

STRESS URINARY INCONTINENCE, URETHRAL SUPPORT, AND URETHRAL FUNCTION AMONG WOMEN WITH PELVIC ORGAN PROLAPSE ANALYZED BY PROLAPSE TYPE

Aims of Study

To evaluate 1) the occurrence of stress urinary incontinence (SUI) and 2) the status of urethral support and function in women with untreated pelvic organ prolapse grouped by most dependent compartment.

Methods

Women with untreated (primary) pelvic organ prolapse at least one centimeter below the hymen were enrolled as part of an IRB approved study. Women with a history of surgery for prolapse were excluded from the study. Patients completed the incontinence screening questionnaire (ISQ) [1] and underwent an examination which included pelvic organ prolapse quantification (POP-Q) [2] examination, Qtip testing, and a urethral pressure profile (UPP). With the exception of the UPP, examinations were done without elevation of the prolapse. Demonstrable incontinence was assessed in the standing position with 250 cc in the bladder. Groupings into anterior, apical, and posterior prolapse were determined by the most dependent part of the vaginal wall or cervix found by POP-Q. The apex was the cervix when the uterus was in situ or the vaginal scar status post hysterectomy. Urethral support was assessed during pelvic examination by the Qtip angle when resting, contracting the pelvic floor muscles, and straining. Maximum urethral closure pressure (MUCP) was determined with a UPP. The data regarding demonstration of SUI in the standing position were analyzed using a chi square test. Q-tip angle measures and MUCP were compared using a one way analysis of variance with post hoc pairwise comparisons.

Results

102 women with primary pelvic organ prolapse were enrolled. Mean age ($\pm$ SD) was 57.1 $\pm$ 12.5 years; mean parity was 3.1 $\pm$ 1.8; and mean body mass index was 26.0 $\pm$ 5.0 kg/m². The dependent site of prolapse was the anterior, apical and posterior compartments in 62.7% (n=64), 21.6% (n=22), and 15.7% (n=16) of women respectively. There were 26 of the 102 cases that had had a hysterectomy. Women that had undergone hysterectomy had the same distribution of the dependent point of the prolapse as those with a uterus *in situ*. The mean position ($\pm$ SD) of the leading point of the anterior, apical and posterior compartments in these groups were respectively 2.3 $\pm$ 1.4cm, 4.0 $\pm$ 2.5cm, 1.9 $\pm$ 1.5cm below the hymen. 30% reported that they had leaked on "at least half of the occasions" in the past month when they "coughed, laughed, or sneezed." 24.2% objectively demonstrated SUI.

When analyzed by prolapse type, women in the posterior group were more likely to demonstrate SUI and had better resting urethral support than those in the anterior and apical groups. In addition, women in the posterior group were better able to elevate the urethra during a pelvic muscle contraction than were those in the anterior group. No statistical difference was noted in urethral function by the urethral pressure profile.

The table below provides analysis of parameters with respect to type of prolapse.

Examination	Type of prolapse			Statistical Significance
	Anterior (n=64)	Apical (n=22)	Posterior (n=16)	
% reporting SUI	27	30	41	NS
% demonstrating SUI on examination	19	18	56	Ant v Apical: NS Ant v Post: p=.004 Apical v. Post: p=.014
Q-tip angle (degrees)				
Mean Resting $\pm$ SD	16 $\pm$ 21	17 $\pm$ 22	2 $\pm$ 17	Ant v Apical:p=NS Ant v Post: p=.02 Apical v Post p=.03
Contracting pelvic floor $\pm$ SD	8 $\pm$ 27	2.5 $\pm$ 30	-11 $\pm$ 25	Ant v. Apical p=NS Ant v Post p=.01 Apical v Post p=NS
Straining $\pm$ SD	47 $\pm$ 28	38 $\pm$ 27	38 $\pm$ 21	NS
Maximum Urethral Closure Pressure (cmH ₂ O) $\pm$ SD	65 $\pm$ 34	71 $\pm$ 37	53 $\pm$ 25	NS

NS: not significant

Conclusions

Stress urinary incontinence was objectively demonstrated in 24% of women with pelvic organ prolapse. Unexpectedly, those women with a posterior prolapse were more likely to demonstrate SUI than were women with anterior or apical prolapse despite better urethral support.

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References

1. Gunthorpe W, Brown W, and Redman S. The Development and Evaluation of an Incontinence Screening Questionnaire for Female Primary Care. *Neurourology and Urodynamics* 2000;19:595-607.
2. Bump RC, Mattiasson A, Bo K, Brubaker LP, DeLancey JOL, Klarskov P, Shull B, and Smith ARB. The Standardization of Terminology of Female Pelvic Organ Prolapse and Pelvic Floor Dysfunction. *American Journal of Obstetrics and Gynecology* 1996;175:10-17.