OCCULT URINARY INCONTINENCE IN WOMEN WITH SEVERE PROLAPSE EVIDENCED BY A MINIMALLY INVASIVE TEST.

Paolo Ricci, Vicente Sola and Jack Pardo.


Summary.- OBJECTIVES: To evaluate the urodynamic changes when a severe cystocele is corrected by a vaginal valve to identify occult urinary incontinence.

METHOD: Prospective study in 70 women at the Urogynecology and Vaginal Surgery Unit, in Clinica Las Condes. Inclusion Criteria: Symptomatic cystocele degree III or IV. Exclusion criteria: antecedent of incontinence and/or genital prolapse surgery; presence of urinary incontinence symptoms. In all patients the urethra retro-resistance pressure was measured by a non-multichannel urodynamic test with and without cystocele reduction by a vaginal Bresky valve. Additionally a cistometry was realized.

RESULTS: In all patients the URP was normal when the severe cystocele was not reduced. When the severe cystocele was reduced in 50 (71.4%) women the URP was altered. The cistometry identify asymptomatic overactive detrusor in 8 women. Occult urinary incontinence in the 50 women was: Type I in 1, type II in 27, type III in 1, type II+III in 21.

CONCLUSION: When a severe cystocele is reduced by a vaginal valve, urodynamic changes can be detected and women with occult urinary incontinence may be identified. These women may express symptoms of urinary incontinence when a prolapse surgery is realized.

Keywords: Severe cystocele. Urodynamic. Occult urinary incontinence.

Resumen.- OBJETIVO: Evaluar los cambios urodinámicos al corregir el cistocele severo mediante una valva vaginal, para identificar incontinencia de orina oculta.

MÉTODO: Estudio prospectivo de 70 mujeres ingresadas a la Unidad de Uroginecología y Cirugía Vaginal de Clinica Las Condes. Criterio de inclusión: Cistocele grado III o IV sintomático. Criterio de exclusión: antecedente de cirugía por incontinencia de orina y/o prolapso genital; presencia de incontinencia de orina clínica. A todas se les realizó medición de la presión de retro-resistencia uretral, mediante urodinamia monocanal sin y con reducción del cistocele severo, por medio del reposicionamiento mecánico de la vejiga por una valva vaginal de Bresky. Además se realizó medición complementaria de cistometría.

RESULTADO: Sin corrección del cistocele severo la presión de retro-resistencia uretral fue normal en las 70 pacientes. Al reducir el cistocele severo en 50 (71,4%) mujeres, se encontró alteración de la presión de retro-resistencia uretral. La cistometría identificó detrusor hipe-
INTRODUCTION

The genital prolapse is a condition as result of the supporting structures alteration in the pelvic floor. This condition may affect 50% of multiparous (1) and the incidence increases with the age (2). This pathology is multifactorial: multiparity, pregnancies and deliveries with macrosomic fetus, abnormal collagen, obesity, trauma during the birth, chronic valsalva, low estrogen levels and pelvic surgeries (3-6). These risk factors are shared by other disease, the incidence also increases with age, it is the urinary incontinence. For these reasons it is common to find the association between genital prolapse and urinary incontinence (7).

However when a woman has a severe cystocele the urinary incontinence symptoms could be occult and only become evident after the prolapse surgical correction (8). It can be very frustrating for the doctor and the patient see the results of a complicated genital prolapse surgery for the urinary incontinence if not suspected before.

Some studies have shown that preoperative tests to identify women with stress urinary incontinence associated with severe genital prolapsed are useful. These tests are useful to plan an anti-incontinence surgery associated with the genital prolapse correction during the same surgical time (9).

Some studies have shown that preoperative tests to identify women with occult stress urinary incontinence associated with severe genital prolapse are useful. They allow planning an anti-incontinence surgery associated during the same surgery for correction of genital prolapse (10).

In order to evaluate urodynamic changes when a severe cystocele is correct through a vaginal valve to identify a stress urinary incontinence, a study with 70 women is presented.

METHOD

Study Protocol
Analysis, observation and intervention study of 70 women admitted for severe cystocele correction in the Urogynecology and Vaginal Surgery Unit at Las Condes Clinic.

Study Objective
To evaluate the urodynamic changes when a severe cystocele correction is simulated by a vaginal valve to identify occult urinary incontinence.

Inclusion Criteria
Women with symptomatic cystocele degree III or IV (POP-Q).

Exclusion Criteria
Women with history of cystocele surgery and/or urinary incontinence. Women with symptomatic urinary incontinence.

Intervention
Measurement of urethral retro-resistance pressure (URP) by non-multichannel urodynamic test with and without reducing cystocele maneuvers. The urodynamic test was realized by MoniTorr™ (Gynecare, Worldwide, division of Ethicon INC, company of Johnson & Johnson, Somerville, New Jersey) (Figure 1). The cystocele reduction was made with a Bresky vaginal valve (Figure 2). A cystometry was made too (Figure 3 and 4).

Stress urinary incontinence classification
McGuire et cols classification was used (11).

Characteristics of the women in the study
The age ranged between 30 and 91 years old, with a media of 61 years old. Parity between 2 and 4, media 3. Body mass index between 25 and 34, media 27 (Table I).

RESULTS

When performing the measurement without correction of severe cystocele, the pressure of urethral retro-resistance was normal in 70 patients. All values were about 82 cm of water, with an average of 114 cm of water.

When making the measurement without severe cystocele correction the urethra retro-resistance pressure was normal in the 70 patients, with an average of 67 cm of water. In the other 20 women, measuring the pressure of urethral retro-resistance,
remained above the 82 cm of water when measuring with the simulation of correction of prolapse, with an average of 120 cm of water.

The cystometry measurement evidenced overactive detrusor in 8 women.

According to the alteration of urodynamic parameters in 50 patients, the type of stress urinary incontinence was classified: 1 type I, 27 type II, 1 type III, 21 type II+III (Table II).

**DISCUSSION**

The identification of patients with occult stress urinary incontinence allows to plan an anti-incontinence surgery associated with the cystocele correction (12). This could reduce the possibility of appearance of urinary incontinence symptoms after the severe prolapse surgical correction (13). By identifying the urinary incontinence we can plan both surgeries during the same surgical procedure, avoiding a new possible future surgery (14). A review of articles between 2004 and 2007 published an estimated reduction between 0 and 15% of stress urinary incontinence when combining the two surgeries (15). The development of revolutionary new system for urinary incontinence has simplified the surgical treatment of this entity (16). These new techniques have fewer complications, maintaining the success of its predecessors techniques (17,18). But we should not make a prophylactic anti-incontinence surgery to all women with severe genital prolapse. By adding this surgery has inherent risks including possible urethral obstruction and a novo urge incontinence among other potential complications. Some published series show that this association of surgeries, although not free of these complications, with the new surgical techniques of fewer invasions has a low risk (19).

It is important to identify the potential women that may have urinary incontinence to identify by any method known. This method is the urodynamic test. Different publications with multichannel urodynamic test demonstrated the effectiveness of measuring this change. In our series we used the non-multichannel urodynamic test which is simpler, friendly and to reduce costs compared to the multichannel test (20).

The urodynamic study was developed as an extension of history and physical examination to reveal the pathologic condition of patients. The progress in standardization, particularly in the diagnosis and classification of stress urinary incontinence and the identification of overactive bladder has

<table>
<thead>
<tr>
<th><strong>Patients:</strong></th>
<th>70 women</th>
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<tbody>
<tr>
<td><strong>Inclusion Criteria:</strong></td>
<td>1.- Asymptomatic cystocele degree III or IV (POP-Q)</td>
</tr>
<tr>
<td><strong>Exclusion Criteria:</strong></td>
<td>1.- Urinary incontinence symptoms (anamnesis and physical examination) without cystocele reduction.</td>
</tr>
<tr>
<td></td>
<td>2.- History of surgery for urinary incontinence or genital prolapse.</td>
</tr>
<tr>
<td><strong>Urinary incontinence certification method:</strong></td>
<td>Urodynamic measurement of the urethra retro-resistance pressure and Cystometry by non-multichannel test during cystocele reduction by a Bresky vaginal valve.</td>
</tr>
<tr>
<td><strong>Age:</strong></td>
<td>Between 30 and 91 years old, media 61 years old.</td>
</tr>
<tr>
<td><strong>Parity:</strong></td>
<td>Between 2 and 4, media 3.</td>
</tr>
<tr>
<td><strong>BMI:</strong></td>
<td>Between 25 and 34, media 27.</td>
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</table>
allowed the urodynamics examination to become a great support in the investigation of these patients (21).

A publication showed that major defects in the posterior vaginal wall can also mask urinary incontinence (12).

The symptomatic urinary incontinence are frequently associated with severe genital prolapse (14). We must not forget that both conditions have the same risk factors and the incidence increases with age. Roovers and Oelker estimated that 50% of genital severe prolapse is associated to stress urinary incontinence (14), with a high probability that will be evident once the anatomy is restored. In different series was published the presence of urinary incontinence between 25 and 80% of patients admitted to study (13,14,22-25).

In other series pessaries have been used to simulate the restoration of the anatomy in severe genital prolapse and to identify any occult stress urinary incontinence (13, 22,26) In our experience we have proposed the use of vaginal valves, there are different sizes as needed.

Kleman et al used the reduction of the prolapse and valsalve maneuvers (cough) to demonstrate the presence of urinary incontinence (27).

In a prospective follow-up of 100 patients with symptomatic genital prolapse, the anatomy was restored using a pessary achieving remission of symptoms after two months of therapy. However the occurrence of urinary incontinence until then was a frequent problem (28). It is important to identify women who developed a potentially occult urinary incontinence.

Another way to objectify the loss of urine is the method of collection with dressings placed on the vulva to calculate the urine absorbed. However unlike the urodynamics which is a functional test, which classifies the type of urinary incontinence, only measures the amount of urine loss. Furthermore, in classifying the type of urinary incontinence, can allow us to choose the anti-incontinence surgical technique best suited to each case. Our team, prefers a classic retropubic TVT or minitapes (TVT-Secur) “U” in cases of association with intrinsic sphincter deficiency (II + III). In general, the adjustment of the tape we do as the pressure values of loss or escape, and according to whether or not concomitant intrinsic sphincter deficiency. In cases of type II incontinence use classical techniques minitapes Sealing or “V” or “U” with a tape without tension under the urethra. These groups of patients are being evaluated and followed by protocol.

An experience published by Gallentine and Cespedes during 2001 demonstrated a high association between genital prolapse and urinary incontinence (29).

There are several publications with prophylactic surgical techniques to prevent the emergence of urinary incontinence: perineoplasty (30), Burch (31) and sub-mid urethral tape (30,32,33).

![Image](image.png)

**TABLE II. NON-MULTICHANNEL URODYNAMIC TEST RESULTS WITH CYSTOCELE REDUCTION.**

<table>
<thead>
<tr>
<th>Type</th>
<th>SUI (N°)</th>
<th>OD (N°)</th>
</tr>
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<tbody>
<tr>
<td>Normal</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Type I</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Type II</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>Type III</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Type II+III</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>8</td>
</tr>
</tbody>
</table>

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![Image](image.png)

**FIGURE 1. MoniTorrTM equipment used to measure the urethral retro-resistance pressure and Cystometry.**
In 21 of the 50 cases with potential urinary incontinence the association with intrinsic sphincter deficiency was detected. This association has been described in patients with symptomatic urinary incontinence and without genital prolapse between 26% (34) and 34% (20).

Clemons et al demonstrated that this type of urinary incontinence (II+III) can be occult in anterior or posterior vaginal wall prolapse. Further they demonstrated that the sub-mid urethral vaginal tapes are efficient in these cases (35).

In 8 cases an asymptomatic overactive detrusor was detected. It can be presented with or without urge incontinence and the expression of symptoms increases with age from 2% to 19% after 40 year old (36).

In a 38 women series with severe cystocele the occult urinary incontinence was detected in 63.2%. In all women an anti-incontinence surgery (sub-mid urethral mesh) was associated with genital prolapse repair with Prolift™ mesh. One case of failure was observed in the immediate postoperative time (37).

Even though it was not the goal, or was made in the protocol of this manuscript, we can advance to the readers, who underwent surgery for prolapse correction only to women without incontinence potential. In contrast was added to the surgical correction of cystocele, prophylactic surgery for those with urinary incontinence potential. Upon the closing of the manuscript, there have been only 2 patients with failure of prophylactic surgery. One woman presented in the immediate postoperative time urinary incontinence and the other at 3 months. The group without prophylactic surgery, incontinence has not submitted to the current date. However, this is being monitored and followed in another work protocol.

Stress urinary incontinence can be occult in a severe vaginal prolapse. It can be observe in anterior, posterior or vaginal cuff severe prolapse. This is a false balance produces by the angle of the urethra by a severe prolapse unmasked when the normal anatomy is restored. The Integral Theory of the Continence demonstrated that anterior or posterior vaginal wall defect can to produce urinary incontinence. For these motives is important to realize a complete surgical correction in order to restore the normal anatomy and function avoiding the expression of a urinary incontinence undetected previously and masked by a severe vaginal wall prolapse.
CONCLUSIONS

When a severe cystocele is correct by a vaginal valve urodynamic changes can be detected and it allows identify women with occult urinary incontinence that potentially can be expressed when the normal anatomy is restored.

The cystocele reduction test by a Bresky vaginal valve is simple and efficient to simulate an anatomy restoration.

The non-multichannel urodynamic test allows objectify and classify the occult urinary incontinence in order to plan a possible anti-incontinence surgery during the same surgical time of the cystocele correction.

REFERENCES AND RECOMMENDED READINGS (*of special interest, **of outstanding interest)

23. Rosenzweig BA, Pushkin S, Blumenfeld D, Bathia NN. Prevalence of abnormal urodynamic test