

THE EFFECT OF CHILDBIRTH ON PELVIC ORGAN MOBILITY

Aims of Study

Female pelvic organ prolapse and stress urinary incontinence are strongly associated with vaginal childbirth in epidemiological studies (1). However, there has been considerable debate as to whether this is due to pregnancy itself or to the act of childbirth (2), and evidence to date is contradictory (3,4,5) This study was designed to define the effect of pregnancy and childbirth on pelvic organ mobility in a prospective observational trial, assessing all three vaginal compartments as previously described (6)

Methods

200 women were recruited early in their first ongoing pregnancy and examined by translabial ultrasound in the first/ early second trimester, the late third trimester and 2-5 months postpartum. In total, 169 women returned for their postpartum check (84.5%). Peripartal changes in the mobility of urethra and bladder, cervix and rectal ampulla on Valsalva, relative to the inferoposterior margin of the symphysis pubis, were taken as evidence of fascial trauma and correlated with labour and delivery data.

Results

Significant increases in mobility on Valsalva manoeuvre were found for the anterior, central and posterior compartments (see Table 1) on comparing third trimester and postpartum data. There were marked differences between delivery modes, with Forceps delivery causing the most marked changes (see Figure 1).

Parameter	Urethral rotation (degrees)	Bladder descent (mm)	neckCystocele descent (mm)	Cervical descent (mm)	Rectal descent (mm)
ante partum (third trimester)	44	21.3	7	36.8	16.5
post partum (2-5 months)	61.3	28.5	0.1	20.8	2.9
p=	<0.001	<0.001	<0.001	<0.001	<0.001

Table 1: Comparison of third trimester and postpartum ultrasound data (n= 169). Significantly increased pelvic organ descent (higher figures for the first two parameters, lower numbers for the last three) is shown for all three compartments.

Pre-labour Caesarean Section led to a reduction in organ mobility relative to the measurements in late pregnancy, practically reaching the values obtained in early pregnancy. Length of second stage, especially active second stage, also correlated strongly with an increase in pelvic organ descent (see Table 2).

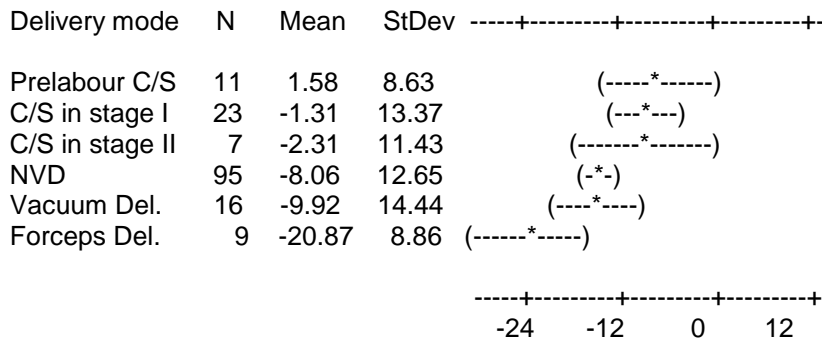


Fig. 1: Change in descent of the posterior bladder wall on Valsalva by delivery mode (n= 161). Most marked descent is most negative. Means (*) and 95% CI given.

Change in parameters	Urethral rotation	Bladder descent	neckCystocele descent	Cervical descent	Rectal descent
Total 2nd stage	r= 0.192 p=0.016	r=0.171 p=0.031	r=-0.232 p=0.003	r=-0.211 p=0.009	r=-0.288 p=<0.001
Passive 2nd stage	r= 0.111 p=0.165	r=0.084 p=0.295	r=-0.113 p=0.156	r=-0.143 p=0.077	r=-0.211 p=0.009
Active 2nd stage	r=0.180 p=0.024	r=0.170 p=0.032	r=-0.231 p=0.003	r=-0.176 p=0.029	r=-0.223 p=0.005

Table 2: Correlations between changes in pelvic organ mobility and total, passive and active second stage (n= 162), Pearson's correlation coefficients and p values given. All relationships (positive for the first 2 parameters, negative for the last three) signify that increased length of second stage was associated with increasing pelvic organ mobility.

The strongest relationship was reached for the posterior compartment. For every five minutes in second stage, the rectal ampulla descended more than one mm further compared to antepartum measurements. The influence of gestational length, length of first stage and birth weight did not reach significance.

Conclusions

The study presented here strongly supports the hypothesis that vaginal childbirth, and in particular vaginal operative delivery, negatively affects the fascial supports of pelvic organs. This appears to be almost equally true for all three vaginal compartments. The duration of second stage, especially active second stage, correlated strongly with increased urethral, bladder, uterine and rectal descent postpartum.

All forms of Caesarean Section, but especially pre-labour Caesarean, were associated with relatively less pelvic organ descent, with postpartum measurements in women after pre-labour Caesarean Section practically returning to early pregnancy values. This implies that elective Caesarean Section is likely to protect women from the increase in pelvic organ descent associated with vaginal childbirth. These findings may partly explain the apparent protective effect of elective Caesarean delivery for future symptoms of pelvic floor disorders.

Literature

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