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EFFECT OF VAGINAL SLING AND ITS ASSOCIATED VAGINAL DISSECTION ON BLADDER FUNCTION IN THE RAT MODEL OF STRESS URINARY INCONTINENCE

Hypothesis / aims of study

The extent of damage caused by vaginal dissection performed during procedures for female pelvic floor disorders remains unknown. The aim of this study was to examine whether the vaginal dissection done during the sling procedure affect bladder function.

Study design, materials and methods

SUI was created in a group of 20 female Sprague-Dawley rats by previously established method of bilateral pudendal nerve transection (PNT). The rats were randomized into 4 groups (normal controls, PNT only, PNT+ vaginal sling, and PNT+ vaginal dissection. Vaginal sling procedure in the rat was based on the recently described model developed in our laboratory .For vaginal dissection, a 5 mm incision was made in the anterior vaginal wall and vaginal epithelium was dissected laterally. Both the techniques of sling placement and vaginal dissection are similar to the methods of clinical transvaginal sling placement. At 4-5 weeks, anesthetized cystometrogram (CMG) was performed in all animals. Bladder capacity, compliance, and peak detrusor pressure during voiding were recorded. Results are presented as mean ± SEM. Statistical analysis was done using wilcoxon signed-rank test with $p<0.05$ indicating a significant difference.

Results

Both bladder capacity and compliance decreased significantly in animals undergoing vaginal dissection and sling compared to PNT alone (Figures 1 and 2). The peak voiding pressures were not significantly different from the control (29.9±7.3; 32.2±4.3 vs (35.5±4.9 cm H2O) with P-values of 0.013, 0.26, and 0.39 respectively.

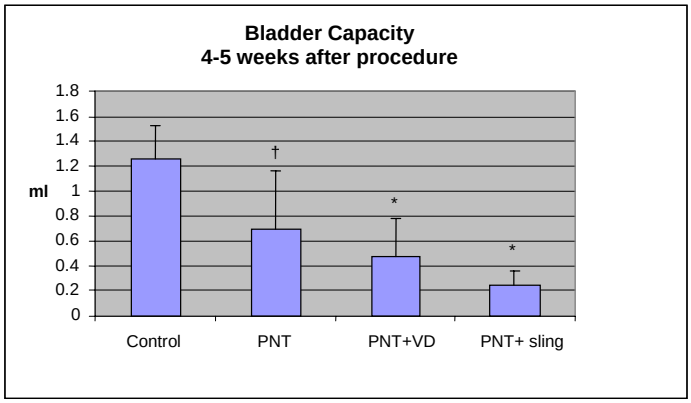

Figure 1- * The bladder capacity was significantly lower in the PNT+vaginal dissection (VD) and PNT+ sling compared to the control (p= 0.009 and 0.002 respectively).
† Non-significant difference in the PNT group compared to control (P=0.09)

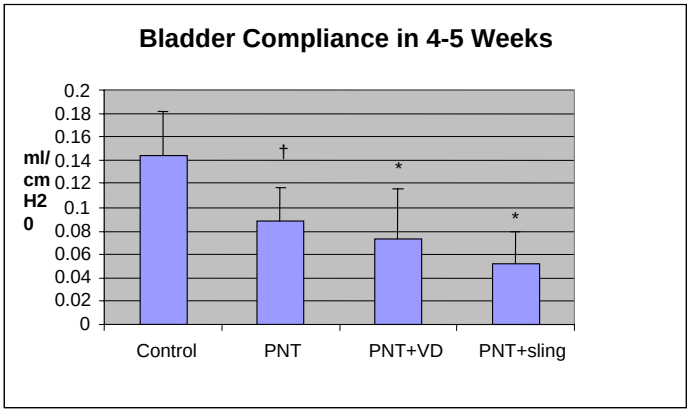

Figure 2- * Significantly lower compliance in the PNT+vaginal dissection (VD) and PNT+vaginal sling compared to control group
(P= 0.049 and 0.013 respectively)
† Non-significant difference in PNT compared to control (P=0.052)

Interpretation of results

Vaginal sling and its associated vaginal dissection alter the bladder capacity and compliance even in the absence of outlet obstruction as evident by normal voiding pressures in a rat model of SUI.

Concluding message

Vaginal dissection might be the cause of sling related bladder changes, pathophysiological explanation and time course of this observation including the role of vaginal dissection alone (without PNT) requires further investigation.