Identification of Risk Factors for Genital Prolapse Recurrence

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Aims: To assess the relationship between prolapse recurrence and some risk factors in a group of women submitted to reconstructive pelvic surgery. Methods: Women referred to our Urogynaecological Units complaining of prolapse symptoms were prospectively included. We excluded women who were affected by apical vaginal prolapse > stage I after a previous hysterectomy. All women had pelvic surgery with traditional techniques without using grafts. Each woman was reassessed at 1, 6, and 12 months and then yearly postoperatively. We defined as prolapse recurrence a vaginal descent > stage II involving the operated compartments. Results: A total of 360 consecutive women were recruited and submitted to vaginal reconstructive pelvic surgery. At a mean follow-up of 26 months, 38 women (10%) had a recurrent prolapse. A preoperative vaginal descent > stage II was the only significant risk factor for recurrence (P = 0.02, OR 2.4, 1.1–5.1 95% CI). Conclusions: Women with prolapse > stage III had a significant higher risk of developing prolapse recurrence after surgical repair without grafts. Neurourol. Urodynam. 28:301–304, 2009. © 2009 Wiley-Liss, Inc.

Key words: prolapse; recurrence; risk factors; surgery; women

INTRODUCTION

Genital prolapse is a very common condition affecting up to 50% of parous women although only 10–20% of them are symptomatic.1 In a population of 497 women with an age between 18 and 82 years attending a gynecological clinic for annual evaluation, Swift2 reported a prevalence of 6% for Stage 0, of 43% for Stage 1, of 48% for Stage 2, of 3% for Stage 3 and of 0% for Stage 4 according to the Pelvic Organ Prolapse Quantification (POP-Q) system.3

The first line treatment for genital prolapse is surgery. It has been estimated that the lifetime risk for women of having an operation for prolapse is 11.9% and that almost one-third of cases requires a re-operation.4 The number of surgical procedures performed each year in USA for prolapse repair is 200,000 and the demand for service related to genital prolapse will increase by 45% over the next 30 years.5,6 However, despite different surgical approaches proposed over the past decades the surgical repair of genital prolapse still remains a big challenge with a recurrence rate ranging from 25% to 37%7–11 in either anterior or posterior vaginal compartment.

Unfortunately there are very few studies looking at risk factors for prolapse recurrence after surgery. Epidemiological data are in fact available almost only on factors associated with the pathophysiology of prolapse, such as: previous prolapse surgery,12 obesity (BMI > 30),12,13 chronic cough,14 chronic straining at defecation,15,16 history of macrosomia (delivered baby weighing > 4 kg)4,16 prolapse severity greater than stage III was found associated with an increased risk of recurrence.17

The aim of our multicenter study was to prospectively look at different presumed risk factors for prolapse recurrence after pelvic floor reconstructive surgery without using grafts.

MATERIALS AND METHODS

In this prospective study we recruited women referred to tertiary referral Urogynaecological Units with symptomatic genital prolapse of the anterior and/or posterior vaginal compartment scored as at least stage II.

Each woman was evaluated for her general medical history and then specifically investigated on urinary, bowel, prolapse and sexual symptoms. All women were examined by three fully trained urogynecologists (SS, SA, RM) and prolapse was scored using the POP-Q system,3 with the patient in the lithotomy position exerting a Valsalva maneuver.

As exclusion criteria we considered factors already considered to be associated with prolapse recurrence such as previous prolapse surgery or vaginal vault prolapse (point C) > stage II for women with previous hysterectomy.

All women were then submitted to reconstructive pelvic surgery without using prosthetic material. The surgical procedures involved, when necessary, a vaginal hysterectomy (with McCall culdoplasty for vaginal vault suspension), associated with a conventional anterior and/or posterior fascial plication. After a midline incision, the vaginal wall...
was carefully dissected laterally, with the dissection made just beneath the vaginal mucosa, so that all fascial tissue were left attached to the bladder or rectum. The dissection was performed anteriorly laterally to the medial border of the descending pubic rami and posteriorly to the rectal pillars. The fascial tissue was then plicated anteriorly or posteriorly with interrupted mattress sutures. Finally, the excess vaginal tissue was resected and the mucosal margins approximated in the midline with a 2/0 polyglactin sutures in a running fashion.

Each woman was reassessed 4 weeks, 3, 6, and 12 months and then yearly postoperatively using the same criteria adopted at inclusion. All data were then stored onto a dedicated database. Women lost at the follow-up visits were excluded from the study.

Prolapse recurrence was defined when at follow up we observed a vaginal descent $\geq$ stage II according to the POP-Q system, involving the same operated vaginal compartment. Women with or without prolapse recurrence were compared to assess the possible significant influence of the following risk factors: obesity (BMI $>30$), chronic cough (productive cough for at least 3 months in a year for at least 2 years), chronic straining at defecation (less than 3 bowel evacuations in a week and/or difficult or painful bowel evacuation), history of macrosomia (fetal weight $>4,000$ g), preoperative prolapse severity greater than stage III.

For statistical analysis we used the Fischer exact test for discrete variables and the t-test and Mann–Whitney U-test for continuous variables. A $P$-value $<0.05$ was considered statistically significant. Logistic regression curve was used to assess odds ratio and 95% confidence intervals.

RESULTS

A total of 381 consecutive women with symptomatic genital prolapse and with a mean age of 63 years (range 34–83 years) were studied. Twenty-one women were lost to follow up, thus only 360 women were considered in the final statistical analysis. A total of 166 women were affected by uterine prolapse, with or without concomitant anterior/posterior prolapse, whereas 215 patients, who had previous hysterectomy, were submitted to anterior and/or posterior vaginal wall repair. Overall the procedures performed were 258 anterior repairs, 166 vaginal hysterectomies, and 163 posterior repairs. No concomitant anti-incontinence procedure was performed. At a median postoperative follow-up of 26 months (range 3–65 months), 36 women (10%) were found to have prolapse recurrence in the same operated vaginal compartment, whereas in 4 women we observed an asymptomatic prolapse involving a different compartment (two II p stages and two III p stages). Of the 36 women who presented prolapse recurrence, 7 were symptomatic. None of these women underwent a redo-surgery.

When compared, women with and without prolapse recurrence did not show any significant difference for age, parity, menopausal state and follow-up length as shown in Table I. The two groups did not show any significant difference for BMI, chronic cough and chronic straining at defecation. The presence of preoperative vaginal compartment descent stage $\geq$ III was the only significant risk factor for recurrence ($P = 0.02, \text{OR } 2.4, 1.1–5.1 \ 95\% \ CI$). An obstetric history of macrosomia had an OR of 1.8 (0.9–3.6 95% CI) but with a $P = 0.09$ as shown in Table II.

The pre- and postoperative POPQ measurements are shown in Tables III and IV. Finally we did not find any significant difference in the preoperative measurement of the Gh between women who had a recurrence of prolapse and those who did not, as showed in Table II.

DISCUSSION

Reconstructive pelvic surgery is still a challenge for gynecologists and urogynecologists because of the high recurrence rate of genital prolapse despite surgical techniques have improved over the past decades.

<table>
<thead>
<tr>
<th>Table I. Comparison Between Women With and Without Prolapse Recurrence for Age, Parity, Menopausal State and Follow-Up Length</th>
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<tbody>
<tr>
<td>Group recurrence prolapse (n = 36 pts)</td>
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<tr>
<td>Age</td>
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<td>Parity</td>
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<td>Menopausal state</td>
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<td>Follow up (months)</td>
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Values are reported as median (range) or absolute number (%).

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<th>Table II. Comparison Between Women With and Without Prolapse Recurrence for Hypothetical Risk Factors (Macrosomia, BMI $&gt;30$, Chronic Cough, Chronic Straining at Defecation, Preoperative Prolapse Stage $\geq$ III)</th>
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<tr>
<td>Recurrence of prolapse (n = 36 pts)</td>
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<tr>
<td>Macrosomia</td>
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<tr>
<td>BMI $&gt;30$</td>
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<tr>
<td>Chronic cough</td>
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<tr>
<td>Chronic straining at defecation</td>
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<tr>
<td>Prolapse stage $\geq$ III</td>
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<td>Previous hysterectomy</td>
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<td>Gh (POP-Q)</td>
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Values are reported as median (range) or absolute number (%). Bold indicates statistical significance.

*Fisher’s exact test.

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Very little has been reported on risk factor for prolapse recurrence. A medline search using as key words “risk factors and prolapse recurrence” came out with only four papers in peer reviewed journals. Moreover two of them looked at previous prolapse surgery as a major factor contributing to prolapse recurrence. In our study women with previous prolapse surgery were excluded, since it might represent a confounding variable depending on the type of operation performed and skills of the surgeon who carried out. A preoperative prolapse stage ≥III was also reported to be associated with prolapse recurrence and this was taken into consideration also by ourselves.

Also most of the published studies have focused on the pathophysiological mechanisms of genital prolapse in the first place. By extrapolation we assessed if the same factors could predispose to prolapse recurrence. Amongst the presumed risk factors evaluated—obesity (BMI >30), chronic cough, chronic straining at defecation, history of macrosomia and preoperative prolapse severity greater than stage III—only the last one was found to be statistically significant in the association to prolapse recurrence after traditional pelvic surgery. A possible explanation for this is that a severe prolapse could reflect an inherent tissue weakness leading to recurrence. This result is consistent with what previously reported by Whiteside et al. and has, in our opinion, an important clinical relevance. In fact, although we do not know the natural history of genital prolapse it will become important to inform women that the more severe their prolapse is the more likely they are to develop recurrence after surgery.

In our risk factor analysis, an obstetric history of macrosomia was not significantly associated to prolapse recurrence ($P = 0.09$) but showed an odd ratio of 1.8. A possible explanation is that vaginal delivery is known to cause trauma to the pelvic floor and a macrosomic baby could be even more traumatic resulting in significant damage to the pelvic floor muscles thus increasing the genital hiatus. Vakili et al. showed that both a diminished levator ani contraction and a widened genital hiatus correlate with higher rate of prolapse recurrence the early postoperative period.

We define recurrence as prolapse stage I or greater of the same operated vaginal compartment. This represents one of the weakness of our study since it ignores the overall picture and does not take into account the whole of vaginal support. Furthermore in the light of our data we cannot assess whether a combination of risk factors increases even more the surgical failure rates. This would be particularly useful for surgeons deciding on the correct operation. Our report present some other possible limitations: we only investigated a specific approach of prolapse surgery and we did not consider all the potential risk factors for prolapse recurrence, such as pelvic floor muscle strength.

**CONCLUSIONS**

In conclusion this study is one of few in international literature that has focused on the risk factors for prolapse recurrence after traditional pelvic floor reconstructive surgery without using grafts. We confirmed the significant correlation of a preoperative severe genital prolapse with recurrence which should be considered in the treatment counseling of women referred for this condition. We are aware that other potential risk factors may play a role in the final outcome prolapse surgery and we encourage carrying out further study to identify them. This will also allow a more rational use of grafts in selected populations such as patients with severe prolapse.

**REFERENCES**


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