SURGICAL TREATMENT OF THE FEMALE STRESS INCONTINENCE:

Clinical experience

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SUMMARY

The Authors report the clinical experience and the results of surgery conducted in patients affected by stress incontinence. The comparison of success rate and post-operative morphological alterations in two groups of operations (according to Perrin-Leger technique and anterior colpoplasty) is reported.

The elective treatment is the surgical one: 300 cases were treated by two different techniques: the cystopexis according to Perrin-Leger technique and anterior colpoplasty. The group of patients treated with vesical suspension seems to have a lower incidence of relapses or failures.

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The true urinary incontinence, or loss of urine trough a healthy urethra, can be due to:

– *Causes defined as sphincteral*, which do not mean strictly sphincteral;

– *Causes defined as detrusorial*, where the detrusor is not essentialy a primary element;

– *Mixed causes* (of difficult identification), which connect the one to the others [1].

Here the discussion is only on the urinary incontinence due to sphincteral causes, or stress incontinence, caused by the increase of the abdominal pressure, which exceed the residual resistance of the sphincteral system.

In normal condition, the pelvic urethra, influenced by the abdominal pressure, would guarantee the continence, while, assuming a perineal position for the relaxation of the connective-muscular diaphragm it induces urination, being the vesical pressure positive.

In pathologic conditions, the urethra can escape from its pelvic position (descensus vaginalis with suppression of the posterior vesico-urethral angle) and in this way it can be exposed to brusque increases of the abdominal pressure [2, 3, 5].

What just mentioned is valid for the true sphincteral system.

The criteria of the patient's selection in the Gynecological and Obstetric Clinic of Padua, the surgical treatment according to Perrin-Leger technique and by anterior colpoplasty and the results obtained are reported.

The static and dynamic urethral pressure profile for these surgical treatments was studied in all patients.

The diagnostic investigation demonstrated that continence is due to a pressure relation of differential type: under stress conditions, when the pressure is positive, there is continence, on contrary incontinence.

The correction of stress incontinence is essentially of surgical type and it exclusi-

Table 1. — *Stress incontinence.*

Pre-urodynamic evaluation:
– study of static and dynamic pressure profile
– principles of hydrodynamic
Methods:
– retrograde urethrography
– electromiography
– cystomanometry

vely involves the factors connected to the pressure's variations due to the urethral anatomic situation.

Surgery must reduce the urethro-vesical dislocations, but it also has to assure a regular transmission of the abdominal pressure to the urethra in order to increase the resistance in stress conditions.

The surgical correction of the urethro-vesical dislocation must respect some principles of hydrodynamic.

In fact, through a water-pipe (urethra) the movement is artificially maintained by a pump (bladder), which communicates power to the current increasing its pressure: variations of a) the pipe's lenght, b) section and c) direction, cause a fall of piezometric pressure and a wasting of energy (continuous loss of heat) to which it must correspond a proportional increase of the upward power.

Therefore, one must study the more convenient urethral anatomic position for a sufficient resistance's increase in stress conditions, without high increase of the endovesical pressure which is directly connected to urethral deflux.

MATERIAL AND METHODS

The study of the sphincteral validity and the urethral profile was effected by the following diagnostic techniques: *Retrograde urethrography*; *Electromiography*; *Cystomanometry*.

The diagnostic techniques (table 1) were always conducted both during the diagnostic-phase and in the post-operative period to verify the results of the operation.

Our clinical experience is based on a wide series of surgical operations (table 2).

Each operation indicated in the table, is as the founder of a group of operations which differ from it for technical methods considered of little importance in comparison with the type of urethral dislocation.

The table 3 shows the clinical experience of operations conducted by Perrin-Leger technique and the following one (table 4) by anterior colpoplasty in the years 1968-1980.

Is reported only the comparison of this two groups of operations among all those performed for the highest number they represent.

The table 5 shows a comparison of success-rate and post-operative morphological alteration in two classes of operations.

DISCUSSION

We retain that a contemporary descensus vaginalis must be correct by vaginal surgery and the incontinence by a suspension of the anterior vesical wall to the abdominal recti.

The Pfannenstiel abdominal section permits a better mobilization of the abdominal retci muscles.

The anterior vesical wall is exposed in all its wideness, entering the prevesical space after having separated the abdominal recti muscles.

In such way the urethra will reach its originary position by a dynamic system which allows, for the elasticity of its components, a correct urinary dynamic, without any variation, of section, or direction, and therefore without important effects on the vesical pressure.

It must be remembered that the vesical wall must be interested in all thickness by suture, which will connect it to abdominal recti. After such pre-urodynamic experiences, we have actually started a study to

Table 2. — *Stress incontinence.*

Surgical treatment in the Obst.-Gyn. of Padua (1963-1980)
– Direct anterior suspension
– Combined anterior suspension
– Reconstruction of the musculo-aponeu. layers
– Construction of urethro-vesical valvular mechanism
– Anterior vaginal plasty

Table 3. — *Stress incontinence.*

Perrin-Leger operation (1964-1980)	
Cases	185
cured	120 (64.8%)
improved	60 (32.7%)
no effect	5 (2.5%)

Table 5. — *Stress incontinence.*

Comparison of success rate and postoperative morphological alteration in two class of operations

Surgical therapy	Cases	Cured	Relapsed
Perrin-Leger	185	120	10 (8.3%)
Ant. Colpoplasty	115	55	8 (14.5%)
Tot. cases	300	175	18 (10.2%)

define an adequate urodynamic evaluation in cases of stress incontinence.

It is pointed out the importance of the detrusor's investigation in two directions. On one side there is the accurate research of a detrusorial instability, of which the anamnesis can be indicative, but the diagnosis is only cystometric; on the other side there is the evaluation of the detrusor's contractility by the study of the isometric detrusorial pressure during the stop-test and of the modalities of vesical emptying.

The second point seems essential for the prevision and the understanding of the difficulties of post-operative emptying.

On whole we retain that the appropriate urodynamic evaluation of the patients with stress incontinence should consist in:

– *Cystometry with subtracted pressure to provocation-test;*

– *Pressure-flux (stop-test), with simultaneous radiologic study;*

– *Static and dynamic urethral pressure profile.*

The *quantitative electric miography* of the external urethral sphincter is considered of secondary importance.

The urodynamic evaluation conducted with this purposes, finds indication in all the cases of post-operative relapse of the incontinence, or complex cases, with atypical anamnesis, or that have already undergone surgery of the pelvis.

The absolute indication can be limited to the cases of first observation, with typical anamnesis.

Analysis of the failure by extensive urodynamics diagnosis gives rise moreover to the hope that the prospects of the success can be improved by eliminating forms of incontinence which cannot be treated surgically ([4]).

Moreover, urodynamic investigation gives indications as to whether a reoperation in recurrent stress incontinence is likely to give rise to a good result or not. These investigations are in progress at moment ([4]).

In conclusion we still believe that the female stress incontinence's chapter can be compared with the story of A. Pavlovic Cechov regarding the three blinds who surrounded an elephant each one of them touching a distinguishing part of the animal believed to be able to represent the whole.

Table 4. — *Stress incontinence.*

Anterior colpoplasty (1974-1980)	
Cases	115
cured	55 (47.8%)
improved	46 (40.0%)
no effect	14 (12.2%)

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