

MORPHOMETRIC HISTOLOGICAL ANALYSIS OF SMOOTH MUSCLE IN THE ANTERIOR WALL IN WOMEN WITH PELVIC ORGAN PROLAPSE

Hypothesis / aims of study

The structural anatomy of the anterior vaginal wall consisted of squamous epithelium, lamina propria, muscularis and adventitia. Adventitia is separated from the bladder wall musculature only by a loose framework of collagen fibers. Smooth muscle fibers arise from the vaginal wall to the levator ani complex. There is evidence that abnormalities in the smooth muscle anatomy in the vaginal wall may contribute to the pathophysiologic factors of pelvic organ prolapse (POP). The aim of this study was to analyse smooth muscle content of anterior vaginal wall to test the hypothesis that smooth muscle content is decreased in the vagina of women with pelvic organ prolapse.

Study design, materials and methods

In 16 women with primary POP after hydro-dissection and full thickness vaginal wall incision a specimen was taken from anterior colpectomy. Smooth muscle cells of the anterior vaginal wall were identified by immunohistochemistry with antibodies to smooth muscle actin. Morphometric analysis was used to determine the fractional area of nonvascular smooth muscle in the muscularis of the anterior vaginal wall.

Results

The mean age was 67.8 ± 7.2 years, mean BMI 29.33 ± 6.7 kg/m². Staging was assigned using the POP-Q system (all women demonstrate POP stage III-IV in anterior compartment). The surgical procedures were trocar guided mesh placement. Fractional area of nonvascular vaginal smooth muscle in the muscularis of women with POP was 32%. This is significantly decreased value in comparing to the literature data in control subjects without POP.

Interpretation of results

Vaginal wall morphologic features are significantly altered in women with POP. The smooth muscle content in the muscularis of the anterior vaginal wall in primary POP cases was decreased

Concluding message

Vaginal smooth muscle function may be involved in the pathophysiologic condition of POP.

Disclosures

Funding: none **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** The Local Ethics Committee of Institute for the care of mother and child **Helsinki:** Yes **Informed Consent:** Yes