

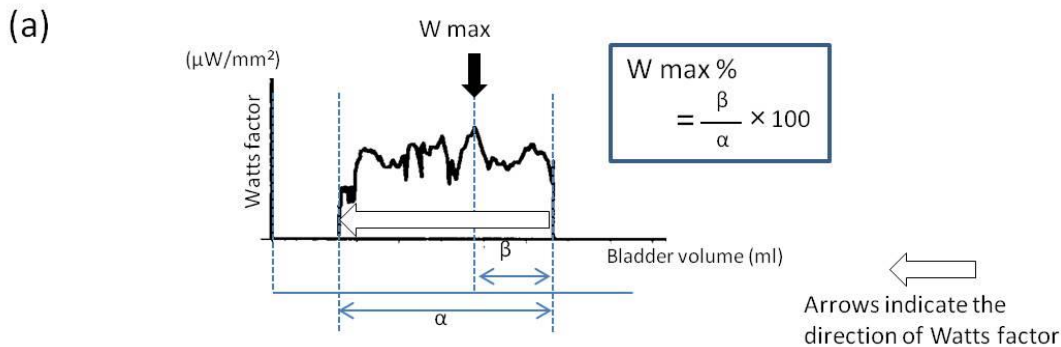
DETRUSOR CONTRACTION “SUSTAINABILITY” RESTORE AFTER PELVIC ORGAN PROLAPSE SURGERY

Hypothesis / aims of study

Pelvic organ prolapsed (POP) may cause bladder outlet obstruction and decrease detrusor contractility. Bladder contractility consists of contractile strength and duration. However, the variable method for evaluating the contraction duration is not well validated. The most widely used measurement of bladder contractility is the Watts factor (WF). WF was calculated throughout bladder emptying. Impaired bladder contraction represent not only decreased peak of WF, but also poorly sustained detrusor contractions. From this point of view, the maximum height of the resulting curve (W_{max}) and its pattern should be discussed separately. In the present study, we focused on the detrusor contraction sustainability using a new pressure flow study (PFS) parameter. We focused on the detrusor contractility pattern of POP patients with and without temporary vaginal pessary and post operation PFS data.

Study design, materials and methods

We defined " W_{max} %" as the percentage of when reach the W_{max} during micturition (figure a). A normal detrusor contractility pattern show a sharp increase at the initiation of micturition, and slight increasing to the end of micturition. However, patients with impaired contractility show a fading contraction pattern. W_{max} % could represent the pattern of detrusor contractility.



Sixteen women with advanced anterior vaginal wall prolapsed were urodynamically evaluated. PFS were thirdly performed with POP left as is, and then the procedure was performed with reduction of POP using a temporary vaginal pessary. Furthermore, PFS were performed 3 months after the operation. Maximal urinary flow rate (Q_{max}), detrusor pressure at maximal flow (P_{det} at Q_{max}), residual volume, W_{max} , and W_{max} % were measured.

All the data are described as mean \pm standard deviation, and statistical analyses were conducted using paired t tests, Student's t tests, and analysis of variance (ANOVA). Comparisons between each group were made by conducting Turkey analyses, and cases with a P value of 0.05 or smaller were considered statistically significant.

Results

The mean age (range) of patients was 74 (63-84). The mean pre (pessary (-) and (+)) and postoperative Q_{max} and P_{det} at Q_{max} were not changed significantly (15.0 ± 12.4 , 16.7 ± 8.3 , and 13.3 ± 7.5 ml/min) and (13.7 ± 6.5 , 13.9 ± 6.9 , and 18.4 ± 12.0 cmH₂O), respectively. Residual volume decreased significantly with pessary (+) compare to pessary (-) (160.7 ± 122.5 , 53.0 ± 149.5 , and 88.2 ± 95.6 ml, $P < 0.05$). Although both parameters W_{max} (3.8 ± 3.1 , 10.7 ± 9.2 , and 4.8 ± 2.2 W/m²) and W_{max} % (60.8 ± 23.8 , 81.7 ± 21.7 , and 70.4 ± 27.2) have significant differences by analysis of variance, multiple comparison reveal significant intergroup difference only in W_{max} % ($p = 0.028$) (typical case: figure b).

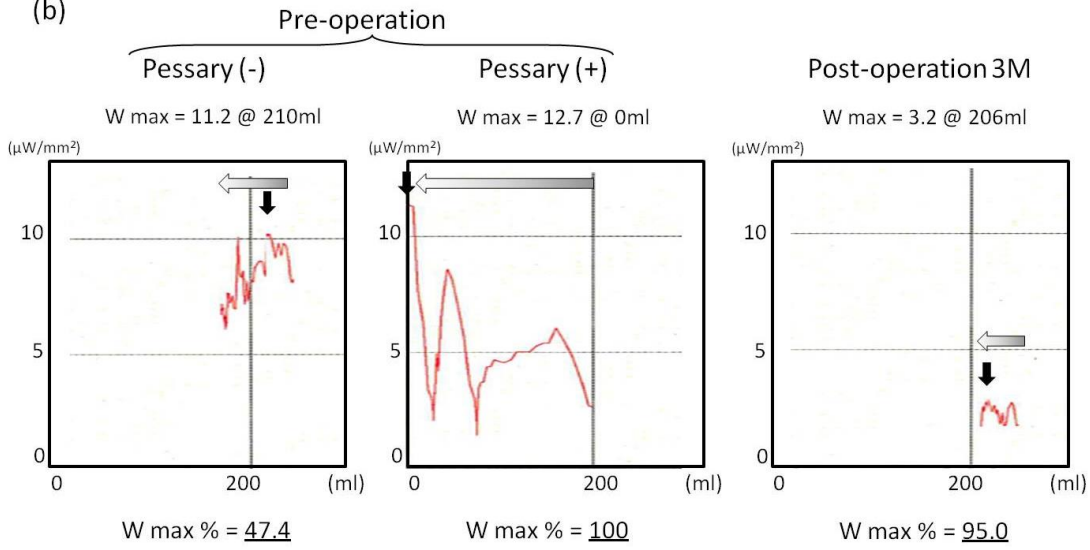
Interpretation of results

W_{max} is the maximum instantaneous power of contraction, whereas W_{max} % can confirm the improvement of detrusor contraction sustainability. Moreover, W_{max} % shows more sensitivity for detecting the restoration of detrusor contraction compare to W_{max} .

Concluding message

Our study confirmed that mesh surgery restore the detrusor contractility pattern of anterior pelvic organ prolapsed patients. The measurement of W_{max} % provides some insight into the bladder contraction sustainability.

(b)



Disclosures

Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Ethics Committee of Hokkaido University Hospital
Helsinki: Yes **Informed Consent:** Yes