

BLADDER PROLAPSE CONFIGURATION ON BASELINE STANDING CYSTOGRAM CAN PREDICT ANTERIOR VAGINAL WALL SUSPENSION PROCEDURE OUTCOMES

Hypothesis / aims of study

To evaluate whether bladder prolapse shape on lateral voiding cystourethrogram (VCUG) at baseline is an accurate predictor of anterior vaginal wall suspension (AVWS) outcomes. [1]

Study design, materials and methods

Following IRB approval, pre-operative lateral standing VCUG images were reviewed at random from a prospectively maintained database of women who had undergone AVWS for clinical stage 2 cystocele. Patients with no retrievable pre-operative VCUG imaging or with poor imaging quality or imaging interference from hip prosthesis were excluded. Only the lateral view at a fixed bladder volume of 125cc and with straining was used for analysis. Cystocele shape on imaging was scored as either: 1) "round," or 2) "crescent," (Figure 1). The lower edge of the pubic symphysis was used as a reference point. Three reviewers, including a radiologist, with expertise in reviewing VCUGs were given 5 seconds per image to score them with no other patient information besides the VCUG image. Eleven images were repeated for intra-rater reliability analysis. Intra- and interrater reliability were calculated using the weighted kappa coefficient (κ). The clinical outcome of these patients was extracted from the same database with failure defined as prolapse recurrence (\geq stage 2 by POPQ) or same compartment POP re-operation.

Results

Between 1997 and 2013, 79 women were included in the study. All three reviewers had high intra-rater reliability ($\kappa = 1.00, 0.82,$ and 0.79). Inter-rater reliability between the 3 reviewers was also high ($\kappa = 0.76$) with 81% (64/79) ratings in perfect concordance and 19% (15/79) with 1 reviewer discordant. Prolapse recurrence-free probability between "round" and "crescent" shaped cystoceles was statistically significant ($p = 0.0304$) by Kaplan-Meier curve over a 15 year follow-up period post-AVWS (Figure 2).

Interpretation of results

Traditional evaluation of women with symptomatic anterior compartment prolapse entails examination while supine, and occasionally in standing position, along with pelvic organ prolapse-quantification (POP-Q) staging or Baden-Walker (BW) grading. During this physical examination, bladder fullness can vary from empty to relatively full depending on whether or not the patient emptied her bladder before the examination or was scheduled to undergo a stress test to detect stress urinary incontinence (SUI). A VCUG is a valuable test to determine the height of bladder drop as well as the degree of urethral support during rest and straining and can be used as an objective measure post-operatively. [2]

Between the two shapes, the "crescent" shape has been concerning as potentially representing more severe prolapse than that detected on examination alone, and possibly implicating some degree of associated apical vault prolapse as well. Our statistically significant recurrence-free probability between the "round" and "crescent" shapes supports this hypothesis.

Figure 1. Representative VCUG cystocele scoring examples: (A) round base cystocele; (B) crescent shaped cystocele

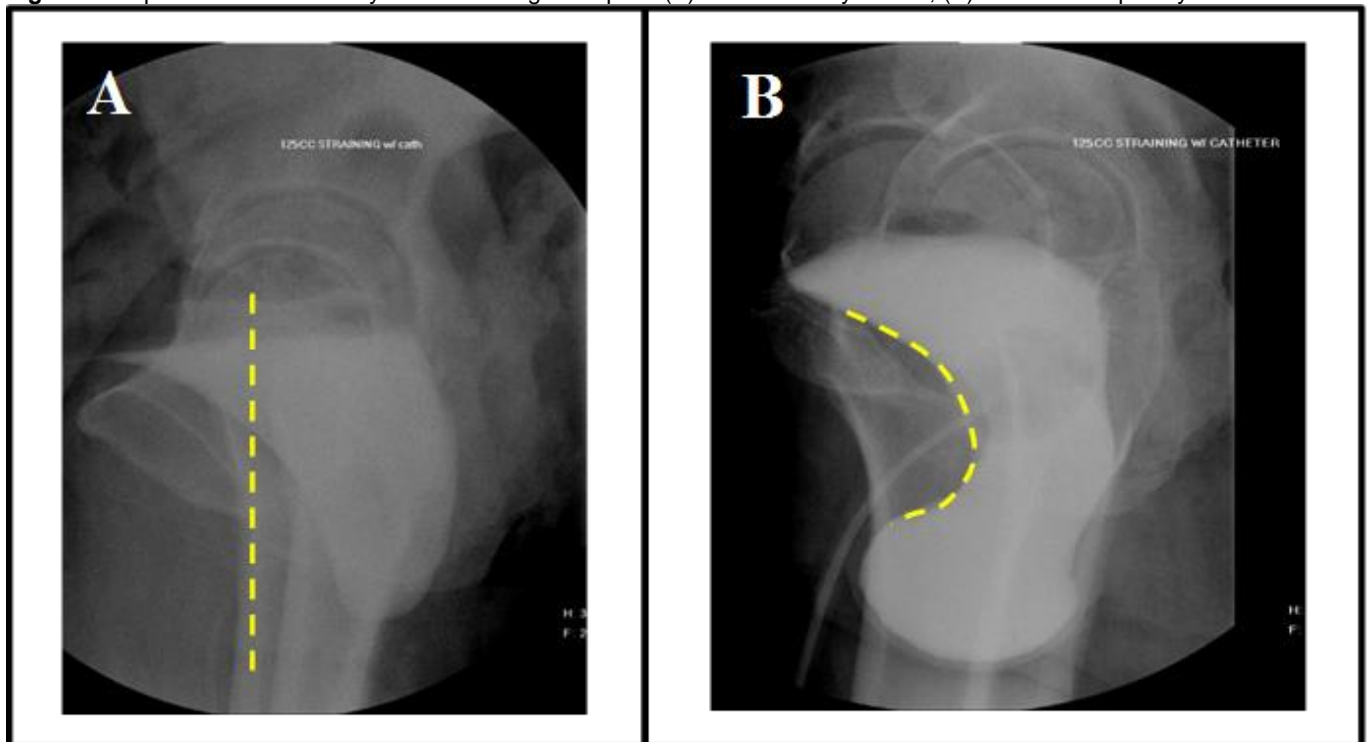
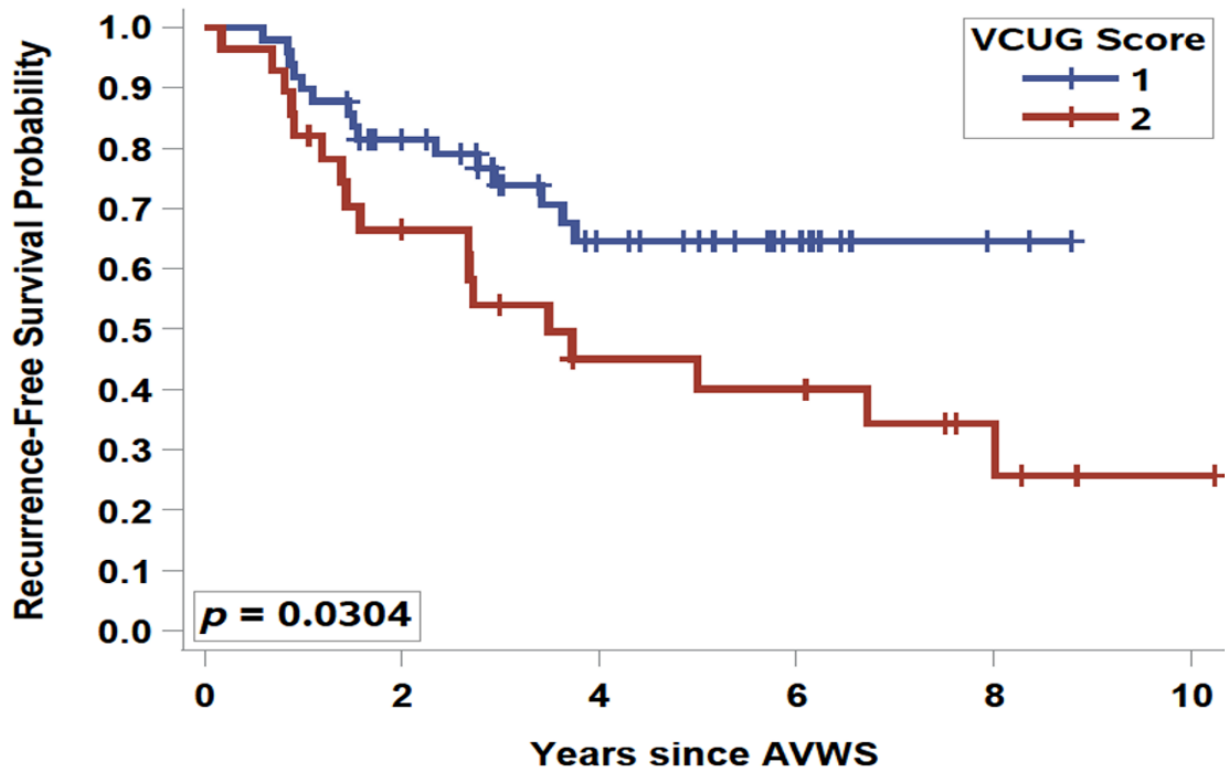


Figure 2. Kaplan-Meier curve for prolapse recurrence-free status after AVWS procedure by VCUG scores



Concluding message

This study indicates that bladder prolapse shape on baseline standing VCUG can be used to predict AVWS outcomes. “Round” shaped anterior compartment defects resulted in better outcomes than those that were “crescent” shaped, suggesting a higher degree of apical defect in the latter group not addressed by the AVWS procedure alone.

References

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2. Showalter PR, Zimmern PE, Roehrborn CG et al. Standing cystourethrogram: an outcome measure after anti-incontinence procedures and cystocele repair in women. J Urol 58: 33, 2001

Disclosures

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