Clinical Policy Bulletin: Defecography
Revised April 2014

Number: 0718

Policy

I. Aetna considers defecography (evacuation proctography) medically necessary in members with constipation when results of anorectal manometry and rectal balloon expulsion are inconclusive, and in whom any of the following conditions is suspected as the cause of impaired defecation:

- Anterior rectocele (e.g., history of manipulation of the rectal wall per vagina); or
- Enterocele (e.g., after hysterectomy); or
- Inappropriate contraction of the puborectalis muscle.

II. Aetna considers defecography experimental and investigational for routine evaluation of constipation and for all other indications because its effectiveness for these indications has not been established.

III. Aetna considers dynamic magnetic resonance imaging (MRI) of defecation (also known as MR defecography) experimental and investigational for the evaluation of rectal prolapse, rectal intussusception, other pelvic floor disorders, and all other indications because its effectiveness for these indications has not been established.

See also CPB 0132 - Biofeedback.

Background

Defecography (evacuation proctography) is a radiological contrast study of the process of defecation using fluoroscopic techniques. Contrast material (e.g., barium) similar to the consistency of stool is placed into the rectum followed by fluoroscopy of the anorectal activity during squeezing, relaxation and while
Defecography has been proposed as a diagnostic test of constipation to evaluate lower bowel disorders that are not evident by direct visualization.

The American Gastroenterological Association (AGA) guidelines on constipation (2000) recommended a systematic approach to patients with constipation. After the initial history and physical examination, patients may be classified into one of several subgroups: (i) irritable bowel syndrome, (ii) slow-transit constipation, (iii) rectal outlet obstruction, (iv) a combination of slow-transit constipation and rectal outlet obstruction, (v) organic constipation, or (vi) constipation secondary to systemic disease. Organic and neurologic conditions should be addressed or ruled-out before recommending a trial of fiber (and/or dietary changes) and osmotic laxatives. Individuals who fail to respond to this initial approach are appropriate candidates for more specialized testing. However, the AGA guidelines stated that the “sensitivities of these investigations have not been established” and interpretation of any single test must be guarded. According to these guidelines, a radiopaque marker study can be used to identify slow transit constipation. The guidelines stated that anorectal manometry and balloon expulsion study can provide supportive data for clinical or physiologic suggestions of pelvic floor dysfunction; if confirmed, defecography will solidify the diagnosis and evaluate anatomic defects. The guidelines noted that defecatory function can be measured either scintigraphically or radiographically. The scintigraphic method evaluates anorectal angulation and pelvic floor descent during evacuation with minimal radiation exposure; however, the anatomic defects may not be seen as well as with barium defecography. Barium defecography can be performed in conjunction with a standard barium enema (for structural evaluation of the whole colon), and thus an anatomic/functional evaluation of defecation can be performed at the same time. According to these guidelines, of the observations possible with these techniques, the most relevant include the failure of the anorectal angle to open during defecation, and the degree of pelvic floor descent during defecation. Decreased descent is a component of impaired pelvic floor relaxation (“anismus”), and, conversely, excessive descent can also be a pathophysiologic mechanism of constipation.

According to the AGA medical position statement on anorectal testing techniques (1999), large randomized controlled studies that validate anorectal tests against other techniques are lacking. The AGA concluded that (i) defecography is not of established value in patients with fecal incontinence, and (ii) it has potential value in patients with constipation in whom the following problems are suspected as the cause of impaired defecation: inappropriate contraction of the puborectalis muscle, enterocele (e.g., after hysterectomy), and anterior rectocele (e.g., history of manipulation of the rectal wall per vagina). A number of criticisms of defecography testing were noted by the AGA, including: (i) poor agreement between independent observers in the measurement of the anorectal angle (an important parameter to the interpretation of the results), (ii) some of the findings reported on examination occur in a large proportion of asymptomatic individuals, (iii) normal values of rectal emptying vary widely, (iv) rectal evacuation does not correlate with symptoms (e.g., infrequent defecation versus impaired defecation), colonic transit, or anal manometry results, and (v) some investigators reported that defecography adds little data to the results of anorectal manometry and does not differentiate patients with impaired defecation from those with fecal incontinence or normal
controls. The AGA stated that although defecography may disclose significant differences between constipated patients and controls, the degree of overlap renders these studies of limited importance in management decisions. However, if the results of defecography corroborate the results of other studies of anorectal function, they may serve to reinforce the validity of such testing. The AGA also stated there is no support for the routine use of the test.

Guidelines on constipation from the American Society of Colon and Rectal Surgeons (Ternent et al, 2007) stated that defecography is probably the most useful diagnostic technique for identifying internal rectal intussusception. The guidelines stated that, in the setting of obstructed defecation, defecography may help to detect structural causes, such as intussusception, rectocele with retained stool, pelvic dyssynergia, and extent of rectal emptying.

In a systematic review of the evidence on the clinical utility of diagnostic tests for constipation in adults, Rao and colleagues (2005) found 10 studies in the published peer-reviewed literature on the use of defecography in patients with constipation that met their inclusion criteria. These studies were all clinical case series and none employed a gold or reference standard. The prevalence of abnormal findings which supported a diagnosis of constipation varied between 25 and 90% and the prevalence of dyssynergia varied between 13 and 37%. The authors reported a number of inherent deficiencies in the studies, including: (i) inconsistency with the definition of dyssynergia; however, most studies used a combination of findings including a decreased anorectal angle and/or impaired evacuation of barium contrast; (ii) normal values of rectal emptying varied considerably; (iii) percentage of rectal evacuation during defecography did not correlate with symptoms; (iv) a significant overlap of findings between patients and healthy controls; (v) poor correlation of symptoms with defecographic findings; and (vi) poor ability to discriminate between the subtypes of constipation. Furthermore, the utility of identifying abnormalities such as a rectocele or mucosal intussusception was unclear and their prevalence was variable. Some investigators considered small rectoceles (less than 2 cm) as inconsequential while other reported rectoceles of all sizes. Rao and colleagues reported that constipation was not adequately defined in most studies and no single symptom or test defined the condition. Furthermore, a recent study found that defecography did not have any additional diagnostic benefit over and above what was obtained from anorectal manometry, colonic transit study, and balloon expulsion tests (Rao et al, 2004). Rao and colleagues (2005) concluded that defecography should be regarded as an adjunct to clinical and manometric assessment of anorectal function and not relied upon as the sole test for defecatory dysfunction.

Commenting on the systematic evidence review by Rao et al, the Centre for Reviews and Dissemination (2006) stated that Rao et al’s use of a narrative summary was appropriate given the considerable differences between the included studies, and their conclusion that further research is required follows from the data presented.

At this time, no single test appears to provide a pathophysiological basis for constipation. Well-designed, prospective studies are required to further examine the clinical utility of tests for constipation. However, there is some evidence that defecography can provide useful information regarding the anatomical and functional changes of the anorectum. The AGA has determined that patients who
have constipation suspected to be the result of inappropriate contraction of the puborectalis muscle, enterocele or anterior rectocele may benefit from defecography (Barnett, 1999; Rao et al, 2005).

Dynamic magnetic resonance imaging of defecation (also known as MR defecography), performed either with an open-configuration or closed-configuration unit, has been used to study the underlying anatomic and pathophysiologic background of pelvic floor disorders including rectal intussusception and rectal prolapse. Stoker et al (2002) noted that disorders of the posterior pelvic floor are relatively common. The role of imaging in this field is increasing, especially in constipation, prolapse and anal incontinence. Dynamic MRI of defecation may be a valuable alternative as the pelvic floor muscles are visualized, and is currently under evaluation. Dvorkin et al (2004) examined if open-magnet MR defecography could provide more useful clinical information than evacuation proctography (EP) alone in the evaluation of a cohort of patients with full-thickness rectal intussusception and could aid in decisions concerning management. A total of 10 patients (4 males and 6 female; median age of 43 years, range of 30 to 65) with symptomatic circumferential rectal intussusception diagnosed on EP, underwent open-magnet MR defecography. Pathologies visible with each method were recorded and 12 parameters of anorectal configuration and morphology measured and compared. There was discordance in the diagnosis of rectal intussusception in 3 cases. In another 2 patients, MR defecography demonstrated mucosal descent only. Measurements of anorectal configuration and morphology were similar between techniques; only rectal size and lateral dimensions of the rectocele were significantly different, being smaller on MR defecography than EP. Two patients were shown on MR defecography to have significant bladder descent and 2 female patients had significant vaginal descent. The authors concluded that EP remains the first line investigation for the diagnosis of rectal intussusception, but may not distinguish mucosal from full-thickness descent. The sensitivity of MR defecography compared to EP was 70 % for the diagnosis of rectal intussusception.

In a review on dynamic MRI on outlet obstruction syndrome, Bolog and Weishaupt (2005) stated that conventional defecography has played an important role in the radiological assessment of these patients but the technique is limited by its projectional nature and its inability to detect soft-tissue structures. Dynamic pelvic MRI using either closed-configuration or open-configuration MR systems is a rapidly evolving technique that has been gaining increased interest over the last years. Chu et al (2007) assessed the feasibility of dynamic breath-hold MRI for evaluating changes in the anorectal angle and movements of the pelvic-floor musculature (puborectalis) during resting and straining states in pediatric patients presenting with anisms. A total of 6 pediatric patients (7 to 13 years old) with chronic constipation and manometric evidence of anismus were assessed by dynamic breath-hold MRI. Changes in the anorectal angle, the degree of pelvic-floor descent, and the thickness and length of the puborectalis muscles were measured during rest and straining. The findings were compared with those obtained in 6 age- and sex-matched controls. The children with anismus had a smaller anorectal angle during straining, and the angle decreased from rest to defecation. The puborectalis also became paradoxically shortened and thickened during straining in the anismus group. There were significant differences between the two groups in terms of the change of degree of the anorectal angle, and the
thickness and length of the puborectalis muscle during straining. The authors concluded that fast dynamic MRI is feasible for evaluating pelvic-floor movement in pediatric patients. These preliminary results suggested that children with anismus have a smaller anorectal angle and a different puborectalis configuration compared to controls.

Groenendijk et al (2009) attempted to establish the effects of additional diagnostic tests compared to a consensus outcome on treatment selection in primary pelvic organ prolapse. Three expert gynecologists individually defined a management plan in 53 patients after MRI, defecography, urodynamic, and anorectal function test information was provided. These management plans were compared with basic treatment advices in the absence of any test and with consensus advices (opinion-based references). The experts assigned a subjective score (assigned diagnostic value [ADV], 0 to 100 %) to rate the test's relative importance. On average, additional diagnostic testing resulted in a revised initial management plan in 38 % of the cases; 24 % of the individual management plans did not meet the consensus reference. Overall, defecography was regarded most valuable (ADV range of 19 to 65 %) versus MRI rated least (ADV range of 0 to 37 %). The authors concluded that although additional diagnostic tests frequently led to adaptations of basic treatment proposals, consensus was not reached in a quarter of the cases. Furthermore, in a review on established and new diagnostic approaches for constipation, Bussen and Bussen (2009) discussed often used methods such as taking a specific and structured history, performing a clinical examination, use of diagnostic tools such as colon transit time, anal manometry, defecography, endorectal ultrasonography as well as electrophysiological investigations such as anal sphincter electromyography and pudendal nerve terminal motor latency measurement. Dynamic MRI of defecation was not mentioned as an option.

Fiaschetti et al (2011) examined the capabilities of an open-configuration, low-field, tilting, MR system for investigating pelvic floor disorders and compared the results obtained with the patient in the semi-orthostatic and supine positions. A total of 18 female patients with a diagnosis of pelvic floor disorder (physical examination and conventional defecography) underwent dynamic MR defecography with a 0.25-T tilting MR system (G-scan, Esaote). Images were obtained after administration of contrast agent into the rectum, bladder and vagina in both the orthostatic and supine positions. Three-dimensional T2-weighted hybrid contrast-enhanced (HYCE) sequences and dynamic T1-weighted gradient echo (GE) sequences were acquired at rest, during maximal contraction of the anal sphincter, straining and defecation. Good image quality was obtained in 15/18 patients; 3 presented severe artefacts due to motion, and 3 had incontinence, which hampered the functional studies. Better anatomical detail was obtained with MR defecography compared with conventional defecography. Three prolapses were observed in the semi-orthostatic position only, and 7 were found to be more severe in the orthostatic than in the supine position. The authors concluded that dynamic MR defecography with an open-configuration, low-field, tilting MR system is a feasible and promising tool for studying the pelvic floor. They stated that larger series are needed to evaluate its real diagnostic value.

Cappabianca and colleagues (2011) compared the diagnostic efficacy of dynamic MR defecography (MR-D) with entero-colpo-cysto-defecography (ECCD) in the
assessment of midline pelvic floor hernias (MPH) in female pelvic floor disorders. From August 2004 to August 2010, a total of 3,006 female patients who required ECCD for the evaluation of pelvic floor disorders were enrolled in this study. All the 1,160 patients with ECCD findings of MPH were asked to undergo MR-D; 1,142 accepted to undergo MR-D and constituted the object of analysis. Overall, the prevalence of MPH at ECCD was higher if compared with that at MR-D. Concerning the hernia content, there were significantly more enteroceles and sigmoidoceles on ECCD than on MR-D, whereas, in relation to the hernia development modalities, the prevalence of elytroceles, edroceles, and Douglas' hernias at ECCD was significantly higher than that at MR-D. In spite of a 100 % specificity, the sensibility of MR-D in the detection of an omentocele, sigmoidocele, and enterocele was, respectively, 95 %, 82 %, and 65 %, showing an inferior diagnostic capacity if compared with that of ECCD. The authors concluded that MR-D shows lower sensitivity than ECCD in the detection of MPH development. The less-invasive MR-D may have a role in a better evaluation of the entire pelvic anatomy and pelvic organ interaction especially in patients with multi-compartmental defects, planned for surgery.

Foti et al (2013) prospectively compared the diagnostic capabilities of magnetic resonance (MR) imaging with conventional defecography (CD) in outlet obstruction syndrome. A total of 19 consecutive patients with clinical symptoms of outlet obstruction underwent pelvic MR examination. The MR imaging protocol included static T2-weighted fast spin-echo (FSE) images in the sagittal, axial and coronal planes; dynamic midsagittal T2-weighted single-shot (SS)-FSE and fast imaging employing steady-state acquisition (FIESTA) cine images during contraction, rest, straining and defecation. MR images (including and then excluding the evacuation phase) were compared with CD, which is considered the reference standard. Comparison between CD and MR with evacuation phase (MRWEP) showed no significant differences in sphincter hypotonia, dyssynergia, rectocele or rectal prolapse and significant differences in descending perineum. Comparison between CD and MR without evacuation phase (MRWOEP) showed no significant differences in sphincter hypotonia, dyssynergia or enterocele but significant differences in rectocele, rectal prolapse and descending perineum. Comparison between MRWEP and MRWOEP showed no significant differences in sphincter hypotonia, dyssynergia, enterocele or descending perineum but significant differences in rectocele, rectal prolapse, peritoneocele, cervical cystoptosis and hysteroptosis. The authors concluded that MR imaging provides morphological and functional study of pelvic floor structures and may offer an imaging tool complementary to CD in multi-compartment evaluation of the pelvis. An evacuation phase is mandatory. The findings of this small study need to be validated by well-designed studies.

Videlock et al (2013) stated that dyssynergic defecation (DD) results from inadequate relaxation of the pelvic floor on attempted defecation. The prevalence of DD in patients with chronic constipation (CC) is uncertain. In a meta-analysis, these investigators estimated the prevalence of abnormal findings associated with DD across testing modalities in patients referred for physiological testing for CC. Systematic search of MEDLINE, EMBASE and PUBMED databases were conducted. They included full manuscripts reporting DD prevalence in CC, and specific findings at pelvic floor diagnostic tests. Random effects models were used to calculate pooled DD prevalence (with 95 % confidence interval [CI])
according to individual tests and specific findings. A total of 79 studies on 7,581 CC patients were included. The median prevalence of any single abnormal finding associated with DD was 37.2 %, ranging from 14.9 % (95 % CI: 7.9 to 26.3) for absent opening of the anorectal angle (ARA) on defecography to 52.9 % (95 % CI: 44.3 to 61.3) for a dyssynergic pattern on ultrasound. The prevalence of a dyssynergic pattern on manometry was 47.7 % (95 % CI: 39.5 to 56.1). The prevalence of DD was similar across specialty and geographic area as well as when restricting to studies using Rome criteria to define constipation. The authors concluded that dyssynergic defecation is highly prevalent in CC and is commonly detected across testing modalities, type of patient referred, and geographical regions. They believe that the lower prevalence of findings associated with DD by defecography supports use of manometry and balloon expulsion testing as an initial evaluation for CC.

Furthermore, the American Gastroenterological Association medical position statement on “Constipation” (AGE, 2013) stated that:

- Defecography should not be performed before anorectal manometry and a rectal balloon expulsion test.
- Defecography should be considered when results of anorectal manometry and rectal balloon expulsion are inconclusive for defecatory disorders.

CPT Codes / HCPCS Codes / ICD-9 Codes

Other CPT codes related to the CPB:

72195
72196
72197
74270

ICD-9 codes covered if selection criteria are met:

618.04 Retrocele [anterior (e.g., history of manipulation of the rectal wall per vagina)]
618.2 - 618.4 Uterovaginal prolapse [enterocele (e.g., after hysterectomy)]
618.6 Vaginal ureterocele, congenital or acquired

ICD-9 codes not covered for indications listed in the CPB:

618.00 - Prolapse of vaginal walls or uterus [other than anterior rectocele or enterocele]
618.05 -
618.5
618.7 - 618.9

Other ICD-9 codes related to the CPB:
560.0 Intussusception
569.1 Rectal Prolapse
564.00 - Constipation [not covered for routine evaluation]
564.09
564.89 Other functional disorders of intestine
569.49 Other specified disorders of rectum and anus
751.5 Other anomalies of intestine

The above policy is based on the following references:


