

Efficacy of vaginal and laparoscopic sacrocolpopexy (VLSCP), a dual approach to utero-vaginal prolapse, compared with laparoscopic sacrocolpopexy (LSCP) alone

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Abstract: Sacrocolpopexy is one of the most successful operations for correcting utero-vaginal prolapse. It can be done laparoscopically, but this is time-consuming and requires experienced laparoscopists. In 2011, we introduced a dual vaginal-laparoscopic technique (VLSCP), which combined the ease of vaginal suturing with the advantages of laparoscopic sacrocolpopexy (LSCP). We, now, evaluate the efficacy of this dual approach in comparison to the primary laparoscopic operation. We compared the efficacy and short-term results of 61 patients who had the dual operation to that of 28 classical LSCP patients. The study was retrospective and included analysis of patients' records. We examined 11 of the 28 LSCP patients (39%), 3-7 years after the operation, and 35 of the 61 VLSCP patients (57%), 1-5 years after the operation. The short-term results of the dual operation showed that it was faster, without compromising the wellbeing of the patients. The long-term results for the available patients showed that the subjective cure rate was 73% for the LSCP patients and 88% for the VLSCP dual operation. However, we observed some degree of vaginal prolapse in 82% of the LSCP operations, mainly cystocele or rectocele grade 1 or 2, but only 31% of the VLSCP patients had such prolapse. There were no mesh erosions or exposures in any of the groups. The dual operation combined the ease and accuracy of a vaginal operation with the benefits to the patient from a laparoscopic approach. It also enabled a convenient approach to add vaginal procedures that improved the surgical results, or complied with the patients' wishes.

Keywords: Dual-operation; Laparoscopic Sacrocolpopexy; Sacrocolpopexy; Sacrocolpouteropexy; Utero-vaginal prolapse.

INTRODUCTION

Uterine prolapse with vaginal wall prolapse has been classically treated by vaginal hysterectomy and colporrhaphy. An alternative classical approach has been a sacrocolpopexy or sacrocolpouteropexy that required the abdominal route. The success of the abdominal operations in alleviating the vaginal prolapse is mostly of longer duration with lower rate of recurrence^{1,2}, but an abdominal operation usually carries longer hospitalization and recovery time, and may result in more severe complications. In the last decades, it was shown that this operation can be done laparoscopically³, but it is time consuming and requires highly experienced laparoscopists⁴. In 2010 we introduced a modification to the laparoscopic route (VLSCP), that consisted of a dual operation, vaginal and laparoscopic, and produced the benefits of a laparoscopic procedure together with the ease of a vaginal approach⁵. In the present study, we compare the efficacy of this dual approach to that obtained from the pure laparoscopic LSCP operation.

MATERIAL AND METHODS

From April 2009 to March 2016, 61 cases of severe vaginal prolapse, grade 3-4 of the POP-Q system, were treated by the dual approach, 40 with third degree and 21 with fourth degree prolapse. At first, we recruited only candidates for vaginal hysterectomy or patients who already had hysterectomy and had developed vault prolapse. In later stages, we used the dual approach also for patients who opted for uterine preservation. In all, 45 patients had presented with uterine prolapse and 16 had a previous hysterectomy and presented with vault prolapse. Of the 45 patients with uterine prolapse, 26 wanted to have vaginal hysterectomy at the time of the operation, and the other 19 opted for uterine elevation at the VLSCP. Fourteen patients were less than 50 years old, 21 were of the age-group 51 to 60, 17 were of the age-group 61 to 70 and 9 were 71 or older.

Operative Technique: The first part of the dual operation started with a vaginal approach. In cases of concomitant vaginal hysterectomy, after the uterus was removed, a 15x2 cm Y shaped polypropylene mesh was introduced. The Y

shaped mesh was prepared by stitching a 5x2 cm additional mesh to the main 15x2 band, five cm from its end. The Y shaped mesh was sutured with permanent sutures to the inner surface of the anterior and posterior vaginal wall at the apex of the vagina, and the cuff was closed with absorbable sutures, leaving the mesh inside the pelvis. Patients who had a previous hysterectomy underwent a similar procedure after the opening of the Douglas' pouch. Those who preferred retaining the uterus, also, had their Douglas' cul-de-sac opened. A 15x2 cm single polypropylene tape was then sewn to the inner surface of the posterior vaginal cuff and to the posterior part of the cervix with permanent sutures. As before, the vaginal fornix was closed with absorbable sutures, leaving the tape inside the pelvis.

After the vaginal cuff was closed, the fornix (or the cervix, in cases of uterine preservation) was pushed towards the abdominal cavity to demonstrate if any part of the prolapsed vagina had remained. An existing cystocele or rectocele still present after the vaginal apex was pushed to its correct anatomical position was repaired. In cases of a wide genital hiatus a perineorrhaphy was performed and the levator-ani muscles were approximated. In three cases of VLSCP with uterine elevation, an elongated cervix was shortened. Twenty-one patients had a preoperative diagnosis of GSI, and a trans-obturator slingplasty was added.

The second part of the dual operation consisted of a laparoscopic retrieval of the free end of the mesh that was previously inserted vaginally, and then attaching it to the sacral promontory by three tuckers, after incising its peritoneal sheath. Placement of the mesh was tension free but required pushing the vaginal vault to its appropriate place when inserting the tuckers. The upper part of the mesh was then covered with peritoneum by one or two sutures.

Data from the records of the VLSCP operations were compared with those of 28 pure laparoscopic operations (LSCP) that were done during the years 2007 to 2009, by the same surgeon, using a technique described in 2004⁶. Twenty-two of the LSCP operations were performed on patients who had a previous hysterectomy. A Y shaped mesh was sutured to the upper part of the vagina after it was separated from the bladder anteriorly, and from the peritoneal

sheath posteriorly. The other six patients, who wanted to elevate their prolapsed uterus, had a one strand mesh sutured to the cervix and posterior vaginal fornix. In 5 cases (18%), a vaginal repair was added, one cystocele repair and four procedures for rectocele repair with perineorrhaphy.

All the operations, in both groups, were done by the same surgeon, and all the patients were examined 4-6 weeks after surgery for evaluation. Comparison included length of operation time, number of hospitalization days, and short-term complications. The study utilized retrospective analysis of patients' records, and therefore did not need institutional review board approval. We, also, called the patients and encouraged them to come for a follow-up examination. We managed to examine 11 of the 28 LSCP patients (39%), 3-7 years after the operation, and 35 of the 61 VLSCP patients (57%), 1-5 years after the operation.

RESULTS

The average operation time for all VLSCP cases was 84 min (54 to 122 min). When the operation included vaginal hysterectomy, 26 patients (43%), it took 103 min on average to perform. The 16 cases that had a previous hysterectomy, and presented with vault prolapse, had a mean operation time of 70 min. Altogether, 54 patients (89%) had some vaginal repair as well, including hysterectomy – 26, anterior repair – 22, posterior repair – 21, perineorrhaphy – 38, and TOT – 21.

The average operating time of the 28 LSCP cases was 92 min, although only 18% of them had vaginal repair and none had hysterectomy.

The two groups of patients experienced a recovery period like that of vaginal hysterectomy, and they were usually discharged after 2 days.

Two patients in the VLSCP group, and one who had LSCP, experienced postoperative fever. They were treated successfully by intravenous antibiotics for five days, and they recovered with no sequelae. One patient had a transient urinary retention that was relieved spontaneously after 4 days. One patient after LSCP with a retained enlarged uterus had a sudden return of the prolapse on coughing, three weeks after discharge. She was re-operated and at laparoscopy she was diagnosed with a detachment of the sacral end of the mesh. It was reinstated on the sacral promontory and was fixed by both tuckers and sutures.

For the long term results we examined the available patients and found that the subjective cure rate was 73% (8/11) for the LSCP patients and 88% (31/35) for the VLSCP dual operation. However, we observed some degree of vaginal prolapse in 82% (9/11) of the LSCP patients, mainly cystocele or rectocele grade 1 or 2, but only 31% (11/35) of the VLSCP patients had such prolapse. There were no mesh erosions or exposures in any of the groups.

DISCUSSION

We found several advantages to the dual operation: it proved to be faster than its pure laparoscopic counterpart, even though it included some cystocele or rectocele repair more often.

The reason that these additional procedures were more common in the dual approach, was probably because working vaginally, the need for vaginal wall repair was more obvious than in the preoperative assessment that characterized the pure laparoscopic operation. Once the vaginal vault was placed at its proper position, most of the vaginal prolapse was eliminated. However, due to a frequent asymmetry of the prolapsed vaginal walls, either a cystocele or a rectocele usually remained, and therefore was corrected. The pure la-

paroscopic approach involved less vaginal procedures, and it may imply a partial correction in some of the cases.

Furthermore, the sutures in the dual operation were placed directly, and therefore, not only faster, but also more accurately than by the laparoscopic route. They gave a better hold to the vaginal vault and, a better prolapse reduction. We think that both the exactness of the stitches' placement and the precise vaginal correction, propelled the lower incidence of residual vaginal prolapse, that was observed on follow-up. We can also speculate that the direct suturing may reduce overstretching of the vagina, and therefore have a beneficial effect on difficult defecation⁷, a not uncommon consequence of these operations⁸.

Our main concern at the start of the dual operation was the risk of an ascending contamination from the vagina, causing graft infection. However, under standard prophylactic antibiotics that all our patients received, IV Cephadrine 1g or IV Cefazolin 2g, we had no mesh infection in any of our patients.

Lately, robotic surgery has improved the accuracy and ease of suturing, and has become widely used in prolapse operations. Nevertheless, the lengthy time for the initiation of the robotic operations, and their higher cost, still put the dual operation at an advantage.

CONCLUSION

The dual operation combines the advantages of a vaginal operation with the benefits to the patient from a laparoscopic approach.

It allows easy and accurate suturing of the mesh, a procedure that is harder, and lengthier, at laparoscopy. It, also, enables a convenient approach to add vaginal procedures that improve the surgical results, or comply with the patients' wishes. However, more cases and a longer follow-up are obviously needed to strengthen this conclusion.

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