Abstract

Objectives: To confirm the results of previous studies demonstrating the morphology of the levator ani muscle in the living subject is different to that described in classic anatomical works; to evaluate the anatomical-morphological differences of the pelvic floor between nulliparous and multiparous women in order to analyze the influence of pregnancy and delivery. Methods: Comparative study of the morphological variations of the iliococcigeous fascicle of the levator ani muscle between two groups of females using T2 MRI: the first group included 11 nulliparous women and the second group 9 multiparous women. The curvature radium of the fascicles was calculated in the frontal projections. The differences in height were also calculated. The anterior limit of the iliococcygeal muscle dome was determined in the sagittal plane. The software Image Tool 3.0 was employed for the measurements. The Kolmogorov-Smirnov test was employed to analyze the distribution of the study populations; mean value comparisons between groups were performed by the Student’s t test. Finally, the various morphological measurements were compared in relation to various parameters: parity, side, body mass index (BMI), sports practice, menstrual cycle phase, and presence or absence of episiotomy. Data obtained were analyzed using the Fishers exact test, with a statistical significance of p<0.05. Results: Morphological measurements: We observed that the concavity of the iliococcygeal fascicle dome is larger in nulliparous women (p = 0.03 for the right side and p = 0.04 for the left). Moreover, these women have the domes significantly more anterior (p<0.001 for both sides). Comparisons between other variables: an association between nulliparous status and the presence of a higher and more anterior left dome, and multiparous status and a higher and more anterior right dome were (p = 0.02). Conclusions: The hypothesis of the pelvic floor morphology being a double dome with inferior-posterior concavity in the living asymptomatic female is confirmed. We also demonstrate the existence of anatomical-morphological differences in the iliococcygeal muscle of the levator ani between nulliparous and multiparous females, which seems to confirm a relationship with pregnancy and/or delivery.

Keywords

Pregnancy. MRI imaging. Pelvic floor.