

## **CAN THE METHOD OF DIGITATION PREDICT PATHOLOGY IN ANORECTAL DYSFUNCTION PATIENTS? THE CASE OF THE SCOOPER, SPLINTER, STRETCHER AND REDUCER - PRELIMINARY DATA.**

### Hypothesis / aims of study

Many patients with anorectal dysfunction perform anal and vaginal digitation to help them effectively open their bowels. Previous research by another group [1] found digitation to be associated with the presence of a rectocele, but they could not distinguish in pathology between vaginal digitations (PV), perineal support and anal digitation (PR).

We aimed to subdivide patients who digitate into four categories depending on their method of digitation. These are Scoopers, Splinters, Stretchers and Reducers. A "Scooper" is someone who digitates PR to finish or end a bowel movement, and thus scoop the stool out. A "Splinter" is someone who digitates PV to aid defecation. A "Stretchers" is someone who digitates PR to open up their anus to allow defecation. A "Reducer" is someone who digitates PR to push something out of the way to allow defecation.

We hypothesised that Scoopers would be more likely to have internal anal sphincter defects and reduced anal canal resting pressure; that Splinters would be more likely to have rectoceles; that Stretchers would be more likely to be anismic; and that Reducers would be more likely to have intussusception. If the case, this would allow pathology to be predicted when taking a history.

### Study design, materials and methods

Patients were included both retrospectively and prospectively. Retrospective patients were asked about their digitation method, as per routine practice, when attending for Biofeedback therapy, post-investigations. Prospective patients were asked about their digitation method, again as per routine practice, on attendance for investigations.

Data was obtained from anorectal manometry, endoanal ultrasound, integrated total pelvic floor ultrasound [2], and defecation proctography assessment. Criteria assessed on anorectal manometry were anal canal resting pressure, incremental squeeze pressure, and threshold, urge and maximum tolerated volumes on balloon inflation. Criteria assessed on endoanal ultrasound were the presence of external and internal anal sphincter defects, and if present, the location of the defect (anterior, posterior or lateral). Rectoceles, intussusception, enterocoeles, poor propulsive effort on push and anismus were assessed on both integrated total pelvic floor ultrasound and defecation proctography. Analysis of each investigation was performed blind to the knowledge of their digitation method.

Each group of digitators, and a group of collated digitators, were compared against a group of non-digitators to assess differences in pathology. Each group of digitators were also compared against a combined group of all other digitators (e.g. scoopers vs. digitators that are not scoopers). Statistical analysis was performed on GraphPad.

### Results

In this preliminary data series, 100 patients (mean age 52, range 19-86; male 7: female 93) who presented for investigations within a tertiary pelvic floor unit with anorectal dysfunction between 2013-2016 were included. 24 were classed as Scoopers; 25 were classed as Splinters; 18 were classed as Stretchers; 13 were classed as Reducers; and 38 did not digitate (there was some overlap where some patients performed more than one type of digitation). 99 patients underwent anorectal manometry and endoanal ultrasound, 90 underwent integrated total pelvic floor ultrasound and 85 underwent defecation proctography.

Scoopers had a statistically significant reduced resting pressure compared to other digitators ( $p = 0.0235$ ). However, they did not have a significantly higher proportion of internal anal sphincter defects when compared to non-digitators ( $p = 0.4896$ ) or to the other digitators ( $p = 0.4093$ ).

Splinters were found to have both statistically significant fewer internal anal sphincter defects compared to other digitators ( $p = 0.0358$ ) and statically fewer enterocoeles on pelvic floor ultrasound compared to other digitators ( $p = 0.0208$ ). However, in contrast to the hypothesis, they did not have a significantly higher number of rectoceles when compared to either the non-digitators or other digitators on both integrated total pelvic floor ultrasound ( $p = 0.7740$ ;  $p = 1.0000$ ) or defecation proctography ( $p = 1.0000$ ;  $p = 0.1567$ ).

Stretchers were found to have statistically significant smaller rectoceles on defecation proctography compared to other digitators ( $p = 0.0121$ ). However, they were not more likely to be anismic when compared to either the non-digitators or other digitators on both integrated total pelvic floor ultrasound ( $p = 0.4557$ ;  $p = 0.4532$ ) or defecation proctography ( $p = 0.1722$ ;  $p = 0.3506$ ).

Reducers had a greater proportion of patients with higher grades of intussusception on defecation proctography when compared to both non-digitators and other digitators, although non significant on statistical analysis ( $p = 0.1060$ ;  $p = 0.1089$ ).

There was also a greater proportion of digitators as a whole with internal anal sphincter defects compared to non-digitators, although only near-significance reached ( $p = 0.0720$ ).

### Interpretation of results

From this preliminary data, it appears that Scoopers, Splinters, Stretchers and Reducers are unable to be distinguished from non-digitating patients by pathology seen on their investigations and our hypothesis is incorrect. However, this may be because the group of "non-digitators" are patients with anorectal disorders themselves, rather than a true normal group and so overlap of pathology is likely.

However, when comparing the digitators with each other, differences emerge. Scoopers have a reduced anal canal resting pressure, suggesting that these patients have a poor defaecatory technique and digitation has caused a reduction in sphincter tone in an absence of sphincter defect. Splinters have fewer internal sphincter defects and enterocoeles suggesting that by digitating PV rather than PR they prevent causing trauma to the anal canal whilst aiding defecation where they do not strain and thus do not form enterocoeles. Stretchers have smaller rectocoeles, suggesting by manually opening the anus they reduce the force on straining and rectocoele production.

Although not significant, a trend was seen where Reducers had greater severity of intussusception and digitators as a whole had more internal anal sphincter defects compared to non-digitators. Due to the small sample size, this may be a Type 2 Error, and with larger numbers significant differences may emerge.

Furthermore, data may be limited as some patients were classed as more than one digitation type and males and females were assessed together. In further work with larger cohort numbers, these will be separated out and looked at independently.

### Concluding message

Scoopers, Splinters, Stretchers and Reducers may be able to be distinguished by different pathology on investigations, but not to the extent that this can be predicted on just taking a history. Further research is required.

### References

1. Hai-Ying C, Guzmán Rojas R, Hall JC, Atan IK, Dietz HP. Digitation associated with defecation: what does it mean in urogynaecological patients? International Urogynecology Journal 2016; 27(2): 229-32.
2. 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

**Funding:** None to disclose **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** The research was an audit of data collected with no change to routine practice or intervention. Thus informed consent was also not required. **Helsinki:** Yes **Informed Consent:** No