Peer reviewed
Clinical update: Obstructed defecation

Abstract
Constipation can be acute or chronic. Chronic constipation can be due to the slow transit of faeces through the colon defined as slow transit constipation, constipation-predominant irritable bowel syndrome or pelvic floor dysfunction leading to obstructed defecation.

The following paper presents an overview of the causes and an update of conservative and surgical treatments for obstructed defecation as described in the literature. The purpose of the paper is to provide up-to-date information for clinicians who may have little knowledge of obstructed defecation, its cause, diagnosis and management.

Introduction
Normal defecation depends on normal colonic motility, anorectal sensation, expulsion force and coordinated function of the pelvic floor. Chronic constipation can be due to the slow transit of faeces through the colon defined as slow transit constipation, constipation-predominant irritable bowel syndrome or pelvic floor dysfunction leading to obstructed defecation.

While there is a dearth of Australian data, in the United States the incidence of constipation in adults is estimated at 15% and the incidence of self-reported constipation is as high as 27% The incidence of obstructed defecation is half that of the constipation population and it occurs more commonly in females who are in their fourth or fifth decade of life.

This paper provides a general overview of obstructed defecation and will briefly explore updates to the diagnosis and conservative and surgical treatments.

Aetiology
The aetiology of obstructed defecation is unclear. There are many studies published and different mechanisms described. Rectal hyposensitivity is a common finding in patients with obstructed defecation and it is possible that this rectal hyposensitivity may be related to pudendal nerve injury occurring during childbirth. This reduced sensitivity may lead to a build-up of faeces in the rectum that results in repeated overstretching of the rectal wall leading to muscle atrophy and ineffective contraction in the long term. Others who have published on the issue hold that a defect of the rectovaginal septum, congenital or acquired in childbirth, may trigger the process of obstructed defecation. Compensatory mechanisms then lead to the formation of rectocele, descending perineum or rectal prolapse. When obstructed defecation becomes worse extrinsic compression on the rectum by sigmoid colon (sigmoidocele), small bowel (enterocele) or uterus (colpocele) may occur when the patient strains to assist in evacuation. A vicious cycle then ensues in which the patient unwittingly contributes to a worsening of symptoms.

Obstructed defecation may also be due to a failure of relaxation, or even paradoxical contraction of the pelvic floor muscles as noted in anismus. The anismus could be related to a failure of the rectal receptors in detecting the presence of stools in the rectum (rectal hyposensitivity). As a result of the anismus the pelvic floor muscles fail to respond by relaxation to allow the passage of the stools. Consequently, the patient strains very hard to try to overcome the contrac tion pressure of the pelvic floor muscles. In a large study of 1350 patients, Gladman et al show that rectal hyposensitivity was present in 53% of patients with obstructed defecation who had no mechanical obstruction demonstrated on proctogram.

Clinical presentation
Obstructed defecation is characterised by clinical symptoms of excessive straining, a sensation of incomplete evacuation, manual assistance such as vaginal digitation or perineal pressure, or the frequent use of suppositories or enemas. The patient may also present with some degree of faecal incontinence. It is well known that obstructed defecation impairs health related quality of life.

Clinical examination is important in the assessment of anal sphincter function and the detection of any abnormalities associated with obstructed defecation. A descending perineum is present when the perineum extends beyond the level of ischial...
tuberosities during straining. Rectal examination is important in assessing the anal resting tone and squeeze pressure of the external anal sphincter. Digital rectal examination can also detect a rectocele by assessing the laxities of the anterior rectal wall and the posterior vaginal wall with the palpating digit. An internal intussusception may be palpable by the examining digit when a patient with obstructed defecation is asked to strain. The accuracy of diagnosis from clinical evaluation has been addressed in a study by Siproudhis et al. The negative predictive value for rectocele, anismus and internal intussusception was said to be 96%, 96% and 80% respectively. A rigid sigmoidoscopy is helpful in diagnosing the presence of internal intussusception, or the presence of a solitary rectal ulcer. Solitary rectal ulcer syndrome is a rare condition with variable clinical presentation and variable pathogenesis. The presentation could be bowel disturbances (74%), rectal bleeding (56%), asymptomatic (26%) or rectal prolapse (28% with 15% full thickness and 13% mucosal). It is believed that the ‘ulcer’ may be caused by a chronic trauma due to the prolapse and excessive straining or digitation, or due to a primary neuromuscular pathology.

Investigations

Although there is no single test that is proven to be definitive for the assessment of obstructed defecation, the defecating proctogram is very useful in elucidating the complex nature of obstructed defecation. It is true that most tests induce some degree of embarrassment; the environment during testing is unnatural and may not be a good representation of the normal defecation process. There are also criticisms of inter-observer variation in performance and interpretation of these tests. However, there is no better investigative modality available at present. Therefore, it is essential that all the investigation results should be assessed and interpreted within the context of the patient’s condition.

The following is a list of investigations commonly performed in the assessment of obstructed defecation.

- **Colonoscopy, barium enema, or virtual colonoscopy** – It is important to exclude mechanical obstruction as a cause for symptoms of obstructive defecation. Therefore, colonoscopy, barium enema, or virtual colonoscopy (depending on the expertise available) are important before proceeding to the assessment of pelvic floor muscle function.

- **Colonic transit study** – There are many different studies described to assess colonic transit. The study can be performed using either a radioactive isotope or pellets (metallic, plastic or any substance that will show up on X-ray). The patient swallows either the radioactive isotope or pellets and their passage can be traced along the colon and rectum over a few days. This investigation allows the clinician to differentiate between slow transit constipation and obstructed defecation. It also allows the diagnosis of transit problems within a particular segment of the colon.

- **Defecating proctography** – The original technique was described by Kerremans and popularised by Mahieu et al.
This involves instilling a barium paste into the rectum after mixing the barium solution with a potato starch compound. The patient is seated on a water-filled radiolucent commode in readiness for filming of the defecation process. X-ray and cinevideo are taken at various phases of defecation. Static pictures are usually taken at the resting, straining, evacuation and post-evacuation phases. The cinevideo provides a dynamic view of the process. Defecating proctography allows the detection of structural and functional abnormalities. The static proctogram enables the radiologist to measure the anorectal angle, perineal descent and the puborectalis length. The structural abnormalities that may be present include rectocele, internal intussusception, sigmoidocele, enterocoele, colpocele and excessive perineal descent. The functional abnormality that may be detected is anismus. Halligan et al showed that an inability to evacuate two-thirds of a 120 ml contrast enema within 30 seconds has a positive predictive value of 90% for anismus.

- Dynamic MRI proctogram – MRI omits radiation exposure and is non-invasive. It is performed in the supine position, which is an unnatural position for defecation. In some studies it has been shown to have no significant advantage over the conventional defecation proctogram. Furthermore, the cost of MRI is ten times higher than defecating proctography.

- Balloon expulsion test – A balloon expulsion test was first proposed by Barnes and Leonard-Jones in the diagnosis of anismus. This test assumes that patients with normal anorectal function should be able to expel a balloon containing 60 ml of air or water easily. The test is positive for anismus if the patient fails to expel the balloon.

- Anal manometry – This is not a very useful test for obstructed defecation. However, if the rectoanal inhibitory reflex is absent, it is an indication that the patient may have Hirschprung’s disease or Chagas’ disease leading to functional obstruction.

- Translateral ultrasound – This is a technique described by gynaecologists specialised in pelvic floor ultrasound for the assessment of pelvic floor function. With translateral ultrasound views of both structural and functional abnormalities can be obtained. Colorectal surgeons have also started to use a similar method. Some authors use maximal Valsalva manoeuvres to mimic defecation which minimises discomfort and embarrassment to the patient while still allowing detection of rectocele, rectal intussusception, and prolapse as well as colpocele.

Management

Most mild symptoms associated with obstructed defecation can be improved by increasing fibre in the diet. Fibre supplements such as psyllium husk, sterculia or ispaghula husk can be used if there is inadequate fibre in the diet. Some patients are also advised to use suppositories or enemas if fibre is unhelpful. If such conservative treatment is unsuccessful, specific treatment should be carried out depending on the underlying pathophysiology.

Biofeedback physiotherapy

The purpose of biofeedback physiotherapy aims to retrain the patient to relax the pelvic floor muscles during defecation. This is taught via a behavioural modification of defecation habit, sensory training with a rectal balloon, and a rectal probe to determine the degree of relaxation. Manometry probes and surface EMG electrodes can equally be used as feedback modalities. The success rates were high initially, quoting 82% – 93% when used in patients with anismus without any structural abnormality. The success rate declines when biofeedback is applied to patients with structural abnormality such as rectocele or internal intussusception. It is also interesting to note that the success rate is very much dependent on the dedication of the physiotherapist and determination and compliance of the patient. Biofeedback physiotherapy is an outpatient treatment and the number of treatment sessions required varies according to the needs of the individual patient. While commonly used to treat patients with anismus, no well-controlled studies have determined the efficacy of biofeedback as a management tool for this condition.

Other treatments

A more recent interesting finding is the use of sacral nerve stimulation to treat faecal incontinence. Patients with pelvic floor dysfunction who are subjected to sacral nerve stimulation have been reported to experience an increased bowel frequency and improved evacuation. It was also found that the rectal sensation to distension and to electrical stimulation improved on anorectal physiology testing. The mechanism of action is unknown.

Surgical intervention

Many surgical procedures described in the literature are now outdated as some resulted in serious complications, such as the division of puborectalis muscle leading to a high rate of faecal incontinence. However, there are some options for surgical intervention that have been developed and have shown efficacy.

Surgery for rectocele

The indications for rectocele repair are controversial. However, most surgeons and gynaecologists will perform a repair if the symptomatic rectocele is large, if it fails to empty adequately on defecating proctogram, or if it is associated with frequent vaginal or perineal manipulation. There are many approaches for rectocele repair that include transvaginal colpopereineorrhaphy, transvaginal defect-specific repair, transperineal repair, transanal Delorme’s procedure and laparoscopic repair. The long-term results for clinical outcomes have only been reported for transanal, transvaginal and transperineal repair.

The transvaginal approach involves a posterior colpopereineorrhaphy. This approach is 80% successful at preventing vaginal bulging on straining and over two-thirds of patients appear to be cured of vaginal or perineal manipulation. However, the overall clinical results are suboptimal. There is a 25% incidence of postoperative dyspareunia, a frequent need for reoperation and failure (up to 33% of patients) to alleviate...
associated obstructed defecation symptoms. Overall, published series are difficult to compare as the technique of posterior colporrhaphy is poorly standardised, especially with regard to the performance and extent of a levatorplasty.

The transvaginal defect-specific repair is said to be highly successful in preventing recurrent rectocele and reducing the need for digitation. It has been shown to improve constipation in over 80% of patients. However, significant dyspareunia occurred in at least 25% of patients. Again, reported series are difficult to compare as the technique of defect-specific repair is poorly standardised and often not well described in the literature. To make matters worse, there is disagreement over the existence and relevance of defects of the rectovaginal septum, which is the target of defect-specific repairs.

The transanal approach has an overall success rate of 34% to 84% in improving defecation difficulty and 75% in curing vaginal or rectal digitation. It was found to be more successful in large rectocele and in patients who need vaginal digitation to assist defecation. However, this approach cannot treat excess distensibility of the levator hiatus or an external anal sphincter defect in those presenting with faecal incontinence.

There are few data available for the transperineal approach. It has limited use except when patients have combined symptomatic rectocele and faecal incontinence. In this situation, it allows the repair of rectocele together with an overlapping sphincteroplasty or levatorplasty. Studies have shown improvement in defecation and faecal incontinence in about 75% of patients treated, with improvement in digitation in most patients. Advantages of the transvaginal or transperineal approach include access to the pouch of Douglas and the potential for colpopexy in patients presenting with vault prolapse following hysterectomy.

The laparoscopic rectocele repair is a relatively new technique and its long-term outcome is unknown. It requires rectal mobilisation and it can be supplemented by the insertion of a mesh.

The STARR procedure

A more recent procedure described for patients with obstructed defecation is the stapled transanal rectal resection (STARR) procedure. This operation was first described by Dr Antonio Longo in 1999. His operation aims at removing any internally prolapsed rectum, correction of rectocele, restoration of normal anatomy and re-establishing normal rectal capacity and compliance.

There are only a few publications on STARR at this stage as it is a relatively new procedure. The short term efficacy of STARR was reported in five studies with follow-up ranged from 2.3 to 20 months. In all the studies, the patients reported an improvement in symptoms associated with obstructed defecation. Long term results are as yet unavailable.

In a study by Boccasanta et al., 90 patients who had a STARR procedure had minimal postoperative pain, short hospital stay and resumed normal activity in 10.2 days (±4.5 days). All their constipation symptoms improved and the postoperative defecating proctogram demonstrated no evidence of rectocele or intussusception. With regard to complications, 17.8% had faecal urgency, 8.9% had incontinence to flatus, 5.5% developed urinary retention, 4.4% had bleeding, 3.3% had anastomotic stenosis and 1.1% had pneumonia. The incontinence to flatus was transient, disappearing within six months after STARR, except in one patient who had mild faecal incontinence preoperatively. The same large circular anal dilator for STARR is also used in stapled haemorrhoidectomy and it has been demonstrated to cause asymptomatic internal anal sphincter fragmentation that lasted at least 14 weeks.

Conclusion

Obstructed defecation affects a significant proportion of the population. The pathogenesis and surgical management of obstructed defecation remains controversial and the lack of controlled data assessing the clinical, proctographic and functional outcome of different types of operation for rectocele and obstructed defecation makes it difficult to determine the best management practice. While most patients with obstructed defecation can be treated with a non-surgical approach, the long term results of newer surgical techniques such as the STARR procedure while promising, await further investigation.

References

UnoComfor™
The revolutionary
leak-proof male urinal

- Saves Water
- Reduced Odour
- Spill Proof and Leak Proof
- Hygienic single-use concept reduces cross contamination

- Specifically designed to save time on handling and disposal
- Easy to store, in storage rooms and on wards

FOR A FREE SAMPLE
Contact Unomedical Customer Service on 1800 803 987


15. Barnes PR, Lennard-Jones JE. Patients with constipation of different types have difficulty in expelling a balloon from the rectum. GUT 1984; 25:A562-3.


