

Comparison of Levator Ani Muscle Avulsion Injury After Forceps-Assisted and Vacuum-Assisted Vaginal Childbirth

Memon, Hafsa U.; Blomquist, Joan L.; Dietz, Hans P.; More

Obstetrics & Gynecology. 125(5):1080-1087, May 2015.

OBJECTIVE: Using three-dimensional transperineal ultrasonography, we compared the prevalence of levator ani muscle injury after forceps with vacuum-assisted vaginal delivery.

METHODS: This was a retrospective cohort study. Women who experienced at least one forceps delivery (across all deliveries) were compared with women who had at least one vacuum birth. On average, participants were 10 years from the index delivery. Three-dimensional transperineal ultrasound volumes were captured as cine loops at rest with Valsalva and with pelvic floor muscle contraction. The primary outcome was levator ani muscle avulsion. Secondary outcomes included hiatal diameter and area. Prevalence of pelvic floor disorders was also compared between the two delivery groups.

RESULTS: Among 45 participants in the forceps group and 28 participants in the vacuum group, there were no differences between groups in maternal age at first delivery, parity, body mass index, birth weight, episiotomy, or duration of second stage. History of anal sphincter laceration was more common in the forceps group. The prevalence of levator ani muscle avulsion was significantly higher after forceps compared with vacuum delivery (22/45 [49%] compared with 5/28 [18%], $P=.012$, prevalence ratio 2.74, 95% confidence interval [CI] 1.17–6.40, odds ratio 4.40 [95% CI 1.42–13.62]). Controlling for delivery type, levator ani muscle avulsion was associated with symptoms of prolapse ($P=.036$), although objective evidence of prolapse was not significantly different between groups ($P=.20$).

CONCLUSION: Ten years after delivery, the prevalence of levator avulsion is almost tripled after forceps compared with vacuum-assisted vaginal delivery.

LEVEL OF EVIDENCE: II