Can pelvic floor trauma be predicted antenatally?

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Abstract

INTRODUCTION: Levator trauma is a risk factor for the development of pelvic organ prolapse. We aimed to identify antenatal predictors for significant damage to the levator ani muscle during a first vaginal delivery.

MATERIAL AND METHODS: A retrospective observational study utilizing data from two studies with identical inclusion criteria and assessment protocols between 2005 and 2014. A total of 1148 primiparae with an uncomplicated singleton pregnancy were recruited and assessed with translabial ultrasound at 36 weeks antepartum and 871 (76%) returned for reassessment 3-6 months postpartum. The ultrasound data of vaginally parous women were analyzed for levator avulsion and microtrauma. The former was diagnosed if the muscle insertion at the inferior pubic ramus in the plane of minimal hiatal dimensions and within 5 mm above were abnormal on tomographic ultrasound imaging. Microtrauma was diagnosed in women with an intact levator and if there was a postpartum increase in hiatal area on Valsalva by >20% with the resultant area ≥25 cm2 .

RESULTS: The complete datasets of 844 women were analyzed. Among them, 609 delivered vaginally: by normal vaginal delivery in 452 (54%), a vacuum birth in 102 (12%) and a forceps delivery in 55 (6%). Levator avulsion was diagnosed in 98 and microtrauma in 97. On multivariate analysis, increasing maternal age, lower body mass index and lower bladder neck descent were associated with avulsion. Increased bladder neck descent and a family history of cesarean section (CS) were assocciated with microtrauma.

CONCLUSIONS: Maternal age, body mass index, bladder neck descent and family history of CS are antenatal predictors for levator trauma.

KEYWORDS: Birth trauma; forceps; levator avulsion; pelvic organ prolapse; prediction; ultrasound.