Hypothesis/ Aims of study

Vaginal length has been subject to few dedicated articles with significant findings. We wish to examine the total vaginal length (TVL - vault to hymen posteriorly [Fig 1]) and the total posterior vaginal length (TPVL – vault to anterior perineum posteriorly [Fig 1]) in relation to posterior vaginal compartment repairs (PR) in a large series of women, looking for (i) the mean vaginal lengths, (ii) effect of PR and (iii) other factors that might significantly impact those figures.

Study design, Methods

At 300 consecutive PRs, mostly following prior or concomitant hysterectomy, the (i) TVL (cm) and TPVL (cm) were measured pre- and immediately postoperatively. Using linear regression, preoperative measurements were tested for their association with a range of demographic and surgical factors including: age; parity; weight; height; BMI, menopause, prior hysterectomy, POP-Q (points C, Ap and Bp, genital hiatus - GH) and PR-Q2 points (perineal gap - PG, posterior vaginal vault descent - PVVD, mid vaginal laxity – MVL, undisplaced, rectovaginal fascial laxity – RFVL) posterior prolapse markers. Units used for lengths were mm (calculations); cm (conclusions).

Results

Perioperative: Mean pre-op TVPL was 9.25 cm, a mean 1.76cm (23.5%) longer than the mean pre-op TVL of 7.49 cm. Post-op TPVL was reduced by a mean 0.17 cm (1.8%) to a mean 9.08 cm and TVL by a mean 0.08 cm (1.1%), to a mean 7.41 cm, neither reduction being significant.

Age and menopause: Both TVL and TPVL have a significant inverse relationship to both factors.

Weight, height, BMI (body size): Both TVL and TPVL have a significant positive relationship.

Parity or prior hysterectomy: There was no relationship with TVL or TPVL.

Pelvic organ prolapse: TVL/TPVL had significant positive relationships with two PR-Q prolapse markers (PVVD, RVFL) suggesting vaginal length may increase with prolapse. Their only relationship with the POP-Q markers (Point C) was a surprising inverse one.

Discussion

Both TVPL (mean 9.25 cm) / TVL (mean 7.49 cm) have minimal change following PR. Both lengths have (i) positive relationships with weight, height, BMI and possibly prolapse (PR-Q prolapse markers only) and (ii) inverse relationships with age, menopause and Point C. There appears no relationship with parity and prior hysterectomy.

Table 1: Associations with an outcome variable of pre-operative total vaginal length (TBL). Covariates with P<0.05 are shown in bold. TVPL Table (not shown) is very similar.

Table 2: Univariate and multivariate regression models showing the significant relationships between TVL (TVPL essentially the same) and demographic and prolapse markers.

Conclusion

Vaginal length appears to be well-maintained by posterior vaginal repairs. An increase in vaginal length with increasing body size factors was noted. Ageing and menopause reduction in vaginal length was confirmed.

Fig 1: Vaginal levels and lengths illustrating TVL and TPVL.