

Comparison of High-Resolution Anorectal Manometry and Magnetic Resonance Defecography in Patients with Obstructive Defecation: Are Both Tests Necessary?

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INTRODUCTION

- Investigation of evacuation disorders is often pursued in patients with symptoms of obstructive defecation.
- High-resolution anorectal manometry (HR-ARM) with balloon expulsion testing (BET) is a simple, safe, and widely available test to diagnose pelvic floor dysfunction.¹
- A more costly and less accessible test is magnetic resonance defecography (MRD).
- This study aims to qualify the added value of MRD in diagnosing pelvic floor disorders.

METHODS

- HR-ARM, BET, and MRD performed in patients with symptoms of constipation between 1/1/20 and 5/15/22 at Mayo Clinic were identified using Epic SlicerDicer.
- Univariate and multivariate analyses were used to compare findings on MRD and BET in patients with and without evidence of dyssynergia on HR-ARM

RESULTS

- Patients with dyssynergia on HR-ARM were significantly more likely to have prolonged balloon expulsion at both >60 and >30 seconds (p<0.00001) (Table 2).
- An increased number of vaginal deliveries was correlated with a higher likelihood of having a rectocele ≥ 2 cm (r=0.24, p<0.05).
- Patients were not more likely to have a clinically significant rectocele measuring ≥ 2 cm (p=0.5093) or evidence of rectal prolapse (p=0.071) (Table 3).

RESULTS

Table 1. Patient Demographics and Anorectal Variables

	Dyssynergia on HR-ARM (n=49)	No dyssynergia on HR-ARM (n=27)	p-value
Age (range)	54 (19-81)	55 (22-82)	p=0.77
Female sex	39 (79.6%)	24 (88.9%)	p=0.41
BMI	25.8 (15.4-49.9)	26.0 (17.9-36.1)	p=0.88
Functional Constipation by Rome IV Criteria	45 (91.8%)	25 (92.6%)	p=0.92
Vaginal deliveries	26 (66.7%)	21 (87.5%)	p=0.07
Cesarean section	7 (17.9%)	3 (12.5%)	p=0.57
Anorectal variables			
Mean anal resting pressure (mmHg)	87.3 (14.2-143.7)	75.0 (34.0-133.6)	p=0.10
Max sphincter pressure (mmHg)	184.8 (42.5-410.8)	149.0 (50.9-381.5)	p=0.06
Evacuation			
Residual anal pressure (mmHg)	82.7 (21.9-161.2)	60.0 (24.7-116.2)	p=0.0018
Percent anal relaxation (%)	13.3 (-81.0-58.0)	21.0 (-44.0-54.0)	p=.17
Intra-rectal pressure (mmHg)	63.0 (-39.3-171.6)	72.0 (25.3-169.5)	p=0.33
Rectoanal pressure differential (mmHg)	-23.7 (-131.4-66.8)	-3.0 (-100.5-94.7)	p=0.04
Rectal sensory threshold for urge to defecate (cc)	74.8 (20-210)	64.0 (40-240)	p=0.39

Table 2. Correlation between findings on BET and HR-ARM

	Dyssynergia on HR-ARM	No dyssynergia on HR-ARM	p-value
	n= 49 (64.5%)	n = 27 (35.5%)	
BET >60 sec	30 (61.2%)	0 (0.0%)	p<0.00001
BET >30 sec	32 (65.3%)	2 (7.4%)	p<0.00001

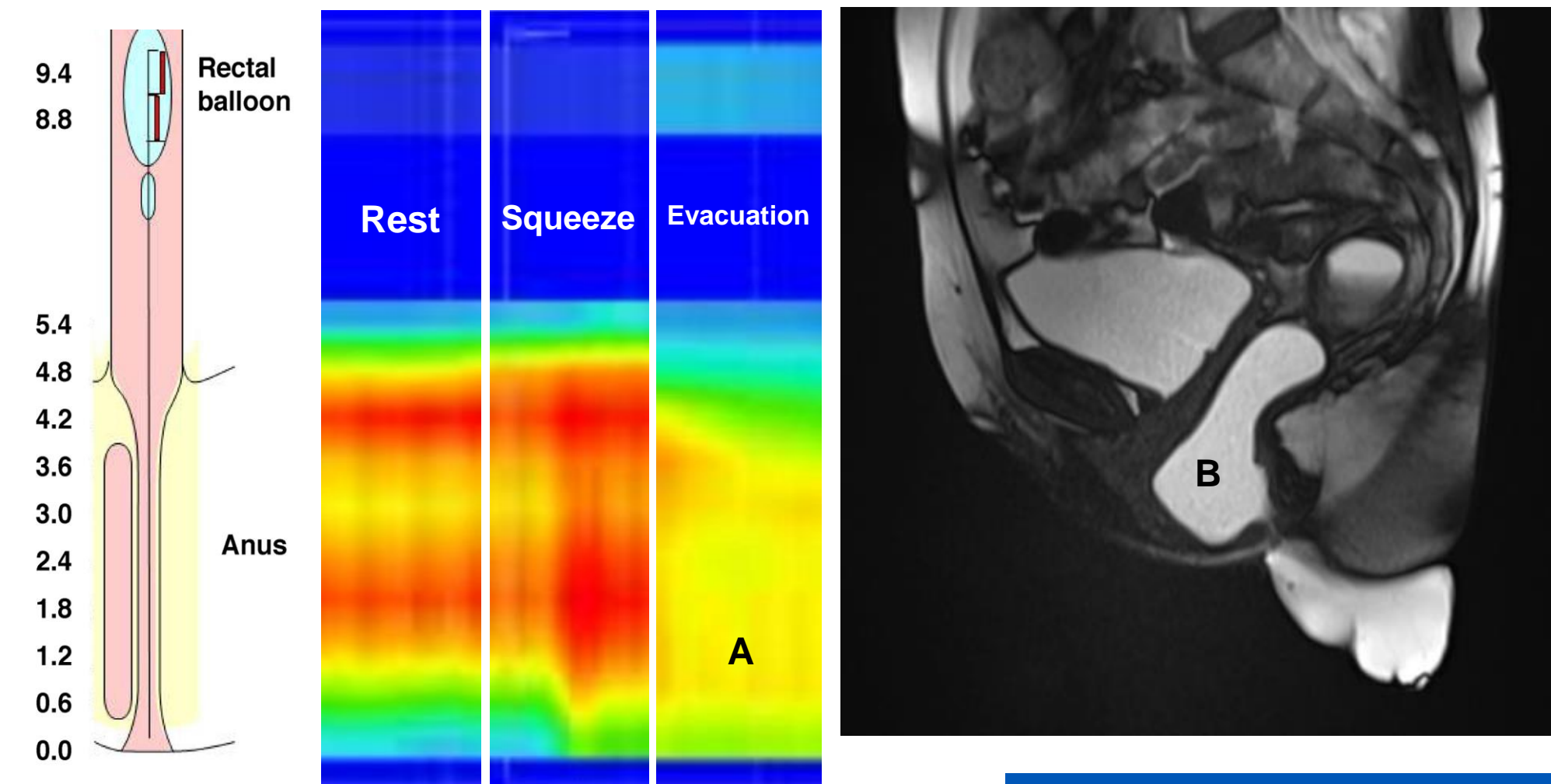


Figure 1. HR-ARM with high resting pressure and incomplete relaxation during evacuation (A). MR defecography shows a 3.7cm rectocele (B).

Table 3. Correlation between findings on MRD and HR-ARM

	Dyssynergia on HR-ARM	No dyssynergia on HR-ARM	p-value
	n= 49 (64.5%)	n = 27 (35.5%)	
<50% gel expulsion on MR	26 (53.1%)	2 (7.4%)	p=0.00008
Rectocele on MR	26 (53.1%)	22 (81.5%)	p=0.0139
≥ 2 cm	21 (42.9%)	16 (59.3%)	p=0.5093
≥ 3 cm	10 (20.4%)	9 (33.3%)	p=0.2113
≥ 4 cm	3 (6.1%)	3 (11.1%)	p=0.4413
Rectal Prolapse	5 (10%)	7 (31.8%)	p=0.071

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DISCUSSION

- Anatomic findings on MRD were similar between patients with and without evidence of dyssynergia identified by HR-ARM.
- Large prospective studies to evaluate the added value of MRD are needed.

CONCLUSIONS

- In this retrospective review, undergoing MRD in addition to HR-ARM does not appear to provide additional diagnostic information to guide therapeutic recommendations.
- Utilizing HR-ARM with BET to diagnose dyssynergic defecation may help avoid additional testing and associated healthcare costs.