170

Wilkens J[1], Connor R[1], Granitsiotis P[1], Sunderland G[1], Wright D[1], Guerrero K[1]
1. *NHSGGC*

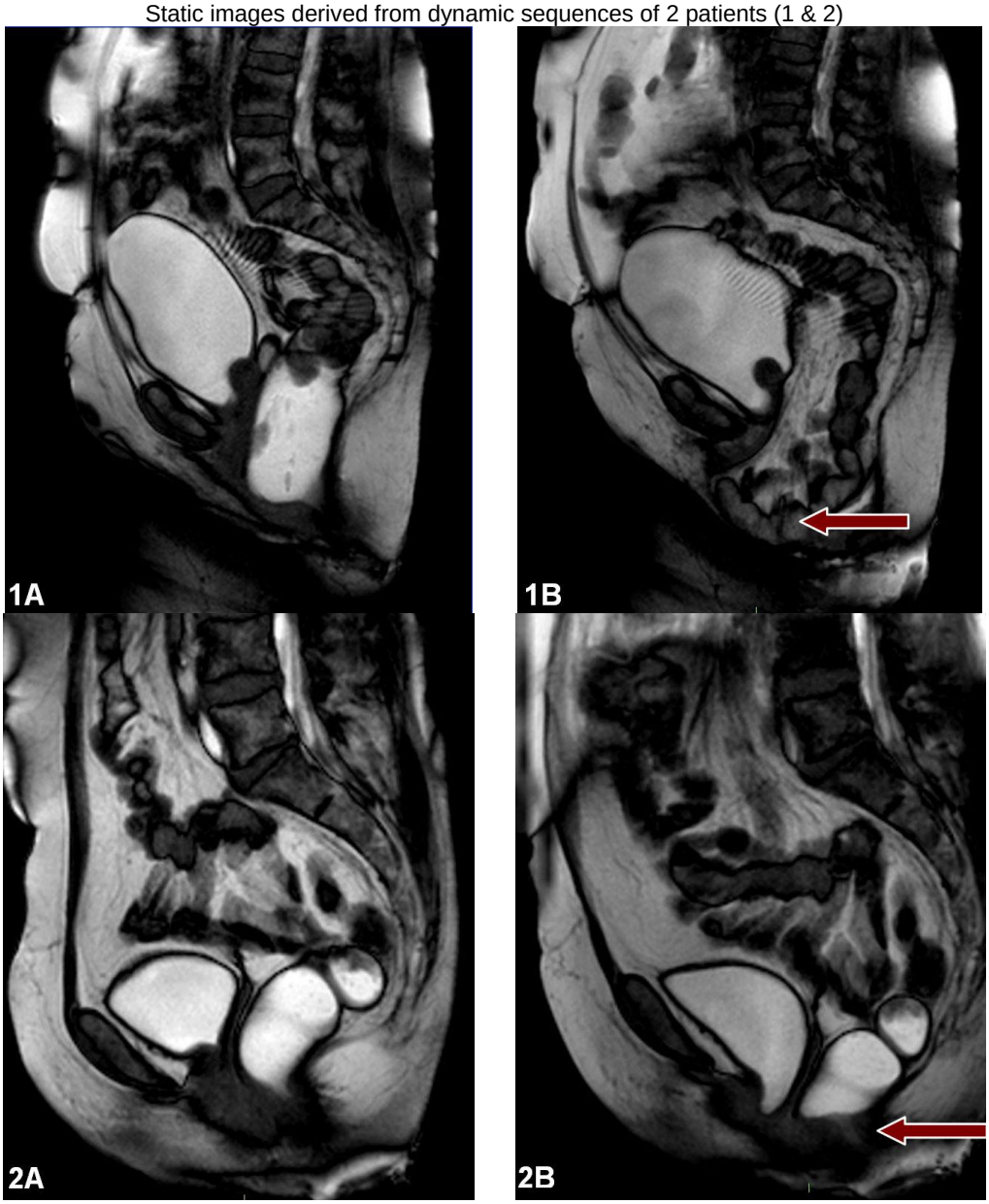
DYNAMIC MAGNETIC RESONANCE IMAGING FOR PELVIC FLOOR DYSFUNCTION – RESEARCH TOOL OR CLINICALLY VALUABLE INVESTIGATION?

Hypothesis / aims of study

The management of multi-compartment Pelvic Floor Dysfunction (PFD) poses a significant clinical challenge, particularly in cases of recurrence after previous surgical intervention. Diagnostic evaluation is generally limited to assessment of surface anatomy, and consequent inaccuracies may contribute to suboptimal clinical management and outcome. Dynamic magnetic resonance imaging (DMRI) offers a non-invasive investigation with excellent contrast resolution of the soft tissues and has previously been advocated for pelvic floor assessment(1, 2). Currently, however, it is not an established diagnostic tool in clinical practice. This review aims to evaluate if the use of DMRI is valuable in the management of PFD.

Figures 1 & 2

Static images derived from dynamic sequences of 2 patients (1 & 2)



Column A Image at rest with full bladder and ultrasound gel as contrast medium in rectum
Column B Image during defaecatory effort

Patient 1: Patient with previous hysterectomy and anterior mesh presenting with a persistent vaginal bulge;
DMRI findings: Significant small bowel enterocoele (arrow) descending beyond perineum after evacuating the rectum

Patient 2: Patient with previous hysterectomy presenting with difficult defecation; clinical findings of a rectocele with possible vault descent and a short perineal body;
DMRI findings: Failure to evacuate the rectum due to overactive pelvic floor musles and maintained anorectal angle (arrow)

Study design, materials and methods

This is a retrospective review of 24 patients assessed by our Pelvic Floor Multidisciplinary Team (MDT) between May 2010 and January 2011. All patients underwent DMRI with a phased array pelvic coil in supine position with a comfortably full bladder and 120ml of warmed ultrasound gel as contrast medium in the rectum. Balanced fast field echo sequences were acquired at 2/sec, which allowed the composition of a video sequence. Patients were instructed to squeeze, mount a pelvic floor contraction, and then perform a Valsalva manoeuvre. Finally, they were asked to make a defaecatory effort and evacuate the contrast medium. Movement of the pelvic organs and their position in relation to the pubo-coccygeal line were noted. This review reports on the indications for DMRI, the findings and their subsequent impact on clinical management.

Results

Mean patient age was 57 years (range 35-74). The majority of referrals to DMRI were made through the urogynaecology pathway (79%). However, the most common symptoms initiating the investigation related to anorectal dysfunction, such as difficulties with defecation and a feeling of incomplete evacuation (63%). Most patients had multi-compartment PFD (96%). 50% had represented after previous surgery, 42% with recurrences in the same compartment.
DMRI was suggestive of pelvic floor muscle dysfunction rather than an anatomical defect in 25% of cases, and a conservative approach was advocated. In 54% of cases, it appeared only a multi-compartment repair would have a reasonable chance of sustained symptom improvement. Management in 7 patients (29%) involved combined urogynaecological and colorectal procedures.

Interpretation of results

This review illustrates that DMRI enhances understanding of PFD and enables clinicians and patients to make informed decisions about treatment options, particularly in cases of recurrent PFD. Within this small cohort of patients with mostly multi-compartment PFD, there were two groups for whom DMRI appeared particularly valuable.
1. More than half of the cases were demonstrated to have anatomical defects relating to multiple pelvic floor compartments. It appeared that any planned surgical intervention would need to address these multiple defects in order to minimize the risks of further recurrences (Fig 1). Findings on DMRI indicated the involvement of more than one specialty in the management of 29% of cases, with several patients subsequently undergoing combined sacrocolpopexy and rectopexy. Without the DMRI report, these patients may otherwise have been subjected to multiple surgical interventions.
2. In 25% of cases, the findings on DMRI suggested that surgical repair may not have a favourable effect on the presenting symptoms indicating a role for physiotherapy +/- biofeedback instead (Fig 2). DMRI allowed us to distinguish between the effects of anatomical abnormalities and pelvic floor muscle dysfunction, particularly in patients with defaecatory disorders. This enhances our ability to select the correct treatment modality for the patient.

Concluding message

DMRI is valuable in planning the most appropriate surgical intervention and avoiding unnecessary surgery for dysfunctional problems.
This review also highlights the value of an MDT for the management of multi-compartment PFD.

References

1. 1. Kaufman HS, Buller JL, Thompson JR, et al. Dynamic pelvic magnetic resonance imaging and cystocolpoproctography alter surgical management of pelvic floor disorders. Dis Colon Rectum 2001;44(11):1575-83; discussion 1583-4.
2. 2. Kester RR, Leboeuf L, Amendola MA, Kim SS, Benoit A, Gousse AE. Value of express T2-weighted pelvic MRI in the preoperative evaluation of severe pelvic floor prolapse: a prospective study. Urology 2003;61(6):1135-9

Specify source of funding or grant	**None**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require ethics committee approval because	**This is a retrospective review and audit of current practice**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**