resident surgeon performed surgical procedures under the supervision of the senior surgeon. Sacrospinous hysteropexy procedures were performed on the right ligament and all operations were performed under spinal anesthesia. Pre-operatively, a 14-French Foley indwelling catheter with a 5-mL balloon was placed in the bladder; it was removed 24 hours after surgery. After a 60-mL infiltration of saline solution, a midline incision was made in the anterior vaginal wall, starting 3 cm from the external urethral meatus and continuing to the cervix anterior. Following the dissection of the vaginal mucosa from Halban's fascia using both blunt and sharp techniques (using scissor and scalpel) (Fig. 1), the endopelvic fascia was opened and the dissection was extended through the paravesical fossa to the right ischial spine and sacrospinous ligament. Two non-absorbable 00 filaments (Prolene; Ethicon, Somerville, NJ, USA) were placed through the right sacrospinous ligament, approximately 2–3 cm medial to the

ischial spine using a suture-capturing device (Capio; Boston Scientific, Marlborough, MA, USA) to avoid damage to the vascular nerve bundles behind the spine; the filaments were placed away from the lateral border of the sacrum to avoid damaging the fourth sacral root (Fig. 2). Subsequently, one filament was fixed in the anterior right part of the cervix, on the lower edge of the vaginal incision and the other was fixed on the left part of the cervix (Fig. 3). Cystopexy was performed at Halban's fascia using an absorbable Vicryl 2–0 suture (Ethicon). Following minimal excision of the vaginal mucosa, the vaginal wall was sutured using an absorbable Vicryl 2–0 thread. A single perioperative dose of prophylactic intravenous cefoxitin was administered to all patients and patients were discharged once the post-voiding residual volume was less than 100 cm³.

Baseline demographic data were collected and patient outcomes including operative time, intraoperative blood loss, hospitalization, and intraoperative and postoperative complications were recorded.

Patients were evaluated using the POP-Q system [12] twice at baseline by the surgeon performing the procedure and 1 month after surgery by two independent investigators. Subjective bladder- and bowel-function data were collected before surgery, at 6 months after surgery, and every year throughout follow-up. Patient quality of life (QoL) was evaluated using an Italian translation of the Pelvic Floor Impact Questionnaire-7 (PFIQ-7) at all follow-up consultations. This questionnaire includes three domains, a Urinary Impact Questionnaire (UIQ-7; range 0–100), a Pelvic Organ Prolapse Impact Questionnaire (POPIQ-7; range 0–100), and a Colorectal Anal Impact Questionnaire (CRAIQ-7; range 0–100), with lower scores associated with better QoL [15]. Sexual function was assessed using the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire short form (PISQ-12; range 0–48), where a higher score is associated with better sexual function [16].

Descriptive statistics were reported and the Student *t* test was used to compare differences in pre-operative and post-operative variables. *P* < 0.05 was considered statistically significant. The Fisher exact test was used to detect any difference in the operative time and/or complication rates of procedures performed the senior and resident surgeons. Statistical analyses were performed using SPSS version 17.0 (SPSS Inc, Chicago, IL, USA).

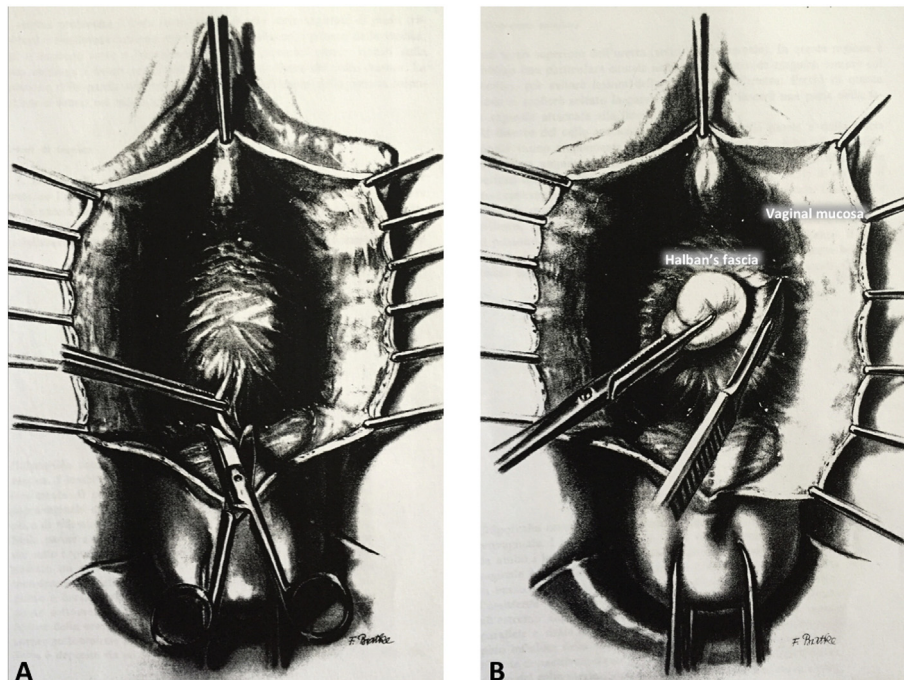


Fig. 1. Cranial detachment of the bladder (A). Dissection of vaginal mucosa from Halban's fascia (B). Modified from [13].

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