

## CAN INTRA-OPERATIVE ANORECTAL MANOMETRY PREDICT CHANGE IN BOWEL DYSFUNCTION FOLLOWING POSTERIOR COLPORRHAPHY?

### Hypothesis / aims of study

This study was carried out to investigate whether changes in anorectal pressure and length, measured intra-operatively with anorectal manometry, can be used to predict change in bowel dysfunction after posterior colporrhaphy in patients with symptomatic posterior vaginal prolapse. While other studies have incorporated anorectal manometry in evaluation of posterior repairs (1,2) this is the first study to focus exclusively on the potential benefits of anorectal manometry in predicting the symptomatic outcome of posterior colporrhaphy.

### Study design, materials and methods

42 parous women (age range 33-81 years, mean age 58.9 years) pre-operatively completed a Birmingham Bowel and Urinary Symptoms Questionnaire (BBUSQ-22) for subjective analysis. Each question was scored and linearly transformed into a standardised range of 0-100 to enable statistical analysis to be performed and a cut off value for normality obtained. Normal values are >64% for constipation and >17% for evacuation / faecal incontinence (3.) Intraoperative anorectal manometry was performed using a Gaeltec solid state pressure transducer connected to a Dantac Duet Urodynamic machine with the puller set at 1mm/second which enabled immediate measurement of anorectal length and pressures, both pre- and post- procedure, whilst the women were anaesthetised. A follow up BBUSQ-22 was carried out 6 months post-operatively using a postal questionnaire. The data was analysed to determine whether a correlation exists between a known improvement in anorectal pressure and length, or when both parameters are considered together, when compared to patients' reports of their bowel function. Both nonparametric (Mann-Whitney - MW) and parametric (T-test - TT) were used to determine statistical significance.

### Results

All the women completed and returned the pre and post operative BBUSQ-22 questionnaires. There were no technical difficulties in obtaining the anorectal manometry readings of pressure and length of the anal sphincter. Posterior colporrhaphy was associated with an increase post-operatively in both anorectal pressure and length in 64% and 71% of women respectively. As shown in Table 1, these trends were statistically significant, as were improvements in BBUSQ-22 evacuation scores. There was also a statistical improvement in parametric scores for constipation, which narrowly failed to meet nonparametric statistical significance. There was no statistical improvement for BBUSQ-22 incontinence scores. When the BBUSQ-22 cut off values of normality are applied there does appear to be a trend to individual improvements in constipation, evacuation and incontinence compared with changes in anorectal manometry. This reveals an almost equal number of women reporting constipation being improved or unchanged with increases in anorectal pressure and length, with a similar trend applying to evacuation. Decreases in pressure and length did not appear to make either constipation or evacuation worse. For incontinence, increases in anorectal pressure and length did little to improve symptoms post-operatively, with the majority of women experiencing no change in this symptom. There does not appear to be a correlation when both pressure and length are compared with bowel symptoms.

Table 1	Constipation		Evacuation		Incontinence		Pressure		Length	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Min	17	34	4	0	0	0	5	5	7	14
Max	108	90	75	79	84	100	41	65	62	90
Mean	61.9	53.5	34	19.2	23.26	17.67	18.31	24	23.81	35
SE Mean	3.2	2	3	2.3	3.2	3.3	1.4	1.8	1.8	2.3
Med	54	54	29	17	17	8	17	22.5	23	31
St Dev	20.5	12.9	19.7	14.7	20.7	21.1	1.38	1.79	1.77	2.3
p value (MW)	0.065		0.0001		0.135		0.012		0.0001	
p value (TT)	0.026		0.0002		0.22		0.014		0.0003	

Table 2	Pressure			Length		
	Increased	Same	Decreased	Increased	Same	Decreased
<b>Constipation</b>						
Abnormal to normal	12	0	2	11	1	2
Abnormal to abnormal	12	5	5	16	4	2
Normal to normal	1	0	2	2	0	1
Normal to abnormal	2	1	0	1	2	0
<b>Evacuation</b>						
Abnormal to normal	14	1	4	14	3	2
Abnormal to abnormal	4	4	1	6	3	0
Normal to normal	9	1	3	10	0	3
Normal to abnormal	0	0	1	0	1	0
<b>Incontinence</b>						
Abnormal to normal	5	2	0	7	0	0
Abnormal to abnormal	11	2	5	11	4	3
Normal to normal	8	1	4	8	3	2
Normal to abnormal	3	1	0	4	0	0

### Interpretation of results

This study has demonstrated that an increase in anorectal pressure and/or length produced by posterior colporrhaphy is associated with an improvement in the symptoms of constipation and evacuation in a significant number of women presenting with symptomatic posterior vaginal prolapse. There does not appear to be a similar relationship between increase in anorectal pressure/length and improvement in incontinence, suggesting that the two are not directly associated. Our data also suggests that an increase in only one parameter of anorectal pressure or length is required for an improvement in either evacuation or constipation or both.

### Concluding message

This study introduces the potential role of intraoperative anorectal manometry in predicting improvements in bowel function after posterior colporrhaphy and has illustrated a relationship exists between change in anorectal pressure and length and improvement in bowel function. Further studies are required to explore whether there exists a threshold for anorectal pressure and length which needs to be reached in order for symptomatic improvement to occur. This may enable more accurate prediction of those patients who will symptomatically benefit from posterior colporrhaphy.

### References

1. Dis Colon Rectum (2004) 47(10), 1636-42.
2. Int J Colorectal Dis (2003) 18(4), 342-8.
3. Int Urogynecol (2007) 18, 1133-1137.

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<b><i>Is this a clinical trial?</i></b>	<b>Yes</b>
<b><i>Is this study registered in a public clinical trials registry?</i></b>	<b>No</b>
<b><i>What were the subjects in the study?</i></b>	<b>HUMAN</b>
<b><i>Was this study approved by an ethics committee?</i></b>	<b>Yes</b>
<b><i>Specify Name of Ethics Committee</i></b>	<b>Torbay Local Research Ethics Committee</b>
<b><i>Was the Declaration of Helsinki followed?</i></b>	<b>Yes</b>
<b><i>Was informed consent obtained from the patients?</i></b>	<b>Yes</b>