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Lakeman M[1], Hakvoort R[2], Roovers J[1]
1. *Academic Medical Centre Amsterdam,* ***2.*** *Spaarne Hospital, Hoofddorp*

URODYNAMIC INVESTIGATION TO EVALUATE WHETHER THERE IS BLADDER OUTLET OBSTRUCTION ON THE FIRST DAY AFTER VAGINAL PROLAPSE SURGERY

Hypothesis / aims of study: One of the most common complications directly related to prolapse surgery is post-operative urinary retention. The most frequently proposed cause of this complication is that surgery causes obstruction through the elevation of the bladder neck and urethra and the formation of haematoma and oedema. This is the first study performing urodynamic investigation on the first post-operative day to evaluate whether prolapse surgery induces bladder outlet obstruction in the short term.

Study design, materials and methods: Women scheduled for vaginal prolapse surgery were asked to undergo multichannel urodynamic investigation prior to surgery and one day after surgery. Urodynamic investigation included filling cystometry and pressure-flow studies. Bladder outlet obstruction was assessed pre- and post-operatively using the Blaivas-Groutz nomogram. This nomogram differentiates between no obstruction, mild, moderate and severe obstruction. An abnormal post void residual volume (PVR) was defined as a post void residual bladder volume exceeding 150 mL. From all women routine baseline characteristics and performed procedure(s) were collected.

Results: Seventeen women agreed to participate in this study, all women underwent anterior colporrhaphy, of which 1 was combined with sacrospinous ligament fixation, 1 with manchester repair, 1 with manchester repair and posterior colporrhaphy and 3 with posterior colporrhaphy. Figure 1 shows the Blaivas and Groutz nomogram before and one day after surgery. Before surgery 6 women were identified as moderately obstructed, of this group 1 was still moderately obstructed after surgery, 2 were mildly obstructed, 2 women were no longer obstructed and one woman was unable to void during pressure flow studies. During free flow she voided at a maximum flow rate of 20ml/s. Six women were identified as mildly obstructed before surgery, 5 of them were still mildly obstructed after surgery and 1 was moderately obstructed. Five women were unobstructed before surgery, of which 1 woman was mildly obstructed after surgery.

Table 1 shows the urodynamic findings before and after surgery. No statistical significant differences were found. Six women had an abnormal PVR (range 172-487ml) after surgery. Of these women, one could not void at all, 4 were classified as mildly obstructed and 1 as moderately obstructed.

Interpretation of results: We found no differences in degree of obstruction, detrusor pressure and maximum flow rate between the pre and postoperative situation. Based on these findings we state that prolapse surgery itself does not cause bladder outlet obstruction.

Our main limitation is the relatively low number of women included. Considering the invasive nature of urodynamic studies, especially at the first day after surgery, we found it ethical to approach a limited number of patients for this explorative study.

Concluding message: Urodynamic investigation on the first day after prolapse surgery shows that vaginal prolapse surgery carries a low risk on inducing bladder outlet obstruction. The explanation for postoperative urinary retention should therefore not only include the effects of surgery on the bladder neck and urethra.

Figure 1. Blaivas and Groutz nomogram. Distribution of the maximum flow rate by maximum detrusor pressure of the patients before and after vaginal prolapse surgery was performed.

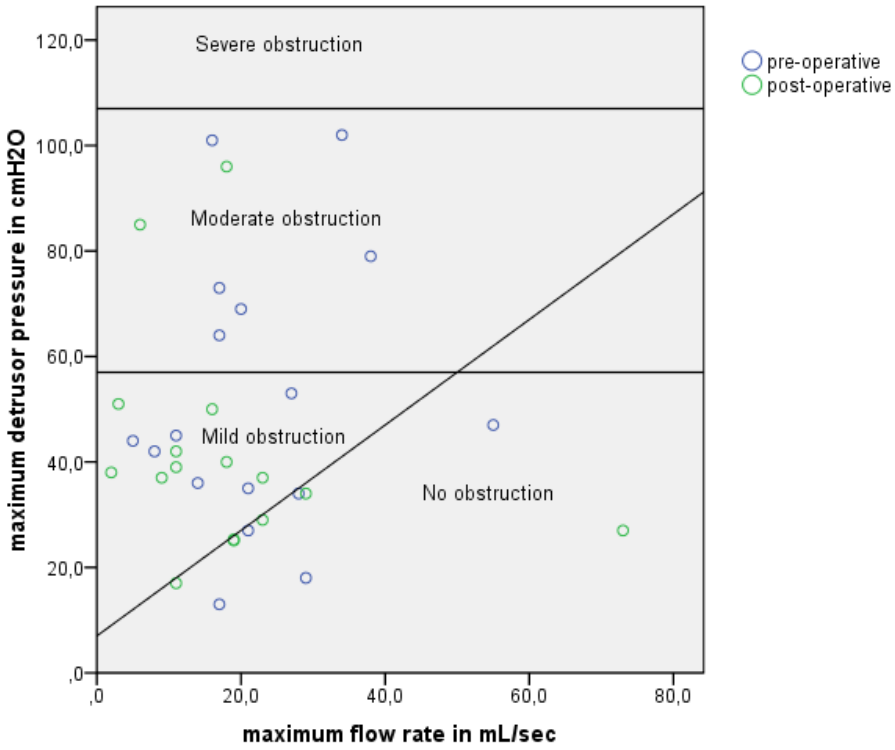

Table 1. Median maximum flow rate (Qmax), maximum detrusor pressure (P det max) and residual volume as found using urodynamic pressure flow studies before and after surgery.

	Before surgery n=17		After surgery N=16		P*
Q max (in mL/sec)	20	(5.0 - 55.0)	17.0	(2.0 - 73.0)	0.36
P det max (in cmH2O)	44	(13.0 - 102.0)	37.5	(17.0 - 96.0)	0.53
Residual volume (in mL)	10.0	(0.0 - 707.0)	66.0	(0.0 - 487.0)	0.78

Values are median (range)

* As calculated using non parametric paired wilcoxon test

Specify source of funding or grant	**No funding has been received**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Medical Ethics Committee VU Medical Centre Amsterdam**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**