

FINDINGS ON INTEGRATED TOTAL PELVIC FLOOR ULTRASOUND AND DEFAECATION PROCTOGRAPHY RELATE TO VAGINAL SYMPTOMS IN WOMEN WITH DEFAECATORY DYSFUNCTION

Hypothesis / aims of study

Is there any association between symptoms in defaecatory dysfunction and findings on integrated total pelvic floor ultrasound (transperineal, transvaginal) and defaecation proctography?

Study design, materials and methods

A prospective study of 224 consecutive women (mean age 51 years (range 19 – 87)) presenting with defaecatory dysfunction (incomplete evacuation with or without faecal incontinence) to a tertiary referral pelvic floor centre.

Each patient underwent assessment with;

- integrated total pelvic floor ultrasound (assessment of rectocele, enterocele, intussusception, cystocele, dyssynergy and poor propulsion (1))
- defaecation proctography (assessment of rectocele, rectocele with trapping of barium paste, enterocele, intussusception, dyssynergy, poor propulsion and incomplete evacuation)
- symptom severity scoring ((ICIQ-BS and VS (International Consultation on Incontinence Modular Questionnaire - Bowel and Vaginal Symptoms), B-SAQ (Bladder self-assessment questionnaire), ODS score (obstructed defaecation symptom), St Marks' incontinence grade).

Each scan was performed and reported by a clinical fellow, clinical scientist or clinical nurse specialist blinded to symptoms and corresponding imaging. Each report was verified by a consultant. Symptom scoring was performed by a nurse specialist during initial consultation.

Results

Integrated total pelvic floor ultrasound showed; 130 rectoceles, 72 enteroceles, 47 with intussusception, 118 cystoceles, 46 with dyssynergy and 101 with poor propulsion.

Defaecation proctography showed: 110 rectoceles (63 caused trapping barium paste), 72 enteroceles, 155 with intussusception, 14 with dyssynergy, 139 with poor propulsion and 61 with incomplete evacuation.

The mean, median and range of symptom severity scores are outlined below.

| Score | Mean | Median | Range | Inter-quartile range |
|----------------------------|------|--------|--------|----------------------|
| ICIQ – BS – Symptom | 12.1 | 9 | 0 – 37 | 2 – 21 |
| ICIQ – BS – QoL | 26.5 | 22 | 0 – 97 | 6 – 45 |
| St Marks – Symptom | 9.9 | 10 | 0 – 22 | 4 – 16 |
| St Marks – QoL | 21.4 | 21 | 0 – 60 | 7 – 33 |
| Thompsons – Symptom | 2 | 2 | 0 – 3 | 2 – 3 |
| Thompsons – QoL | 16.5 | 17 | 0 – 30 | 13 – 20 |
| ICIQ – VS – Symptom | 6.3 | 0 | 0 – 34 | 0 – 12 |
| ICIQ – VS – QoL | 10.2 | 6 | 0 – 68 | 0 – 17 |
| ODS | 13.2 | 14 | 0 – 26 | 10 – 17 |
| BSAQ – Symptom | 4.1 | 5 | 0 – 12 | 0 – 7 |
| BSAQ – QoL | 4.2 | 5 | 0 – 20 | 0 – 7 |

Rectocele: There was a positive correlation between rectocele size on both imaging modalities and ICIQ – VS scores (ultrasound and symptoms $r = 0.26$ $p < 0.0001$, ultrasound and QoL $r = 0.24$ $p = 0.0001$, proctogram and symptoms $r = 0.21$ $p = 0.0007$, 0.0013, proctogram and QoL $r = 0.20$, $p = 0.002$). Those patients with a rectocele had a significantly higher ICIQ – VS score (symptoms and QoL) compared to those patients without a rectocele (on both imaging modalities) (ultrasound: median symptom score 4 versus 0, $p = 0.0004$, median QoL score 7 versus 6, $p = 0.04$) (proctogram: median symptom score 4 versus 0, $p = 0.0005$, median QoL score 13.2 versus 7.3, $p = 0.0003$).

ICIQ-VS score was higher in rectoceles causing barium trapping (mean score 10.3 versus 6.2, $p = 0.04$). ICIQ-VS and ODS were higher in rectoceles seen on both transperineal and transvaginal scanning compared to rectoceles seen with one view (mean ICIQ-VS 6 versus 0, $p = 0.04$; mean ODS 13.6 versus 11.6, $p = 0.04$).

Enterocele: There was no association between enterocele and symptom severity scores.

Intussusception: There was a positive correlation between ICIQ – VS (symptom and QoL) and intussusception grade on posterior transvaginal ultrasound but not defaecation proctography. (Ultrasound and symptoms $r = 0.15$, $p = 0.01$, ultrasound and QoL $r = 0.14$, $p = 0.02$).

Cystocele: BSAQ scores were higher in those with a cystocele compared to those without (median symptom score 10 versus 4, $p < 0.0001$, median QoL score 29 versus 4, $p < 0.0001$).

Dyssynergy: The ICIQ-BS symptom and the St Marks symptom scores were higher in those patients who displayed dyssynergy on defaecation proctography compared to those who did not (mean ICIQ-BS symptom score 18.3 versus 11.6, $p = 0.02$, median St Marks symptom score 18.5 versus 9, $p = 0.04$). The ICIQ-VS symptom scores were lower in those patients with dyssynergy on ultrasound and defaecation proctography (ultrasound mean score 3.5 versus 7, $p = 0.02$, proctography median score 0 (mean 1.9) versus 0 (mean 6.6), $p = 0.04$).

Poor propulsion: There was no association between poor propulsion and symptom scores.

Incomplete evacuation: Incomplete evacuation on defaecation proctography was associated with higher Thompsons and ODS scores (mean Thompsons symptom scores 2.2 versus 1.9, $p = 0.009$, mean Thompsons QoL scores 17.8 versus 16, $p = 0.03$, mean ODS 14.5 versus 12.7, $p = 0.02$).

Multiple pathologies: There was a positive correlation between ICIQ – VS scores and the number of pathologies detected during integrated total pelvic floor ultrasound but not defaecation proctography. (Ultrasound and symptom score $r = 0.21$, $p = 0.0006$, ultrasound and QoL $r = 0.19$, $p = 0.0045$).

Interpretation of results

Vaginal symptoms were associated with rectocele. Vaginal symptoms were less in those who displayed dyssynergy during imaging. This may be because these patients' symptoms are attributable to functional (i.e. dyssynergy) rather than anatomical (i.e. rectocele) abnormalities.

ODS was associated with a rectocele more readily detected on ultrasound (seen on both ultrasound views). Vaginal symptoms increased in those rectoceles which caused trapping of barium paste. (We have also previously shown that larger rectoceles are more likely to be seen on both ultrasound views and cause trapping of barium paste).

Vaginal symptoms were associated with intussusception on ultrasound but not proctography. This series has also shown that sensitivity for intussusception detection on ultrasound increases as severity increases and that rectocele is associated with intussusception on ultrasound but not proctography. This may represent that only severe cases of intussusception causing symptoms are seen on ultrasound.

In women with defaecatory dysfunction, bladder symptoms may indicate a concurrent cystocele.

Concluding message

We have identified which symptom scores correlate with certain findings on imaging in women with defaecatory dysfunction. The fact that symptoms and imaging findings match means that we can use symptoms score to personalise each patients' pathway and tailor investigations according to features identified during initial symptom assessment. This has not previously been possible. Further work is needed to define the cut off values for symptom scores which signify that specialist investigations should be performed.

References

- 1) Hainsworth AJ, Solanki D, Schizas AMP, Williams AB. Total pelvic floor ultrasound for pelvic floor defaecatory dysfunction: A pictorial review. British Journal of Radiology 2015;88(1055).

Disclosures

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