MR defecography in obstructed Defecation syndrome

Thesis

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By

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List of Abbreviations

Abbr.	Full-term
AC	Anal canal
ARA	Ano-rectal angle
ARJ	Anorectal junction
ASC	Anal sphincter complex
ATFP	Arcustendineus fascia pelvis
ATLA	Arcus tendineus levator ani
B	Bladder
BN	Bladder neck
BSSFP	Balanced steady-state free precession
CM	Coccygeus muscle
CNS	Central nervous system
DICOM	Digital Imaging and Communications in Medicine
DM	Diabetes mellitus
EAS	External anal sphincter
EO	External urethral orifice
FOV	Field of View
FSE	Fast-spin echo
GRE	Gradientrecalledecho
HASTE	Half Fourier Acquisition Single shot Turbo spin Echo
IC	Iliococcygeus muscle
IOM	Internal obturator muscle
IPR	Inferior pubic ramus
IAS	Intrnal anal sphinctor
IS	Ischial tuberosity
ISD	Intrinsic sphincter deficiency
ISP	Ischial spine
LA	Levatorani muscle
MM	Muscularis sub mucosaeani
MRI	Magnetic resonance imaging
NPV	Negative predictive value

OF	Obturator foramen
OM	Obturator muscle
PA	Pubo-analis
PB	Perineal body
PB	Pubic bone
PC	Pubo coccygeus muscle
PCF	Pubocervical fascia
PCL	Pubococcgeal line
PFD	Pelvic Floor Dysfunction
PFMC	Pelvic floor muscle contraction
POP	Pelvic organ prolapse
PPV	Positive predictive value
PR	Puborectalis muscle
PULs	Pubo urethral ligaments
R	Rectum
RS	Rhabdo sphincter
SD	Standard deviation
SE	Standard error of the mean
SNR	Signal-to-noise ratio
SP	Symphysis pubis
SSFSE	Single-shot fast spin echosequences
SUI	Stress urinary incontinence
T	Tesla
T2WI	T2-weighted images
TSE	Turbo spin-echo
U	Urethra
UB	Urinary bladder
UT	Uterus

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ABSTRACT

Objective:

Obstructed defecation syndrome (ODS) is a type of constipation characterized by fragmented stools, need for straining at defecation, sense of incomplete evacuation, tenesmus, urgency and pelvic heaviness. This study is aimed to assess and compare and matching the role of Dynamic magnetic resonance imaging (MRI defecography) with the cilincal diagnosis in such patients.

Methods:

This retrospective, case-control study was conducted on twenty patients suffering from obstructed defecation syndrome that have been diagnosed clinically. The patients age is ranging between 16 and 69 years old.

Results:

Statistically MRI study showed significant anatomical defects ($p<0.05$) as the followings:

Most of patients had Rectocele (65%), spastic pelvic floor Syndrome, because of pelvic floor descents in (55%) of patients. Intussusception (45%), Cystocele (30%), enterocele (25%), Anismus (15%) and uterine prolapse (15%)

Conclusion:

- MRI has good value to detect abnormalities pertinent to posterior compartment in pelvis.
- Results of MR imaging showed positive agreement with clinical diagnosis of ODS in65% of patients.
- MRI showed (65-90)% sensitivity, specificity, positive and negative predictive values as well as accuracy.

MRI assessment of the posterior pelvic compartment can be indicated to detect the anatomical defects and lead to more successfull patient management and subsequently decreases the rate of postoperative recurrence.

Key Words: Obstructive defecation; Defecography; Dynamic magnetic resonance imaging.

Introduction

Obstructed defaecation syndrome is a common condition in which a persons are unable to evacuate their bowels properly.

This syndrome is characterised by difficulty passing motions, multiple (often unsuccessful) visits to the toilet, a sensation of a blockage and incomplete emptying. Patients with obstructed defecation syndrome often use their finger to help them to empty, pushing on the perineum (the skin in front of the anal canal), on the back wall of the vagina or in the anal canal itself. Patients often have some symptoms of fecal incontinence.

Generally ODS is caused by the structural abnormalities associated with a weak pelvic floor or prolapse disease (intussusception or internal rectal prolapse,rectocele). Less commonly (about 5-10%), a tight pelvic floor is the cause. Also there are clinical causes like irritable bowel syndrome and psychological disturbances ***(Marzuok Deya, 2012).***

The pelvic floor is divided into three compartments: the anterior compartment (lower urinary tract), the middle compartment (vagina/uterus), and the posterior compartment (ano-rectum). The pubococcygeal line is drawn from the inferior border of the pubic symphysis to the last coccygeal

articulation. The anorectal angle is formed between the posterior walls of the rectum and anal canal at the anorectal junction. At rest, the anorectal angle is acute due to the indentation of the puborectalis sling on the posterior rectal wall. During normal defecation, there is mild pelvic floor descent with relaxation of the puborectalis. Consequently, the anorectal angle becomes wider, so that the rectum and anal canal become aligned in almost a straight line followed by evacuation.Various pathologies can be diagnosed and graded using MRI.The descent of the anorectal junction, vaginal vault, bladder (cystocele), and small bowel (enterocele) can be measured as the perpendicular distance below the pubococcygeal line. Usually, multiple pathologies are found to co-exist and can sometimes create a confusing overall picture ***(Ravicumar B Thapar, 2015).***

Constipation is a very common presentation by the patients of a practicing surgeon. Any constipation that defies the existing understanding merits consideration for its evaluation for obstructed defecation. Constipation can be of primary or secondary variety. After clinically excluding the usual causes of constipation and ruling out colonic motility disorders, specialised investigations like dynamic defecography help in further management of obstructed defecation syndrome ***(Brij B. Agrawal 2015).***